CLASSIFICATION, AND LABELLING GUIDE

in accordance with EC Regulation 1272/2008 (CLP Regulation)

Document 169/26

Revision of Doc. 169/25

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in accordance with EC Regulation 1272/2008 (CLP Regulation)

Prepared by WG-9 Classification, Labelling and Safety Data Sheets
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1	Reference to consolidated text of CLP regulation
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4.1 to 4.7	Revision of nitrous oxide and vinyl fluoride names according to Annex VI to CLP.
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4.4	Revision of the table according to reg. (EU) 2024/573 (new GWP data and inclusion in Annex I, II, II of the regulation for some substances). Revision of M factors for certain substances.
4.6	Revision of classification and labelling for nitrous oxide and vinyl fluoride. Revision of classification and labelling for chloromethane (R40). Revision of labelling for solid CO2. Revision of pictograms for methyl acetylene and mono-methylamine. Revision of P statements for trichlorosilane. Assignment of phrase EIGA0779B to some substances.
6.3.1	Correction of an inconsistency in Table A and Table B.
7	Update of the Key literature references and sources of data
--	Various clarifications provided throughout the text

NOTE Amendments are highlighted in yellow.

1 Introduction

NOTE A Glossary of Acronyms and Abbreviations used in this document can be found in Section 5.

EIGA has published its first 'Guide on Classification, Labelling and SDS' in 1992. Over the years, the document has been revised frequently in order to cover appropriately the provisions of a legislation that has increased in complexity during the same period. The last edition of the 'Guide on Classification, Labelling and SDS' EIGA Doc. 918/10 rev.2 totalled 143 pages.

A new step of complexity was added with the introduction of the concept of 'extended safety data sheet (extSDS)' by the REACH Regulation (EC) 1907/2006.

These 'extSDS' become effective after the 1st phase of registration under REACH that ended 1st December 2010.

It was decided that in order to publish documents of manageable sizes, it was preferable to split the document in two:

- one document to cover the requirements for Classification and Labelling under the CLP Regulation (EC) 1272/2008 (this document) and

- a second document to cover the requirements for the preparations of SDS as set out in the REACH Regulation. (EIGA Doc. 919)

The changes to the 2025 edition are highlighted throughout the document and summarised on the previous page.

1.1 Scope and purpose

1.1.1 Scope

The document gives guidance for the classification and labelling for products that meet all of the following criteria:

a) the products are defined as 'gases' according to the CLP Regulation with the addition of four liquids (Hydrogen fluoride, Methylbutene, Trichlorosilane and Silicon Tetrachloride).

b) they are all allowed to be put on the market in the EU i.e. they have an EC/List number and they have been registered or are exempted from registration in accordance with the REACH Regulation.

c) they are marketed by most EIGA members. The products are listed in table 4.1. The gases that are not maintained anymore in this edition of the document are identified in *italic* characters in table 4.1 and do not appear in the other data lists of section 4.

The following requirements are not covered in this guide because they do not affect our business, our products or our type of packaging or are adequately covered in other documents:

- The information on certain mixtures to be submitted to the Poison Centres according to the new Annex VIII of the CLP, with the exception of the indication of the UFI on the label – see section 3.2.8.

- Child-resistant fastening (CRF): it affects only products sold to the general public and gas cylinder valves are considered by EIGA to be intrinsically child resistant (under the age of 52 months);

- Tactile warning of danger (TWD): it affects only products sold to the general public and is not required for transportable gas receptacles (section 3.2.1.2 of Annex II of CLP)

- Labelling requirements from other European legislation, such as the Directive 2001/83/EC on Medicinal Products for Human Use, which are out of the scope of the CLP.

- Identification of the content by colour coding: The standard EN 1089-3 is comprehensive enough and does not need further guidelines.

NOTE Storage tanks must be labelled in accordance with the national implementations of Directive 2014/27/EU on the minimum requirements for the provision of safety and/or health signs at work. The pictogram(s) shall be:

- Those determined by the CLP, OR
- The warning signs as provided for in Annex II of Directive 2014/27/EU (i.e. the triangles with the yellow background), using the same pictograms or symbols.

For transport equipment (e.g. portable tanks, MEGC) used as temporary storage, see 3.5.

1.1.2 Purpose

The requirements for classification and labelling in the CLP are of a highly technical nature and sometimes open to interpretation.

The purpose of this document is:

- to review the relevant requirements of the CLP regulation;
- to link them with the corresponding provisions of the transport regulations;
- to point out the differences in approach if any;
- to recommend practical ways of implementation, meeting the specific needs of the gas industry;
- **but mainly to ensure harmonised classifications for gases and gas mixtures resulting in harmonised labelling within the Gas Industry.**

This handbook has been designed for use as a reference tool by EIGA members.

This document does not intend to amalgamate or reproduce the content of the different legislation on the subject but to guide the way through the different pieces of legislation. When text is quoted from the legislation it has been inserted in a green box.

The full text of the regulations can be retrieved from the web:

- for the CLP Regulation (consolidated version September 2025): https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008R1272-20250901.
- for the ADR/RID/ADN Framework Directive (consolidated version as of 1st January 2025): https://unece.org/adr-2025-files.

1.2 Legal background of the document

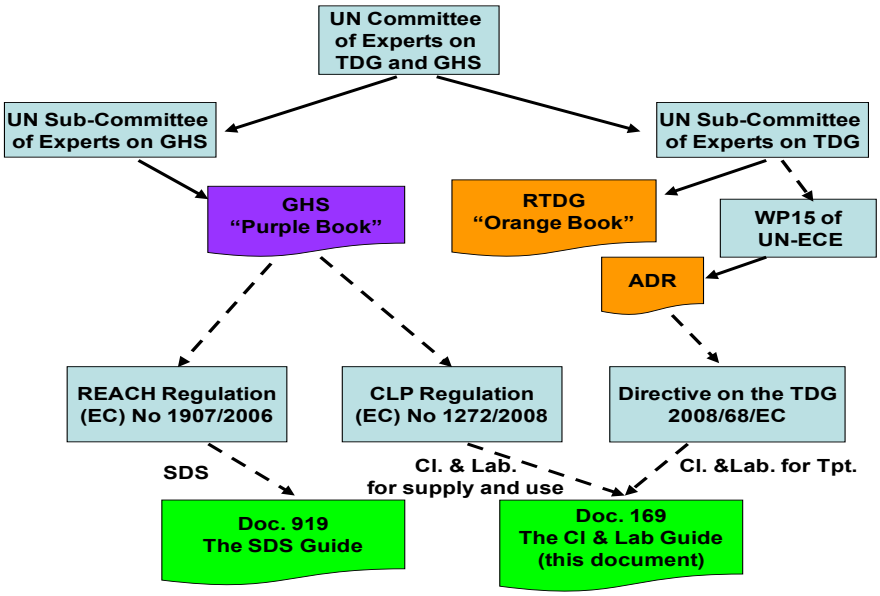
1.2.1 A word of history

The CLP Regulation is the result of a long process that started in 1992 in Rio de Janeiro at the first UN Conference of the Environment and Development. One of the resolutions of the conference was to create by the year 2000 a global harmonised system for the classification and labelling of chemicals, for all sectors and worldwide. This project resulted in the Globally Harmonised System (GHS) adopted in December 2002 by the UN Committee of Experts for the Transport of Dangerous Goods and for the GHS (UNCE-TDG/GHS). The UN-GHS is also called the 'Purple Book' in opposition to the Recommendations for the Transport of Dangerous Goods (RTDG) that is called the 'Orange Book'.

At the second UN Conference on Sustainable Development in Johannesburg in July 2003, all participating countries committed themselves to implement the GHS in their national legislation by the end of 2008.

In order to meet this deadline, the Commission drafted a proposed Regulation that would replace in steps the existing legislation on classification and labelling. The CLP Regulation was published in the Official Journal of the European Union (OJEU) L353 on 31.12.2008.

The links between this document and the UN-GHS are illustrated below.



1.2.2 Present situation

This document takes into account the relevant provisions of the Adaptations for Technical Progress (ATP) of the CLP, up to the 23rd ATP that has been issued with the Commission Delegated Regulation (EU) 2025/1222.

This document includes the provision of Commission Delegated Regulation (EU) 2023/707 which implements new hazards classes in CLP. Those have come into force on 1st May 2025 for substances and will come into force on 1st May 2026 for mixtures.

This document takes into account the relevant provisions for the ADR as applicable from 1 January 2025.

1.3 Responsibilities and traceability

Article 4 of the CLP Regulation states that '*manufacturers, importers and downstream users shall classify substances or mixtures before placing them on the market. Where a substance or mixture is classified as hazardous, suppliers shall ensure that the substances or mixture is labelled and packaged in accordance with Titles III and IV of the CLP Regulation before placing it on the market.*'

Article 49 of the CLP Regulation states that the '*suppliers shall assemble and keep available all the information used by that supplier for the purpose of classification and labelling under this Regulation for a period of at least 10 years after the substance or the mixture was last supplied by that supplier.*'

Although not strictly required, records should also be kept for the assessments made to conclude that a substance/mixture is not dangerous. This may provide easy answers to questions from competent authorities.

1.4 Process of classification and labelling

The Dangerous Goods List of the Transport Regulations (ADR, RIDADN) and Annex VI Part 3 of the CLP Regulation contain a number of gases with their classifications. These classifications are listed in section 4.3. Where such a classification exists no further research is necessary. For purchased products, the classification listed by the suppliers in their SDS shall be taken into account.

For mixtures and also for substances not already classified, classification and labelling consists of a three-step process:

1) Identification and evaluation of all physico-chemical, toxicological, and eco-toxicological properties of the substance or substances in a mixture.

2) Classification of the substance or mixture in the relevant ***hazard classes*** and ***categories*** with the corresponding ***hazard statements*** according to the criteria contained in each hazard class.

3) Selection of the appropriate ***hazard pictograms***, ***signal words*** and ***precautionary statements*** to be affixed on the label.

2 Classification

2.1 General issues

2.1.1 Overview

Classification is an important issue. It has straightforward and immediate consequences on the labelling of the receptacle and the selection of the SDS to be issued to the user. There are also many other downstream consequences in related legislation such as the directives on construction of pressure equipment, on major accidents (Seveso directive), on waste management etc. It also affects many CEN standards.

The GHS classification consists of hazard classes for:

- Physical hazards
- Health hazards
- Environmental hazards

Each hazard class may be divided into one or more categories.

Each Category is identified with a pictogram (except for the lowest category), a signal word and a hazard statement. Each category is also linked to one or more precautionary statements. The hazard statements and precautionary statements relevant to the classification of gases are listed in section 6.1 of this guide.

2.1.2 The 'building block' approach

Keeping in mind the goal of full harmonization, it was nevertheless recognised that some sectors could implement only those Hazard Classes and Categories (or blocks of hazard classes and categories) which are relevant for their specific needs. This is called the 'building block' approach in the UN-GHS

Transport is such a case where the risk is limited to exposure of short duration and in open atmosphere and therefore some hazard classes and hazard categories of the UN-GHS have not been adopted in transport regulations. These 'non-adopted' hazard classes and categories will be identified in the appropriate sections of this chapter.

It was also admitted that Competent Authorities may decide which hazard classes or categories they apply. In view of staying as close as possible to the existing level of safety from the EC Directives, the Commission disregarded a few hazard categories from the UN-GHS. None of these non-implemented UN-GHS categories are relevant for gases.

2.1.3 Classification data

Annex VI Part 3 of the CLP includes a table (Table 3) that lists all substances for which the classification and labelling requirements have been harmonized at Community level. It also contains the specific concentration limits of substances if assigned.

Table 3 contains more than 4000 entries.

An extract of the Table 3 is shown underneath.

ANNEX

In Annex VI to Regulation (EC) No 1272/2008, Table 3 of Part 3 is amended as follows:

(1) the following entries are inserted:

Index No	Chemical name	EC No	CAS No	Classification		Labelling			Specific Conc. Limits, M-factors and ATE	Notes
				Hazard Class and Category Code(s)	Hazard statement Code (s)	Pictogram, Signal Word Code(s)	Hazard statement Code(s)	Suppl. Hazard statement Code(s)		
'007-030-00-3	nitric acid ...% [C ≤ 70 %]	231-714-2	7697-37-2.	Ox. Liq. 3 Acute Tox. 3 Skin Corr. 1A	H272 H331 H314	GHS03 GHS06 GHS05 Dgr	H272 H331 H314	EUH071	Ox. Liq. 3; H272: C ≥ 65 % inhalation: ATE = 2,65 mg/L (vapours) Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 %	B'
'014-048-00-5	silicon carbide fibres (with diameter < 3 µm, length > 5 µm and aspect ratio ≥ 3:1)	206-991-8	409-21-2 308076-74-6	Carc. 1B	H350i	GHS08 Dgr	H350i'			
'014-049-00-0	trimethoxyvinylsilane; trimethoxyvinylsilane	220-449-8	2768-02-7	Skin Sens. 1B	H317	GHS07 Wng	H317'			
'014-050-00-6	tris(2-methoxyethoxy) vinylsilane; 6-(2-methoxyethoxy)-6-vinyl-2,5,7,10-tetraoxa-6-silaundecane	213-934-0	1067-53-4	Repr. 1B	H360FD	GHS08 Dgr	H360FD'			
'016-098-00-3	dimethyl disulphide	210-871-0	624-92-0	Flam. Liq. 2 Acute Tox. 3 Acute Tox. 3 STOT SE 3 STOT SE 1 Eye Irrit. 2 Skin Sens. 1 Aquatic Acute 1 Aquatic Chronic 1	H225 H331 H301 H336 H370 (upper respiratory tract, inhalation) H319 H317 H400 H410	GHS02 GHS06 GHS08 GHS09 Dgr	H225 H331 H301 H336 H370 (upper respiratory tract, inhalation) H319 H317 H410		inhalation: ATE = 5 mg/L (vapours) oral: ATE = 190 mg/kg bw M = 1 M = 10'	

L 261/6 EN Official Journal of the European Union 11.8.2020

Note U: When put on the market gases have to be classified as 'Gases under pressure', in one of the groups Compressed gas, Liquefied Gas, Refrigerated Gas or Dissolved Gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case-by-case.

According to 'Note U', the classification for 'Gases under Pressure' shall be added and made according to the physical state the gas is put on the market (see 2.2.1).

The classifications in Annex VI have to be considered as 'de–minimis' classification. Industry has the responsibility to go beyond this re-classification if justified by scientific evidence and to classify for hazard classes like acute toxicity and STOT (indicated with an asterisk '*').

Not all gases are included in Annex VI of the CLP. When the substance is not included in Annex VI it is up to the company that puts the product on the market to classify it according to the guidelines contained in Annex I of the CLP.

This document takes also into account the classification published on the ECHA website (https:/echa.europa.eu/de/information-on-chemicals/registered-substances) for the registered substances.

Section 4.3 of this guide provides for each gas:

- the classification as in Annex VI of the CLP when the gas is listed, or
- the REACH classification when it is more complete or more stringent than the Annex VI classification, or
- the classification proposed by EIGA for the gases that are not listed in Annex VI, nor registered.

Section 4.5 of this manual provides for each gas the classification and transport symbols in accordance with the requirements of the regulations for land transport (ADR/RID/ADN).

2.1.4 Cut-off values

The CLP determines in Table 1.1 of Annex I generic cut-off values under which the concentrations of the ingredients in a mixture do not need to be considered for the classification of certain hazard classes unless lower limits are defined in the different hazard classes. It is the case for the hazard class 'acute toxicity' where highly toxic gases can be classified under the cut-off value of 1000 ppm (0.1%). **In order to simplify the calculations for classification, EIGA has not implemented the cut-off values in the LISAM SDS authoring tool** (see section 2.5 of this chapter).

2.1.5 Bridging principles

Normally classification is based on testing data. For the classification of mixtures for health hazards and environmental hazards that involves animal testing, it is accepted under certain conditions to use existing test data on 'similar' mixtures. These conditions are called the bridging principles.

There are few, if any, test data on gas mixtures for health and environmental hazards and the 'bridging principles' are ignored in this labelling guide.

This document assumes that:

- the classification of all the components of the mixture is known including the associated M factor(s) for the gases classified as hazardous for the aquatic environment and

- the % of the different components of the mixture is known.

Under these conditions, the classification of mixtures will be made using the relevant calculation methods described in the different sections for the hazard classes. Unless stated otherwise in this document, percentages are meant to be Vol%. However, composition of liquefied gases mixtures in the Proper Shipping Name of transport regulations are expressed in Weight% -see Table 4.5.B.

NOTE The terms Vol% and Volume fraction are interchangeable to the terms Mol% and Molar fraction respectively in application of the ideal gases law.

2.2 Physical hazards

The GHS identifies 17 hazard classes for physical hazards.

Hazard Class	Relevant to Gases in CLP	Considered by transport regulations for Class 2 gases
Explosives		
Flammable gases	**X**	**X**
Aerosols and Chemicals under pressure	**(1)**	**(1)**
Oxidising gases	**X**	**X**
Gases under pressure	**X**	**X**
Flammable liquids		
Flammable solids		
Self-reactive substances and mixtures		
Pyrophoric liquids		
Pyrophoric solids		
Self-heating substances and mixtures		
Substances and mixtures which in contact with water emit flammable gases		
Oxidising liquids		
Oxidising solids		
Organic peroxides		
Corrosive to metals	(2)	(2)
Desensitised explosives		

Note (1) In CLP only the hazard class "Aerosols" is implemented. When 'compressed gas mixtures' containing flammable components are packaged in aerosol cans and transported under UN1950 they shall be classified as 'aerosol flammable Cat.1' or 'non-flammable aerosol Cat.3' according to the rules of 'flammable gases'. ~~that are more stringent than the classification rules of 'aerosols'.~~

Note (2) This hazard class comes from the Class 8-Corrosive substances of the UNRTDG. The ECHA *'Guidance on the application of the CLP criteria'* clarifies in 2.16.4.1 that this hazard class does not apply to gases.

Only 3 hazard classes of CLP are relevant for gases and are outlined further in the following sub-sections.

For the sake of a logical approach, the hazard class 'gases under pressure' is considered first.

2.2.1 Hazard class 'Gases under pressure'

This hazard class is one of the consequences of the harmonization with the regulations for the transport of dangerous goods where 'pressure' is considered as a primary hazard.

2.2.1.1 Definitions

Gas means a substance which (i) at 50 °C has a vapour pressure greater than 300 kPa (absolute); or (ii) is completely gaseous at 20 °C at a standard pressure of 101.3 kPa.

This definition means that pure substances are considered as gases when their boiling point (BP) is not higher than 20°C. Substances with a boiling point higher than 20°C are 'liquids' except those few that develop a vapour pressure higher than 300 kPa at 50°C; these liquids are considered as 'gases' because of the hazard of pressure when packaged – see physical data of gases in 4.2

Hydrogen fluoride (HF) with a BP of 19.4°C is a borderline line case that has always been classified as a liquid.

Gases under pressure are gases or gas mixtures which are contained in a receptacle at a pressure of 200 kPa (gauge) or more at 20°C, or which are liquefied or liquefied and refrigerated.

They comprise compressed gases, liquefied gases, dissolved gases and refrigerated liquefied gases.

This definition means in practice that compressed gases or dissolved gases that are packaged at a pressure less than 200 kPa are not classified for this hazard.

Dissolved gases packaged at a pressure less than 200kPa (gauge) are liquids and should be classified as such if they have other hazardous properties, e.g. flammable liquids.

At the request of customers, liquefied gases are sometimes packaged under a pressure head of a compressed gas (e.g. helium). To ensure that the pressure receptacle is connected to the right pressure rated equipment, EIGA recommends affixing the level of pressure (in bar) on a label close to the outlet valve of the pressure receptacle.

Also, flammable, toxic or corrosive liquids and their mixtures packaged under a layer of gas (e.g. nitrogen or helium) remain to be classified and labelled for CLP as 'liquids' and not as 'gases'. They are however transported under one of the new Class 2 UN numbers 3500 to 3505. The 'cylinder' pictogram GHS04 and the hazard statement H280 (see 2.2.1.5) shall be added to the label to indicate the hazard of pressure. These liquids and their mixtures are not further considered in this Guide.

2.2.1.2 Criteria for classification

Group	Criteria
Compressed gas	A gas which when packaged under pressure is entirely gaseous at -50°C; including all gases with a critical temperature ≤ -50°C.
Liquefied gas	A gas which when packaged under pressure, is partially liquid at temperatures above -50°C. A distinction is made between: i) High pressure liquefied gas: a gas with a critical temperature between -50°C and +65°C; and ii) Low pressure liquefied gas: a gas with a critical temperature above +65°C.
Refrigerated liquefied gas	A gas which when packaged is made partially liquid because of its low temperature.
Dissolved gas	A gas which when packaged under pressure is dissolved in a liquid phase solvent.

The 'groups' of 'gases under pressure' are the sub-divisions of the dangerous goods of Class 2 in ADR/RID/ADN indicated with a number in the 'classification code' of the dangerous substance, e.g.:

- 1 = compressed gas (e.g. Argon, compressed: Classification code: 1A)
- 2 = liquefied gas (e.g. Butane: Classification code: 2F)
- 3 = refrigerated liquefied gas (e.g. Oxygen, refrigerated liquid: 3O)
- 4 = dissolved gas (e.g. Acetylene, dissolved: 4F)

2.2.1.3 Evaluation of hazard information on Gases under pressure

The critical temperature of pure gases is well defined and can be found in technical literature, e.g. EN 13096 '*Transportable gas cylinders — Conditions for filling gases into receptacles — Single component gases'.* The critical temperatures of the gases are listed in table 4.2 of chapter 4 Data.

For gas mixtures, the classification is based on the 'pseudo-critical temperature' which can be defined as the mole weighted average of the components' critical temperatures.

$$\textbf{Pseudo Critical Temperature} = = \sum_{i=1}^{n} X_i \times CTki$$

where X_i is the component in molar fraction

CTk_i is the Critical Temperature of the component in Kelvin

The CTk values for all gases are given in section 4.2 of this manual.

2.2.1.4 Example of classification of a gas mixture for 'gases under pressure'

Example mixture: 9%(O_2) + 16%(N_2O) + 75%(N_2)

Calculation steps:

Step 1: Ascertain the critical temperatures in Kelvin for the gases in the mixture:

Oxygen (O2): Temp.Crit.= -118.4°C= 154.75 K

Nitrous Oxide (N2O): Temp.Crit.= +36.4°C= 309.55 K

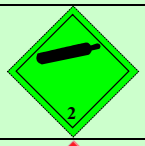
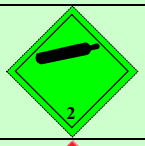
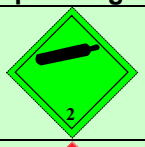
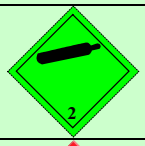
Nitrogen (N2): Temp.Crit.= -147°C= 126.15 K

Step 2: Calculate the 'pseudo-critical temperature':

0.09 x 154.75 K + 0.16 x 309.55 K + 0.75 x 126.15 K= 158.1 Kelvin = - 115.1 °C

The pseudo-critical temperature is lower than -50°C, therefore the mixture is a 'compressed gas'

2.2.1.5 Pictograms, signal words, hazard statements and precautionary statements for hazard class 2.5. Gases under pressure

Classification	Compressed gas	Liquefied gas	Refrigerated liquefied gas	Dissolved gas
Transport Pictogram				
GHS Pictogram				
Signal word	Warning	Warning	Warning	Warning
Hazard statement	H280: Contains gas under pressure; may explode if heated	H280: Contains gas under pressure; may explode if heated	H281: Contains refrigerated gas; may cause cryogenic burns or injury	H280: Contains gas under pressure; may explode if heated
Precautionary Statements				
- Prevention			P282	
- Response			P336 + P315	
- Storage	P410 + P403	P410 + P403	P403	P410 + P403
- Disposal				

NOTE By REGULATION (EU) 2016/918 P410 may be omitted for gases filled in transportable gas cylinders in accordance with packing instruction P200 of the UN RTDG, unless those gases are subject to (slow) decomposition or polymerisation.

2.2.1.6 Asphyxiant gases

The hazard of a gas not being able to support life when released to the atmosphere is not identified in the UN-GHS and the CLP.

For the purpose of this document, gases and gas mixtures that, besides effects on the environment, have no acute hazard other than not supporting life, EIGA recommends adding on the label an industry specific Hazard Statement (HS) 'EIGA0357': 'Asphyxiant in high concentrations'.

This additional HS would be assigned to single gases such as nitrogen, argon, helium, neon, etc. (also identified as 'inert gases'). It would be assigned also to gas mixtures that besides HS of the 400 series:

- have no hazard statement for physical properties other than H280 or H281,
- have no hazard statement for acute health hazards (i.e. acute toxicity, skin corrosivity/irritation, eye damage/irritation or STOT-SE) and
- contain less than 18% oxygen.

Remark: The hazard of not being able to support life when released to the atmosphere (asphyxiation) is also to be considered for flammable gases and gas mixtures in high concentrations (excluding pyrophoric gases). These high concentrations are usually within the flammability range.

Mixtures containing more than and equal to 18% and less than or equal to 23.5 % oxygen are considered as 'similar to air'. Mixtures containing more than 23.5% oxygen are classified as oxidising (see 2.2.3).

2.2.2 Hazard class 'Flammable gases (including chemically unstable gases)'

2.2.2.1 Definitions and criteria

Flammable gas means a gas or gas mixture having a flammable range with air at 20°C and a standard pressure of 101.3 kPa

A *pyrophoric gas* means a flammable gas that is liable to ignite spontaneously in air at a temperature of 54ºC or below.

A *chemically unstable gas* means a flammable gas that is able to react explosively even in the absence of air or oxygen.

The flammability range of a flammable gas is defined between the ''lower flammability limit'' (LFL) in air and the ''upper flammability limit'' (UFL) in air. In technical literature, the terms ''lower explosion limit'' (LEL) and ''upper explosion limit'' (UEL) are often used instead of the LFL and UFL respectively.

A flammable gas is classified in Category 1A, 1B or 2 according to the following table. Flammable gases that are pyrophoric and/or chemically unstable are always classified in Category 1A:

Category			Criteria
1A	**Flammable gas**		Gases, which at 20°C and a standard pressure of 101.3 kPa are: (a) ignitable when in a mixture of 13% or less by volume in air;or (b) have a flammable range with air of at least 12 percentage points regardless of the lower flammability limit unless data show they meet the criteria for Category 1B
	Pyrophoric gas		Flammable gases that ignite spontaneously in air at a temperature of 54 ºC or below
	Chemically unstable gas	**A**	Flammable gases which are chemically unstable at 20°C and a standard pressure of 101.3 kPa
		B	Flammable gases which are chemically unstable at a temperature greater than 20°C and/or a pressure greater than 101.3 kPa
1B	**Flammable gas**		Gases which meet the flammability criteria for Category 1A, but which are not pyrophoric, nor chemically unstable, and which have at least either:

		(a) a lower flammability limit of more than 6% by volume in air; or (b) a fundamental burning velocity of less than 10 cm/s;
2	**Flammable gas**	Gases, other than those of Category 1A or 1B, which, at 20° C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air

The CLP Regulation considers the three categories 1A, 1B and 2. Transport regulations consider only one category for flammable gases.

NOTES

1. In the absence of data on its pyrophoricity, a flammable gas mixture shall be classified as a pyrophoric gas if it contains more than 1% (by volume) of pyrophoric component(s)

2. EIGA only uses the lower flammability limits to distinguish between Category 1A and 1B. The fundamental burning velocity is not used as a criteria for classification.

3. The hazard of not being able to support life when released to the atmosphere (asphyxiation) is also to be considered for flammable gases and gas mixtures in high concentrations (excluding pyrophoric gases). These high concentrations are usually within the flammability range.

4. EIGA classifies gas mixtures with a lower flammability limit of more than 6% as Flammable gas Category 1B. Gas mixtures are classified as Flammable gas Category 2 if they only contain components classified as Flammable gas Category 2. See decision tree in section 6.2 page 3.

All flammable gases listed in the Annexes satisfy the criteria of Category 1A or 1B; only two gases are in Category 2: Ammonia and Bromomethane (Methyl Bromide).

2.2.2.2 Test methods

In the case a gas or a gas mixture needs to be tested for flammability, a recognised international standard shall be used such as EN 1839:2003, *Determination of explosion limits of gases and vapours* or ISO 10156 '*Gases and gas mixtures – Determination of fire potential and oxidising ability for the selection of cylinder valves outlets*'.

If using fundamental burning velocity for Category 1B, see ISO 817 as amended 'Refrigerants- Designation and Safety Classification, Annex C: Method of test for burning velocity measurement of flammable gases'.

Pyrophoricity shall be determined at 54 °C in accordance with either IEC 60079-20-1 ed1.0 'Explosive atmospheres – Part 20 – 1: Material characteristics for gas and vapour classification – Test methods and data' or DIN 51794 'Determining the ignition temperature of petroleum products'.

The test methods to classify flammable gases as additionally chemically unstable are described in section 35 (Part III) of the UN RTDG, Manual of Tests and Criteria.(ref: http://www.unece.org/fileadmin/DAM/trans/danger/publi/manual/Rev5_Amend1/ST-SG-AC10-11-Rev5-Amend1e.pdf) Table 35.1 of the UN Manual of Tests and Criteria identifies the classification categories of many chemically unstable gases together with the specific concentration limits and limited filling pressures under which mixtures containing only one chemically unstable gas are not considered as chemically unstable themselves and do not need to be tested for confirmation (incorporated in Table 4.2 of this document).Table 35.2 of the UN Manual of Tests and Criteria is reproduced after Table 4.2. It gives specific concentration limits for binary mixtures with acetylene.

IMPORTANT NOTE The test methods and the concentration limits for chemically unstable gases are not applicable for liquefied gas mixtures.

2.2.2.3 Calculation method

Tests to determine the flammability range are time consuming and expensive for gas mixtures that are made on demand. In most of the cases, the formulator of the gas mixture will use a calculation method as described in ISO 10156 (see above) to determine if the mixture is flammable or not.

The classification method described in ISO 10156 uses the criterion that a gas mixture is considered non-flammable in air if:

$$\sum_{i=1}^{n} \frac{A'_i}{T_{ci}} \leq 1 \qquad \text{[Eq. 1]}$$

where:

$$A'_i = \frac{A_i}{\sum_{i=1}^{n} A_i + \sum_{k=1}^{p} K_k B_k} \qquad \text{[Eq. 2]}$$

and where:

A'_i is the equivalent content in mole% of the *i*th flammable gas in the mixture

T_{ci} is the maximum content in mole% of the flammable gas *i* which, when mixed with nitrogen, is not flammable in air

A_i is the molar fraction in mole% of the *i*th flammable gas in the mixture

B_k is the molar fraction in mole% of the *k*th inert gas in the mixture

K_k is the coefficient of equivalency of the inert gas *k* compared to nitrogen

n is the total number of flammable gases in the mixture

p is the total number of inert gases in the mixture

The principle of the calculation method is the following: Where a gas mixture contains an inert diluent other than nitrogen, the volume of this diluent is adjusted to the equivalent volume of nitrogen using the equivalency coefficient for the inert gas, K_k. From this the equivalent contents A'_i are then derived through Equation 2, which should be viewed as the corresponding concentration of the flammable gases if nitrogen was the only inert gas present in the mixture. In Equation 1 the equivalent contents are then compared to the constants T_{ci}, which have been experimentally found using nitrogen as the (only) inert gas.

LFL, T_{ci} and K_k values of inert and flammable gases are given in section 4.2 of this manual.

For other inert gases containing three atoms or more in their chemical formula, the coefficient of equivalency K_K = 1.5 shall be used.

LFL and T_{ci} values for several flammable liquids used in gas mixtures are listed in ISO 10156. In the absence of a T_{ci} value, the LFL value shall be used. When no LFL can be found, the conservative value of 1% for flammable gases, 0.5% for flammable liquids and 0.1% for pyrophoric gases and liquids should be used.

ISO 10156 includes a calculation method to determine the LFL for gas mixtures and hence to make the distinction between Cat.1A and Cat.1B.

For mixtures of flammable gases Le Chatelier's formula is used to predict lower flammability limits *(L)*.

The formula can be applied for mixtures being flammable but not for mixtures being potentially explosive.

Le Chatelier's formula cannot be used for calculation of upper flammability limits. Furthermore, it cannot be used for partially halogenated hydrocarbons or oxidizers other than air. Consequently, if the upper flammability limit is not known, flammable gas mixtures shall be classified as category 1A or 1B.

According to this formula the lower flammability limit of the mixture *(L_M)* of fuel gases is given by the following equation:

$$\frac{100}{L_M} = \frac{A_1}{L_1} + \frac{A_2}{L_2} + \cdots + \frac{A_n}{L_n} \qquad \text{[Eq. 3]}$$

where:

L is the lower flammability limit in %

A is the molar fraction in % of the flammable gas in a mixture of n flammable gases.

Equation 4 can be used for mixtures of flammable gases, nitrogen and air:

$$L_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L_i}} \qquad \text{[Eq. 4]}$$

For mixtures containing flammable gases with inert gases other than nitrogen and air the following equation applies (see ISO 10156):

$$L'_i = \frac{100 - L'_M - (1-K) * \frac{\sum_{p=1}^{k} B_p}{\sum_{i=1}^{n} A_i} * L'_M}{(100 - L'_M)} * L_i \qquad \text{[Eq. 5]}$$

Where:

L'_M is the lower flammability limit of a mixture consisting only of the flammable components

K is the average of K_k values of the inert gases weighted according to its molar fractions

A_i is the molar fraction of flammable gases I in %

B_p is the inert fraction in % based on the mixture of which L_M is to be calculated

Amounts of air or oxygen in the mixture to be calculated shall be regarded as inert gases in this case taking a K value of 1.

NOTES

1. The classification method is overruled for the mixtures defined in the UNRTDG that contain flammable gases – see Table 4.5b.

2. ISO 10156 mentions that some non-flammable partially halogenated hydrocarbons may react with air and oxygen in the presence of a flammable gas (see text under Table 1 of ISO 10156.). Those partially halogenated hydrocarbons are identified with an asterisk in the list of gases in Table 4.2 of this document. When more than 0.5% (*) of those gases are in a mixture containing more than 0.25% of a flammable gas, those gases shall be considered as a flammable component with the Tc value of the corresponding alkane/alkene and the flammability of the mixture shall be calculated accordingly. See also Table 4.5b for UN mixtures containing those gases.

(*) Value provided by the B.A.M of Germany

2.2.2.4 Example of a classification using the calculation method of ISO 10156

Example mixture: 2%(H_2) + 6%(CH_4) + 27%(Ar) + 65%(He)

Calculation steps:

Step 1: Assign the gases and state their molar fractions, assuming the molar fractions are equal to the volume fractions (ideal gas behaviour for all gases).

H_2 is flammable gas 1, yielding A_1 = 2 mol%

CH_4 is flammable gas 2, yielding A_2 = 6 mol%

Ar is inert gas 1, yielding B_1 = 27 mol%

He is inert gas 2, yielding B_2 = 65 mol%

n =2 since there are two flammable gases in the mixture

p =2 since there are two inert gases in the mixture

Step 2: Look up the values of T_{ci} and K_k in ISO 10156.

T_{c1} = 5.5 mol% T_{c2} =8.7 mol% K_1 = 0.55 K_2 = 0.9

Step 3: Calculate the equivalent gas contents A'_i for the flammable gases according to Equation 2.

$$A'_1 = \frac{2}{(2+6)+(0.55\times 27+0.9\times 65)} = 2.46 \text{ mol\%} \quad A'_2 = \frac{6}{(2+6)+(0.55\times 27+0.9\times 65)} = 7.38 \text{ mol\%}$$

Step 4: Calculate the flammability of the gas mixture according to Equation 1.

$$\sum_{i=1}^{2}\frac{A'_i}{T_{ci}} = \frac{A'_1}{T_{c1}} + \frac{A'_2}{T_{c2}} = \frac{2.46}{5.5} + \frac{7.38}{8.7} = 1.30$$

Step 5: Compare the outcome to the criterion in Equation 1.

Since 1.30 > 1, this particular gas mixture is considered as flammable.

Step 6: Calculate the lower flammability limit:

As the mixture contains flammable gases with inert gases other than nitrogen the lower flammability limit is calculated as follows:

$$L_M = \frac{100}{\sum_{i=1}^{n}\frac{A_i}{L'_i}}$$

$$L'_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L_i}} = \frac{100}{\frac{25}{4} + \frac{75}{4{,}4}} = 4{,}29\ \%$$

$$K = \frac{27 * 0{,}55 + 65 * 0{,}9}{92} = 0{,}797$$

$$L'_{H2} = \frac{100 - 4{,}29 - (1 - 0{,}797) * \frac{(27+65)}{(2+6)} * 4{,}29}{(100 - 4{,}29)} * 4 = 3{,}58\ \%$$

$$L'_{CH4} = \frac{100 - 4{,}29 - (1 - 0{,}797) * \frac{(27+65)}{(2+6)} * 4{,}29}{(100 - 4{,}29)} * 4{,}4 = 3{,}94\ \%$$

$$L_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L'_i}} = \frac{100}{\frac{2}{3{,}58} + \frac{6}{3{,}94}} = 48{,}04\ \%$$

Following the criteria 26 and 25a the mixture is classified as flammable gas category 1B.

2.2.2.5 Hazard communication for flammable gases

Classification	Category 1A	Gases categorised as 1A by meeting pyrophoric or unstable gas A/B criteria			Category 1B	Category 2
		Pyrophoric gas	Chemically unstable gas			
			Category A	Category B		
Transport Pictogram						Not required
GHS Pictogram						No pictogram
Signal word	Danger	Danger	Danger	Danger	Danger	Warning
Hazard statement	H220: Extremely flammable gas	H220: Extremely flammable gas H232: May ignite spontaneously if exposed to air	H220: Extremely flammable gas H230: May react explosively even in the absence of air	H220: Extremely flammable gas H231: May react explosively even in the absence of air at elevated pressure and/or temperature	H221: Flammable gas	H221: Flammable gas
Precautionary Statement Prevention	P210	P210 P222 P280	P202 P210	P202 P210	P210	P210
Precautionary Statement Response	P377 P381	P377 P381	P377 P381	P377 P381	P377 P381	P377 P381
Precautionary Statement Storage	P403	P403	P403	P403	P403	P403
Precautionary Statement Disposal						

2.2.3 Hazard class 'Oxidising gases'

2.2.3.1 Definitions and criteria

The GHS and the CLP Regulation consider only one category of oxidising gases.

Category	Criteria
1	Any gas which may, generally by providing oxygen, cause or contribute to the combustion of other material more than air does.

The criteria 'more than air does' is further defined in a note as 'having an oxidising power greater than 23.5% as determined by a method specified in the last revision of ISO 10156.

2.2.3.2 Test methods

There are not many gases that are oxidising. Most oxidising gases are identified as such in the Regulations for the Transport of Dangerous Goods (RTDG) and in ISO 10156 *´Gas cylinders - Gases and gas mixtures*: - *Part 2: Determination of oxidizing ability of toxic and corrosive gases and gas mixtures´.*

All common oxidising gases are classified in the Annexes of this document.

In the case a gas needs to be tested for its oxidising power, the test method described on ISO 10156 shall be used.

2.2.3.3 Calculation method

Tests according to ISO 10156 in order to determine the oxidising potential are time consuming and expensive for gas mixtures that are made on demand. The GHS and the CLP Regulation allows the formulator to use the calculation method described in ISO 10156 to determine if the mixture is oxidising or not.

The classification method described in ISO 10156 uses the criterion that a gas mixture should be considered as more oxidising than air if the 'Oxidising ¨Power (OP)' of the gas mixture is higher than 0.235 (23.5%).

The OP is calculated as follows:

$$OP = \frac{\sum_{i=1}^{n} x_i C_i}{\sum_{i=1}^{n} x_i + \sum_{k=1}^{p} K_k B_k}$$

where:

x_i	is the molar fraction in mole% of the i^{th} oxidising gas in the mixture
C_i	is the coefficient of oxygen equivalency of the i^{th} oxidising gas in the mixture
K_k	is the coefficient of equivalency of the inert gas k compared to nitrogen
B_k	is the molar fraction in mole% of the k^{th} inert gas in the mixture
n	is the total number of oxidising gases in the mixture
p	is the total number of inert gases in the mixture

2.2.3.4 Example of a classification using the calculation method of ISO 10156

Example Mixture: 9%(O_2) + 16%(N_2O) + 75%(N_2)

Calculation steps

Step 1: Ascertain the coefficient of oxygen equivalency (Ci) for the oxidising gases in the mixture and the nitrogen equivalency factors (K_k) for the non-flammable, non-oxidising gases.

Ci (N_2O) = 0.6 (nitrous oxide)

Ci (O_2) = 1 (oxygen)

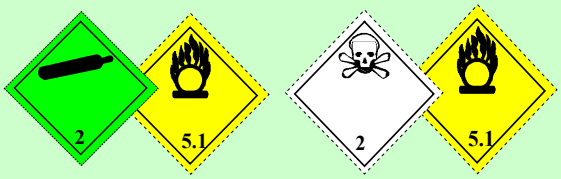
K_k (N_2) = 1 (nitrogen)

Step 2: Calculate the Oxidising Power of the gas mixture

$$OP = \frac{\sum_{i=1}^{n} x_i C_i}{\sum_{i=1}^{n} x_i + \sum_{k=1}^{p} K_k B_k} = \frac{0.09 \times 1 + 0.16 \times 0.6}{0.09 + 0.16 + 0.75 \times 1} = 0.186$$ **18.6 < 23.5**

Therefore the mixture is not considered as an oxidising gas.

2.2.3.5 Hazard communication for oxidising gases

Classification	**Ox. Gas 1**
Transport Pictogram (Note)	
GHS Pictogram	
Signal word	Danger
Hazard statement	H270: May cause or intensify fire; oxidizer
Precautionary Statement Prevention	P220 P244
Precautionary Statement Response	P370 + P376
Precautionary Statement Storage	P403
Precautionary Statement Disposal	

NOTE In Class 2 'gases', the oxidising label is always associated with either the non-flammable, non-toxic label (the green label) or with the toxic label.

2.2.4 Mixtures containing flammable gases and oxygen

For mixtures containing both flammable and oxidising components, special calculation methods are described in ISO 10156 that are outlined in page 3 of attachment 6.2 'Flow charts of classification process of gaseous mixtures'.

Example (to be read in conjunction with Page 3 of 6.2):

To classify a mixture containing 5% H2, 1% CH4, 3% CO, 10% CO2, 4% O2, balance N2

Phys-chem data out of table 4.2:

Gas	Ai %	T_{ci}	L_i	LOC	K_k
Hydrogen	5	5.5	4	4.3	-
Methane	1	8.7	4.4	11	-
Carbon monoxide	3	15.2	10.9	4.7	-
Carbon dioxide	10				1.5
Oxygen	4				
Nitrogen	77				1

Normalisation factor F (outlined in criteria 31) for inert components with different equivalencies to nitrogen: F= 100/[100+ (10x0.5)] = 100/105 = **0.952**

The mixture is flammable if both the LEL of the mixture and the Tcflamox of the mixture are exceeded

by the normalised sum of the flammable components (Criteria 31 and Criteria 32)

Normalised sum of flammable components= 9% x 0.952 = **8.6%**

LELmixt= (5+1+3) / (5/4 + 1 /4.4 + 3 /10.9) = 9/ (1.25 + 0.23 + 0.27) = 9/1.75 = **5.14%**

The normalised concentration of flammable components (8.6%) exceeds the LELmixt.(Criteria 31)

Tcflamox = Tcmix (1- Aox/21%)

Aox= 4% x 0.952=**3.8%**

Tc mix = (5+1+3) / (5/5.5 + 1 /8.7 + 3 /15.2) = 9/ (0.91 + 0.11 + 0.20) = 9/1.22 = 7.37

Tc flamox = 7.37 (1 – 3.8/21) = **6.04 %**

The normalised concentration of flammable components (8.6%) exceeds the Tcflamox, **therefore the mixture is flammable.**

The flammable mixture could in addition be explosive if the LOCmixt is exceeded (Criteria 33)

LOCmixt= (5+1+3) / (5/4.3 + 1/11 + 3 /4.7) = 9/ (1.16 + 0.09 + 0.64) = 9/1.89 = **4.76**

The equivalent concentration of Oxygen 3.8% does not exceed the LOC of the mixture (Criteria 33).

Therefore the mixture is not explosive. The mixture does not contain chemically unstable gases (criteria 26).

The mixture is only flammable.

Calculation of lower flammability limit

As the mixture contains flammable gases with inert gases other than nitrogen, the lower flammability limt is calculated as follows:

$$L_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L'_i}}$$

$$L'_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L_i}} = \frac{100}{\frac{33,33}{10,9} + \frac{55,55}{4} + \frac{11,11}{4,4}} = 5,14\ \%$$

$$K = \frac{4 * 1 + 10 * 1,5 + 77 * 1}{91} = 1,055$$

$$L'_{CO} = \frac{100 - 5,14 - (1-1,055) * \frac{(4+10+77)}{(3+5+1)} * 5,14}{(100-5,14)} * 10,9 = 11,23\ \%$$

$$L'_{CH4} = \frac{100 - 5,14 - (1-1,055) * \frac{(4+10+77)}{(3+5+1)} * 5,14}{(100-5,14)} * 4,4 = 4,53\ \%$$

$$L'_{H2} = \frac{100 - 5,14 - (1-1,055) * \frac{(4+10+77)}{(3+5+1)} * 5,14}{(100-5,14)} * 4 = 4,12\ \%$$

$$L_M = \frac{100}{\sum_{i=1}^{n} \frac{A_i}{L'_i}} = \frac{100}{\frac{3}{11,23} + \frac{1}{4,53} + \frac{5}{4,12}} = 58,78\ \%$$

Following the criteria 26 and 25a the mixture is classified as flammable gas catergory 1B.

IMPORTANT NOTE The feasibility for the safe manufacturing of new oxidant-fuel mixtures should be verified by an expert. See latest revision of EIGA IGC Document 139: ‘Safe preparation of compressed oxidant-fuel gas mixtures in cylinders’.

2.2.5 Other physical hazards for gases

Some gases (e.g. boron trichloride) were assigned R14 ‘Reacts violently with water’ under the DSD.

This hazard has not been considered by the UN-GHS but has been retained in the CLP Regulation. Substances showing this hazard are assigned hazard statement EUH014 with the same wording.

2.3 Health hazards

The GHS identifies 10 hazard classes for health hazards. All hazard classes except one are relevant for the gases.

In Commission Delegated Regulation (EU) 2023/707 one additional hazard class is introduced that is not identified in GHS.

Hazard Class	Relevant to Gases	Considered by transport regulations for Class 2 gases
Acute toxicity	X	X
Skin corrosion/irritation	X	
Serious eye damage/eye irritation	X	
Respiratory or skin sensitisation	X	
Germ cell mutagenicity	X	
Carcinogenicity	X	
Reproductive toxicity	X	
Specific target organ toxicity – single exposure	X	
Specific target organ toxicity – repeated exposure	X	
Aspiration hazard		
Endocrine disruption for human health	X	

Understandably, the transport regulations are only concerned with acute effects after a single exposure, while the CLP considers both acute and long-term effects, whether resulting from a single or from repeated exposures.

2.3.1 Hazard Class ‘Acute toxicity’

2.3.1.1 Classification of substances

2.3.1.2 Routes of exposure

The hazard class Acute Toxicity is differentiated into:

- Acute oral toxicity;

- Acute dermal toxicity;

- Acute inhalation toxicity.

2.3.1.3 Categories for hazard class ‘Acute toxicity’ in CLP

Substances can be allocated to one of four toxicity categories based on acute toxicity by the oral, dermal or inhalation route according to the numeric criteria shown in the table below. Acute toxicity values are expressed as (approximate) LD50 (oral, dermal) or LC50 (inhalation) values or as acute toxicity estimates (ATE).

Acute toxicity hazard categories and acute toxicity estimates (ATE) defining the respective categories (Table 3.1.1 of CLP)

Exposure Route	Category 1	Category 2	Category 3	Category 4
Oral (mg/kg bodyweight)	ATE ≤ 5	5 < ATE ≤ 50	50 < ATE ≤ 300	300 < ATE ≤ 2000
Dermal (mg/kg bodyweight)	ATE ≤ 50	50 < ATE ≤ 200	200 < ATE ≤ 1000	1000 < ATE ≤ 2000
Gases (ppmV) LC50 rat/4h	ATE ≤ 100	100 < ATE ≤ 500	500 < ATE ≤ 2500	2500 < ATE ≤ 20000
Vapours (mg/l)	ATE ≤ 0.5	0.5 < ATE ≤ 2.0	2.0 < ATE ≤ 10.0	10.0 < ATE ≤ 20.0
Dusts and Mists (mg/l)	ATE ≤ 0.05	0.05 < ATE ≤ 0.5	0.5 < ATE ≤ 1.0	1.0 < ATE ≤ 5.0

For gas mixtures the inhalation toxicity data are available for all ingredients (see Table 4.3). In accordance with 3.1.3.2 of Annex I of CLP, only the acute toxicity via the inhalation route is considered for the classification of gas mixtures.

Acute toxicity is evaluated by means of available human data or from the results of laboratory tests on animals. Laboratory tests are standardised and for gases the results are expressed as the LC50 value, i.e. the lethal concentration at which 50% of the tested animals -albino rats in this case-, die after a defined exposure.

The 'defined' exposure is 1 hour in the case of a test for transport regulations, 4 hours for the EC directives and the CLP Regulation.

It is accepted to use the LC50 (rat.1h) value for transport and to divide it by 2 (not 4) to give an equivalent LC50 (rat.4h) for the CLP Regulation and vice-versa.

2.3.1.4 Classification for toxicity in Class 2 Gases of Transport Regulations

The classification for toxicity in Class 2 of the transport regulations is based on LC50 rat/1h (instead of rat/4h in CLP) and has only one threshold: ATE ≤ 5000 ppm (v/v, rat.1h) that corresponds to the threshold of Category 3 in the CLP (2500 ppm v/v, rat.4h). Therefore the gases that are Acute Toxic Category 4 for the CLP are not toxic for transport regulations.

	Gas 'toxic' for transport	Gas 'not toxic 'for transport
Gases (ppmV) - LC50 rat/1h	ATE ≤ 5000	5000 < ATE

2.3.1.5 Classification data

Many toxic gases have been classified in the transport regulations where the reference LC50 (rat.1h) value is indicated in the Packing Instruction P200. Many of those gases are also listed in Annex VI of the CLP.

When a toxic gas is not classified in P200 of the UNRTDG nor in Annex VI of the CLP, it has been classified using the LC50 values listed in the ISO standard 10298 'Gas cylinders – Determination of toxicity of a gas or gas mixture'.

The REACH registration dossiers of the toxic gases will include LC50 values that will be communicated via the SDS to the downstream users. These 'REACH' LC50 values could be

different from the values in P200 or in ISO 10298 but will have to be used for the CLP classification. When this is the case, it is noted in table 4.3 (e.g.CO).

The acute toxicity data extracted from P200 or from ISO 10298 are shown in section 4.3.

2.3.1.6 Classification of mixtures

The ATE of a gas mixture is determined by calculation from the ATE values for all relevant ingredients according to the following formula below for Oral, Dermal or Inhalation Toxicity:

$$\frac{100}{ATE_{mix}} = \sum_{n} \frac{C_i}{ATE_i}$$

where:

C_i = concentration of ingredient i (% v/v)

i = the individual ingredient from 1 to n

n = the number of ingredients

ATE_i = Acute Toxicity Estimate of ingredient i.=LC50 /rat.4h of each toxic ingredient

NOTE When a gas mixture contains toxic liquid ingredients, the LC50 value of the liquid should be used. If not available, the converted ATE corresponding to its classification category should be used according to the following table (from Table 3.1.2 of Annex I of CLP):

Exposure routes	Classification Category or experimentally obtained acute toxicity range estimate	Converted Acute Toxicity point estimate
Gases (ppmV)	0 < Category 1 ≤ 100 100 < Category 2 ≤ 500 500 < Category 3 ≤ 2500 2500 < Category 4 ≤ 20000	10 100 700 4500

Example: a gas mixture contains 5000 ppm of a toxic liquid. There is no toxicity data by inhalation but the toxic liquid is classified as Category 3 for dermal or oral toxicity. The converted toxicity estimate by inhalation (LC50 rat.4h) is 700 ppm and shall be used in the calculation formula.

2.3.1.7 Classification for acute toxic due to corrosivity

For corrosive gases, the mechanism of toxicity might be the corrosivity to the respiratory tract (e.g. lung oedema) instead of systemic toxicity.

This is recognized in Transport Regulations for Class 2 Gases where 'Corrosivity' is a subsidiary risk of 'Toxicity'. The classification for corrosivity of gas mixtures in class 2 follows the same additivity rule as in 2.3.1.6 where the ingredients considered are the toxic-corrosive gases.

The CLP has no specific hazard class or category for gases corrosive to the respiratory tract but imposes an additional hazard statement: EUH071 (See note 1 under table 3.1.3 of CLP and notes 1 and 2 under the table of 2.3.1.9 in this guide).

2.3.1.8 Example of classification of mixtures

Composition of the mixture: 10% of Hydrogen Sulphide, 5 % of Silicon Tetrafluoride in Nitrogen

Classification of the ingredients for acute toxicity:

Hydrogen Sulphide: Acute Tox.2, LC 50 = 712 ppm rat/1h: 440 ppm rat/4h

Silicon Tetrafluoride; Acute Tox.2 (and corrosive for transport), LC 50 = 922 ppm rat/1h: 461 ppm rat/4h

Nitrogen: Not toxic

Classification of the mixture for toxicity: All toxic ingredients are considered

100/ ATEmix = 10/440 + 5/461 = 0.022727 + 0.010846 = 0.033573
ATEmix = 100/0.033573
= 2979 ppm rat/4h or 5958 ppm rat/1h

This mixture is Acute Tox.4 for the CLP and not Toxic for transport regulations.

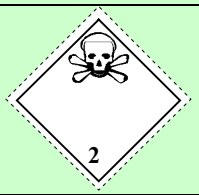
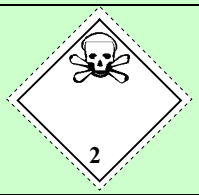
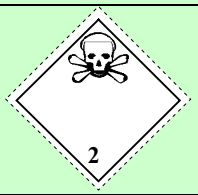
Classification of the mixture for corrosivity to the respiratory tract: Only the toxic AND corrosive ingredient, i.e. silicon tetrafluoride, is considered

100/ ATEmix = 5/461 = 0.010846

ATEmix = 100/0.010846 = 9220 ppm rat/4h or 18440 ppm rat/1h > 5000 ppm

This mixture is not corrosive for transport regulations.

2.3.1.9 Hazard communication

Classification	Acute Tox. 1	Acute Tox. 2	Acute Tox. 3	Acute Tox. 4
Transport Pictograms				No Category 4 in transport
GHS Pictograms				
Signal word	Danger	Danger	Danger	Warning
Hazard statement: Inhalation (see Notes)	H330: Fatal if inhaled	H330: Fatal if inhaled	H331: Toxic if inhaled	H332: Harmful if inhaled
Precautionary statement prevention (inhalation)	P260 P271 P284	P260 P271 P284	P261 P271	P261 P271
Precautionary statement response (inhalation)	P304 + P340 P310 P320	P304 + P340 P310 P320	P304 + P340 P311 P321	P304 + P340 P312
Precautionary statement storage (inhalation)	P403 + P233 P405	P403 + P233 P405	P403 + P233 P405	
Precautionary statement disposal (inhalation)	P501	P501	P501	

NOTES

1. When the substance is also classified corrosive for transport with the transport label 8 ‘corrosive’, the substance shall also be labelled with EUH071.

2. If a mixture is corrosive for transport (ATEmix ≤ 2500, TC component), the mixture will be labelled as EUH071., and classified as H335 when the concentration of corrosive gases is ≥1%.

3. In order to avoid under-classification under CLP, the mixture will be classified as H335 when the concentration of corrosive gases is ⩾1%.

2.3.2 Hazard Class 'Skin corrosion/irritant' and Hazard class 'serious eye damage/eye irritation

These two hazard classes are considered together because in most cases they concern the same gases and the methods to classify the mixtures containing those gases are similar and linked together for the two hazard classes.

2.3.2.1 Classification of substances

2.3.2.2 General

Many gases that have been identified as acute toxic because of their corrosive effects to the respiratory tract are classified as 'skin corrosive', 'skin irritant' or with 'eye effects category 1 or 2' due to their ability to form strong acids or bases in the presence of the moisture of the skin or the moisture of the eye.

2.3.2.3 Categories for skin corrosion/irritant and serious eye damage/eye irritation

Skin corrosion/irritant		**Serious eye damage/eye irritation**	
Categories	**Denomination**	**Categories**	**Denomination**
Category 1: Corrosive	Skin Corr. 1A	**Category 1: Irreversible effects on the eye**	Eye Dam. 1
	Skin Corr. 1B		
	Skin Corr. 1C		
Category 2: Irritant	Skin Irrit. 2	**Category 2: Irritating to eyes**	Eye Irrit. 2

NOTE A skin corrosive substance is considered to also cause serious eye damage which is indicated in the hazard statement for skin corrosion (H314: Causes severe skin burns and eye damage). According to section 3.3. of the ECHA 'Guidance on the Application of the CLP Criteria' both classifications (Skin Corr. 1 and Eye Dam. 1) are required but the hazard statement H318 'Causes serious eye damage' is not indicated on the label because of redundancy (see 3.2.6).

2.3.2.4 Classification of gas mixtures for skin corrosion/irritant or eye effects

There are no test results on mixtures for skin corrosion/irritant or effects on the eye and the calculation methods based on the data of the ingredients shall be used according to the criteria in the following table.

Generic concentration limits of ingredients classified for skin corrosive/irritant hazard (Category 1 or 2) that trigger classification of the mixture as corrosive/irritant to skin			**Generic concentration limits of ingredients of a mixture classified as Skin corrosive Category 1 and/or eye Category 1 or 2 for effects on the eye that trigger classification of the mixture for effects on the eye (Category 1 or 2)**		
Sum of ingredients classified as:	**Concentration triggering classification of a mixture as:**		**Sum of ingredients classified as:**	**Concentration triggering classification of a mixture as:**	
	Skin Corrosive	**Skin Irritant**		**Serious eye damage**	**Eye irritation**
	Category 1 Skin Corr.1 (see note)	**Category 2 Skin Irrit.2**		**Category 1 Eye Dam.1**	**Category 2 Eye Irrit.2**
Skin Corr. Cat. 1, 1A, 1B, 1C, H314	≥ 5%	≥ 1% but < 5%	**Skin Corr. Cat.1, 1A, 1B, 1C, H314+ Eye Dam.1, H318**	≥ 3%	≥ 1% but < 3%
Skin Irrit. Cat.2 H315		≥ 10%	**Eye Irrit.2, H319**		≥ 10%
(10 x Skin Corr. Cat. 1, 1A, 1B, 1C, H314) + Skin Irrit.Cat.2 H315		≥ 10%	**10 x (Skin Corr. Cat.1A, 1B, 1C, H314+ Eye Dam.1, H318) + Eye Irrit.2, H319**		≥ 10%

NOTES

1. The sum of all ingredients of a mixture classified as Skin Corrosive Category 1A, 1B or 1C respectively, shall each be ≥ 5% respectively in order to classify the mixture as either Skin Corrosive Category 1A, 1B or 1C. If the sum of the Skin corrosive Category 1A ingredients is < 5% but the sum of Category 1A+1B ingredients is ≥ 5%, the mixture shall be classified as Skin corrosive Category 1B. Similarly, if the sum of Skin corrosive Category 1A+1B ingredients is < 5% but the sum of Category 1A+1B+1C ingredients is ≥ 5% the mixture shall be classified as Skin Corrosive Category 1C.

2. The following formula shall be used in case where Specific Concentration Limits (SCL) are defined for one or more components but can be used in all cases.

   The mixture is classified for skin corrosion/irritation or serious eye damage/eye irritation if the

   Sum of (ConcA / clA) + (ConcB / clB) + ... + (ConcZ / clZ) is □ 1

   where *ConcA =* *the concentration of substance A in the mixture;*
   clA = *the concentration limit (either specific or generic) for substance A for the hazard considered;*
   ConcB = *the concentration of substance B in the mixture;*
   clB = *the concentration limit (either specific or generic) for substance B; etc.*

2.3.2.5 Example of classification of a gas mixture for skin corrosion/irritant and for eye effects

A mixture contains 2% Chlorine and 2 % Boron trifluoride in nitrogen

Step 1: classification data of the ingredients

Chlorine is classified in Annex VI as Eye Irrit.2 and Skin Irrit.2

Boron trifluoride is classified in Annex VI as Skin Corr. 1A

Step 2: classification for the different categories:

Skin corrosive: NO, because there is less than 5% Skin Corr. 1A

Skin Irritant: YES. The mixture is classified as **Skin Irrit.2** because there is more than 1% Skin Corr. 1A

Eye effects Cat.1: NO, because there is no ingredient Eye Dam.1 and there is less than 3% Skin Corr. 1A

Eye effects Cat.2: YES. The mixture is classified as **Eye Irrit.2** because there is more than 1% Skin Corr. 1A

2.3.2.6 Hazard communication

	Label elements for skin corrosion/irritation		Label elements for serious eye damage/eye irritation	
Classification	**Skin Corr. 1, or 1A or 1B or 1C**	**Skin Irrit. 2**	**Eye Dam.1**	**Eye Irrit. 2**
GHS Pictograms				
Signal word	Danger	Warning	Danger	Warning
Hazard statement	H314: Causes severe skin burns and eye damage	H315: Causes skin irritation	H318: Causes serious eye damage	H319: Causes serious eye irritation
Precautionary statement prevention	P260 P264 P280	P264 P280	P280	P264 P280
Precautionary statement response	P301 + P330 + P331 P303 + P361 + P353 P363 P304 + P340 P310 P321 P305 + P351 + P338	P302 + P352 P321 P332 + P313 P362+P364	P305 + P351 + 338 P310	P305 + P351 + P338 P337 + P313
Precautionary statement storage	P405			
Precautionary statement disposal	P501			

NOTE If a substance or mixture is classified as H314, EUH071 must appear on the label (ref 3.2.4.2. of 'Guidance on the Application of the CLP Criteria' from ECHA). Consequently, in 4.6 *Labelling Data*, H335 has been replaced with EUH071 for all *H314* gases. See also the Note 2 under 2.3.5.2.

2.3.3 Hazard class 'Respiratory or skin sensitization'

There is no gas classified (yet) for respiratory or skin sensitisation. This section will be developed, and the document revised if and when gases are classified for those effects.

2.3.4 Hazard classes 'Germ cell mutagenicity', 'Carcinogenicity' and 'Reproductive toxicity'

2.3.4.1 Classification of substances

A few gases were classified as carcinogenic, mutagenic or reprotoxic under the DSD and their classifications have been translated into the relevant categories of the three hazard classes in the CLP. There is no one-to-one translation because category 2 of the DSD is category 1B in the CLP and category 3 of the DSD is category 2 of the CLP. There is no category 3 in the CLP as indicated in the table below.

	Germ cell mutagens	Carcinogens	Reproductive toxicants
Categories	**Criteria**	**Criteria**	**Criteria**
Category 1A	Substances known to induce heritable mutations in the germ cells of humans.	Substances known to have carcinogenic potential for humans, classification is largely based on human evidence.	Known human reproductive toxicant
Category 1B	Substances to be regarded as if they induce heritable mutations in the germ cells of humans.	Substances presumed to have carcinogenic potential for humans.	Presumed human reproductive toxicant
Category 2	Substances which cause concern for humans owing to the possibility that they may induce heritable mutations in the germ cells of humans	Suspected human carcinogens	Suspected human reproductive toxicant

The hazard class 'Reproductive toxicity' includes also a special category for 'lactation effects' that is not dealt with in this document. So far no gas has been classified for this effect. If and when it will be the case, this document will be amended accordingly.

2.3.4.2 Classification of mixtures

	Generic concentration limits triggering classification of a mixture as:								
Ingredients classified as:	**Muta. 1A H340**	**Muta. 1B H340**	**Muta. 2 H341**	**Carc. 1A H350**	**Carc. 1B H350**	**Carc. 2 H351**	**Repr. 1A H360**	**Repr. 1B H360**	**Repr. 2 H361**
Category 1A	≥ 0.1%	-	-	≥ 0.1%			≥ 0.3% [Note 1]		
Category 1B	-	≥ 0.1%	-		≥ 0.1%			≥ 0.3% [Note 1]	
Category 2	-	-	≥ 1.0%	-	-	≥ 1.0% [Note 1]			≥ 3.0% [Note 1]

Note 1
If a Category 1 or Category 2 substance is present in the mixture as an ingredient at a concentration above the limits indicated, an SDS shall be available for the mixture upon request.

2.3.4.3 Examples of classification of a mixture for carcinogenic, mutagenic or reprotoxic effects

A mixture contains 0.2% Carbon monoxide and 0.2% Ethylene oxide in nitrogen

Step 1: classification data of the ingredients

Carbon monoxide is classified in Annex VI as Repr.1A

Ethylene oxide is classified in Annex VI as Carc.1B,Muta.1B and Repr. 1B

Step 2: classification of the mixture for the different hazard categories:

Muta.1B: YES, because there is more than 0.1% of Ethylene oxide

Carc.1B: YES, because there is more than 0.1% of Ethylene oxide

Repr.1A: NO, because there is less than 0.3% of Carbon monoxide

Repr.1B: NO, because there is less than 0.3%of Ethylene oxide

2.3.4.4 Hazard communication

	Label elements of germ cell mutagenicity (1)		**Label elements for carcinogenicity** (1)		**Label elements for reproductive toxicity** (1)	
Classification	**Muta. 1A or Muta. 1B**	**Muta. 2**	**Carc. 1A or Carc. 1B**	**Carc. 2**	**Repr. 1A or Repr. 1B**	**Repr. 2**
GHS Pictograms						
Signal Word	Danger	Warning	Danger	Warning	Danger	Warning
Hazard Statement	H340: May cause genetic defects	H341: Suspected of causing genetic defects	H350: May cause cancer	H351: Suspected of causing cancer	H360: May damage fertility or the unborn child (2) (3)	H361: Suspected of damaging fertility or the unborn child (2) (3)
Precautionary Statement Prevention	P201 P202 P280					
Precautionary Statement Response	P308 + P313					
Precautionary Statement Storage	P405					
Precautionary Statement Disposal	P501					

NOTES

(1) Gases and gas mixtures Muta.1A or 1B, Carc.1A or 1B and Repr. 1A or 1B shall not be placed on the market for sale to the general public and shall be labelled with the phrase *'Restricted to professional users'* (REACH Annex XVII, entries 28 to 30).

(2) Specific effect when known are identified with H360F (fertility) or H360D (development of unborn child) or H360FD, H360Fd, H360Df (both effects) for Cat.1A/B and with H361f (fertility) or H360d (development of unborn child) or H361fd (both effects) for Cat.2.

(3) For mixtures classified with H360 or H361, the specific effect(s) shall be according to the table below.

		Substance B (above threshold)											
		H360F	**H360D**	**H360FD**	**H360Fd**		**H360Df**		**H360**	**H361f**	**H361d**	**H361fd**	**H361**
	Thresholds	≥0.3%	≥0.3%	≥0.3%	≥0.3%	≥3%	≥0.3%	≥3%	≥0.3%	≥3%	≥3%	≥3%	≥3%
Substance A (above threshold)	**H360F**	>0.3%	H360F	H360FD	H360FD	H360F	H360Fd	H360FD	H360FD	H360	H360F	H360Fd	H360Fd	H360
	H360D	>0.3%	H360FD	H360D	H360FD	H360FD	H360FD	H360D	H360Df	H360	H360Df	H360D	H360Df	H360
	H360FD	>0.3%	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD	H360FD
	H360Fd	>0.3%	H360F	H360FD	H360FD	H360F	H360Fd	H360FD	H360FD	H360	H360F	H360Fd	H360Fd	H360
		>3%	H360Fd	H360FD	H360FD	H360Fd	H360Fd	H360FD	H360FD	H360	H360Fd	H360Fd	H360Fd	H360Fd
	H360Df	>0.3%	H360FD	H360D	H360FD	H360FD	H360FD	H360D	H360Df	H360	H360Df	H360D	H360Df	H360
		>3%	H360FD	H360Df	H360FD	H360FD	H360FD	H360Df	H360Df	H360	H360Df	H360Df	H360Df	H360Df
	H360	>0.3%	H360	H360	H360FD	H360	H360	H360	H360	H360	H360	H360	H360	H360
	H361f	>3%	H360F	H360Df	H360FD	H360F	H360Fd	H360Df	H360Df	H360	H361f	H361fd	H361fd	H361
	H361d	>3%	H360Fd	H360D	H360FD	H360Fd	H360Fd	H360D	H360Df	H360	H361fd	H361d	H361fd	H361
	H361fd	>3%	H360Fd	H360Df	H360FD	H360Fd	H360Fd	H360Df	H360Df	H360	H361fd	H361fd	H361fd	H361fd
	H361	>3%	H360	H360	H360FD	H360	H360Fd	H360	H360Df	H360	H361	H361	H361fd	H361

The table has been built according to the principles outlined in Note 4 under Table 1.1 in Annex VII, i.e. an effect can be omitted **if there is evidence that it does not apply**. If there is no evidence, the generic H statement shall apply; e.g. a mixture containing more than 0.3% of a component classified H360F and more than 0.3% of a component classified H360 will be classified H360 because there is no evidence in the second component that the D effect does not apply, therefore the generic statement applies.

2.3.5 Hazard classes 'Specific target organ toxicity - single exposure' and 'Specific target organ toxicity - repeated exposure'

These two hazard classes are considered together because they concern similar effects and have similar criteria for classifying mixtures.

2.3.5.1 Classification of substances

So far, a few gases have been re-classified in Annex VI of the CLP for specific target organ toxicity - single or repeated exposure according to the criteria outlined in the table below.

Categories for specific target organ toxicity-		
	single exposure	**repeated exposure**
Categories	**Criteria**	**Criteria**
Category 1	Substances that have produced significant toxicity in humans or that, on the basis of evidence from studies in experimental animals, can be presumed to have the potential to produce significant toxicity in humans following single exposure	Substances that have produced significant toxicity in humans or that, on the basis of evidence from studies in experimental animals, can be presumed to have the potential to produce significant toxicity in humans following repeated exposure.
Category 2	Substances that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following single exposure	Substances that, on the basis of evidence from studies in experimental animals can be presumed to have the potential to be harmful to human health following repeated exposure.
Category 3	Transient target organ effects	No Category 3

2.3.5.2 Classification of mixtures

Mixtures shall be classified as a specific target organ toxicant (specific organ specified), following single or repeated exposure, when at least one ingredient has been classified as a Category 1 or Category 2 specific target organ toxicant and is present at or above the appropriate generic concentration limit as mentioned in the table below. However, respiratory tract irritation (H335) and narcotic effects (H336) are to be evaluated separately. When conducting classifications for these two hazards, the contribution of each component is considered additive per hazard (H335 or H336).

Generic concentration limits of ingredients of a mixture classified as a specific target organ toxicant that trigger classification of the mixture as Category 1 or 2 (tables 3.8.3 and 3.9.4 of the CLP)

Ingredient classified as:	- single exposure			- repeated exposure	
	Category 1 STOT SE 1, H370	Category 2 STOT SE 2, H371	Category 3 STOT SE 3, H335 or H336	Category 1 STOT RE 1, H372	Category 2 STOT RE 2, H373
Category 1 Specific Target Organ Toxicant	Concentration ≥ 10%	1.0% ≤ concentration < 10%		Concentration ≥ 10%	1.0% ≤ concentration < 10%
Category 2 Specific Target Organ Toxicant		Concentration ≥ 10% (Note 1)			Concentration ≥ 10% [(Note 1)]
Category 3 Specific Target Organ Toxicant			Concentration H336 ≥ 20% H335≥ 1% (Note 2)		

NOTES

1. If a Category 2 specific target organ toxicant is present in the mixture as an ingredient at a concentration ≥ 1.0% an SDS shall be available for the mixture upon request.

2. If a mixture contains ⩾ 1% of a component classified as H335 (respiratory tract irritation), the mixture is also labelled and classified as H335. The generic limit value has been set at 1% to be the same as the lowest threshold for Skin Irrit.2 (H315) and Eye Irrit.2 (H319) in order to be in line with the former combination R36/37/38 that had a unique threshold and has been replaced with H319, H335 and H315 respectively. See table 4.3 for the generic and specific concentration limits for STOT.

3. If EUH071 and H335 are both triggered on the label, then H335 must be omitted from the label. See the Note under 2.3.1.9 and the Note under the table of 2.3.2.6.

2.3.5.3 Examples of classification of mixtures

A mixture contains 2% Carbon monoxide and 2% Dimethylamine in nitrogen

Step 1: classification data of the ingredients

Carbon monoxide is classified in Annex VI as STOT RE 1

Dimethylamine is classified in Annex VI as STOT SE 3

Step 2: classification of the mixture for the different hazard categories according to the Generic and Specfic Concentration Limits (see Table 4.3):

STOT SE 3: NO, because there is less than 5 % of Dimethylamine

STOT RE 1: NO, because there is less than 10 % of Carbon monoxide

STOT RE 2: YES, because there is more than 1 % of Carbon monoxide.

2.3.5.4 Hazard communication

Label elements for specific target organ toxicity after:

	- single exposure			- repeated exposure	
Classification	**STOT SE 1**	**STOT SE 2**	**STOT SE 3**	**STOT RE 1**	**STOT RE 2**
GHS Pictograms					
Signal word	Danger	Warning	Warning	Danger	Warning
Hazard statement	H370: Causes damage to organs	H371: May cause damage to organs	H335: May cause respiratory irritation; **or** H336: May cause drowsiness and dizziness	H372: Causes damage to organs	H373: May cause damage to organs
Precautionary statement Prevention	P260 P264 P270	P260 P264 P270	P261 P271	P260 P264 P270	P260
Precautionary Statement Response	P307~~8~~ + P311 P321	P308~~9~~ + P311	P304 + P340 P312	P314	P314
Precautionary Statement Storage	P405	P405	P403 + P233 P405		
Precautionary Statement Disposal	P501	P501	P501	P501	P501

2.3.6 Hazard class 'Endocrine disruption for human health'

2.3.6.1 Classification of substances

The classification shall be largely based on evidence from at least one of the following:

a) human data;
b) animal data;
c) non-animal data providing an equivalent predictive capacity as data in points a or b.

So far, no gas has been classified for Endocrine disruption for human health according to the criteria of table 3.11.1 of CLP

Details about substances with endocrine disrupting properties can be found on the Candidate List and/or https://edlists.org

2.3.6.2 Classification of mixtures

A mixture shall be classified as an endocrine disruptor for human health where at least one component has been classified as a Category 1 or Category 2 endocrine disruptor for human health and is present at or above the appropriate generic concentration limit as shown in Table 3.11.2 of CLP for Category 1 and Category 2, respectively.

Generic concentration limits of components of a mixture classified as endocrine disruptor for human health that trigger classification of the mixture (table 3.11.2 of the CLP)

Component classified as:	Generic concentration limits triggering classification of a mixture as:	
	Category 1 endocrine disruptor for human health	Category 2 endocrine disruptor for human health
Category 1 endocrine disruptor for human health	Concentration ≥ 0,1%	
Category 2 endocrine disruptor for human health		Concentration ≥ 1% (Note 1)

NOTES

1. If a Category 2 endocrine disruptor for human health is present in the mixture as an ingredient at a concentration ≥ 0,1 % a SDS shall be available for the mixture upon request.

2. The concentration limits in this table shall apply for gases in v/v units.

2.3.6.3 Examples of classification of mixtures

As no gas has been classified for Endocrine disruption for human health an example cannot be given.

2.3.6.4 Hazard communication

Label elements for Endocrine disruption for human health

Classification	Category 1	Category 2
GHS Pictograms		
Signal word	Danger	Warning
Hazard statement	EUH380: May cause endocrine disruption in humans	EUH381: Suspected of causing endocrine disruption in humans
Precautionary statement Prevention	P201 P202 P263 P280	P201 P202 P263 P280
Precautionary Statement Response	P308 + P313	P308 + P313
Precautionary Statement Storage	P405	P405
Precautionary Statement Disposal	P501	P501

2.4 Effects on the environment

The GHS identifies 2 hazard classes for environmental hazards. Both hazard classes are relevant for gases but only one is relevant for Class 2 Gases in Transport Regulations. In addition, the EU has labelling requirements for certain fluorinated gases that have a global warming potential.

In COMMISSION DELEGATED REGULATION (EU) 2023/707 three additional hazard classes are introduced into CLP that are not identified in GHS.

Hazard Class	Relevant to Gases in CLP	Considered by Transport Regulations for Class 2 Gases
Hazardous to the aquatic environment	Yes	Yes
Hazardous to the ozone layer	Yes	No
Fluorinated gases with a global warming potential	Yes	No
Endocrine disruption for the environment	Yes	No
Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative properties	Yes	No
Persistent, Mobile and Toxic or Very Persistent, Very Mobile properties	Yes	No

2.4.1 Hazard class 'Hazardous to the aquatic environment'

2.4.1.1 Classification of substances and mixtures

The hazard class 'Hazardous to the aquatic environment' considers one Category for short- term (acute) hazard and four Categories for long-term (chronic) hazard.

Classification categories for hazardous to the aquatic environment	
Short-term(acute) aquatic hazard	**Long-term (chronic) aquatic hazard**
Category Acute 1 (Note 1)	**Category Chronic 1** (Note 1)
	Category Chronic 2
	Category Chronic 3
	Category Chronic 4
Note 1 When classifying substances as Category Acute 1 and/or Category Chronic 1 it is necessary at the same time to indicate an appropriate M-factor.	

Several gases are classified as hazardous to the aquatic environment in Annex VI of the CLP. More gases might be classified during the registration process under REACH and this document will be updated accordingly. This document does not review the test methods and criteria to classify single gases.

2.4.1.2 Classification of mixtures

The classification for both Acute and Chronic Categories can be made according to the Summation Method summarised in the table below.

Classification of a mixture for acute hazards, based on summation of classified components (Table 4.1.1 of CLP)	
Sum of components classified as:	**Mixture is classified as:**
Acute 1 x M ≥25%	Acute 1
Classification of a mixture for long term hazards, based on summation of classified components (Table 4.1.2 of CLP)	
Sum of components classified as:	**Mixture is classified as:**
Chronic 1 x M ≥ 25%	Chronic 1
(M x 10 x Chronic 1) + Chronic 2 ≥ 25%	Chronic 2
(M x 100 x Chronic 1) + (10 x Chronic 2) + Chronic 3 ≥ 25%	Chronic 3
Chronic 1 + Chronic 2 + Chronic 3 + Chronic 4 ≥ 25%	Chronic 4

NOTE The M factor could be different for the Acute effects than for the Chronic effects.

2.4.1.3 Examples of classification of mixtures

Example 1: A mixture contains 0.1% Chlorine in nitrogen

Step 1: classification data of the ingredients

Chlorine is classified in Annex VI as Aquatic Acute 1 with an M factor of 100

Step 2: classification of the mixtures for the different hazard categories:

Aquatic Acute 1: NO, because 0.1% x 100= 10 is less than 25

The 'M' values for all gases are listed in tables 4.4.

Example 2: A mixture contains 2.4% Arsine in nitrogen

Step 1: classification data of the ingredients

Arsine is classified in Annex VI as Aquatic Acute 1 and Aquatic Chronic 1 with an M factor of 1

Step 2: classification of the mixtures for the different hazard categories:

Aquatic Acute 1: NO, because 2.4 x 1= 2.4 is less than 25

Aquatic Chronic 1: NO, because 2.4 x 1= 2.4 is less than 25

Aquatic Chronic 2: NO, because 2.4 x 10= 24 is less than 25

Aquatic Chronic 3: YES, because 2.4 x 100= 240 is more than 25

2.4.1.4 Hazard communication for hazardous to the aquatic environment

	Short-term (Acute) aquatic hazard	Long-term (Chronic) aquatic hazard			
	Aquatic Acute1	**Aquatic Chronic 1**	**Aquatic Chronic 2**	**Aquatic Chronic 3**	**Aquatic Chronic 4**
Transport Pictograms				Category not considered for transport	Category not considered for transport
GHS Pictograms				No pictogram is used	No pictogram is used
Signal word	Warning	Warning	No signal word is used	No signal word is used	No signal word is used
Hazard statement	H 400: Very toxic to aquatic life	H 410: Very toxic to aquatic life with long lasting effects	H 411: Toxic to aquatic life with long lasting effects	H 412: Harmful to aquatic life with long lasting effects	H 413: May cause long lasting harmful effects to aquatic life
Precautionary Statement Prevention	P273	P273	P273	P273	P273
Precautionary Statement Response	P391	P391	P391		
Precautionary Statement Storage					
Precautionary Statement Disposal	P501	P501	P501	P501	P501

NOTE If the GHS09 pictogram is triggered by the CLP classification, the environmental mark for transport is also applicable. IMDG has a dedicated list of marine pollutant substances. If a substance is listed as a marine pollutant without being classified as environmental hazardous for CLP, this substance shall be labelled with the environmental mark.

2.4.2 Hazard class 'Endocrine disruption for the environment´

2.4.2.1 Classification of substances

The classification shall be largely based on evidence from at least one of the following:
a) animal data;
b) non-animal data providing an equivalent predictive capacity as data in point a.

So far, no gas has been classified for Endocrine disruption for the environment according to the criteria outlined in the table 4.2.1 of CLP.

Details about substances with endocrine disrupting properties can be found on the Candidate List and/or https://edlists.org

2.4.2.2 Classification of mixtures

A mixture shall be classified as an endocrine disruptor for the environment where at least one component has been classified as a Category 1 or Category 2 endocrine disruptor for the environment and is present at or above the appropriate generic concentration limit as shown in the following table for Category 1 and Category 2, respectively.

Generic concentration limits of components of a mixture classified as endocrine disruptor for the environment that trigger classification of the mixture (table 4.2.2 of the CLP)

Component classified as:	**Generic concentration limits triggering classification of a mixture as:**	
	Category 1 endocrine disruptor for the environment	**Category 2 endocrine disruptor for the environment**
Category 1 endocrine disruptor for the environment	Concentration ≥ 0,1%	
Category 2 endocrine disruptor for the environment		Concentration ≥ 1% (Note 1)

NOTES

1. If a Category 2 endocrine disruptor for the environment is present in the mixture as an ingredient at a concentration ≥ 0,1 % a SDS shall be available for the mixture upon request.

2. The concentration limits in this table shall apply for gases in v/v units.

2.4.2.3 Examples of classification of mixtures

As no gas has been classified for Endocrine disruption for the environment an example cannot be given.

2.4.2.4 Hazard communication

Label elements for endocrine disruption for the environment:

Classification	Category 1	Category 2
Pictogram		
Signal word	Danger	Warning
Hazard statement	EUH430: May cause endocrine disruption in the environment	EUH431: Suspected of causing endocrine disruption in the environment
Precautionary statement Prevention	P201 P202 P273	P201 P202 P273
Precautionary Statement Response	P391	P391
Precautionary Statement Storage	P405	P405
Precautionary Statement Disposal	P501	P501

2.4.3 Hazard class 'Persistent, Bioaccumulative and Toxic (PBT) or Very Persistent, Very Bioaccumulative properties (vPvB)

2.4.3.1 Classification of substances

So far, no gas has been classified for Persistent, Bioaccumulative and Toxic or Very Persistent, Very Bioaccumulative properties.

2.4.3.2 Classification of mixtures

A mixture shall be classified respectively as a PBT or vPvB when at least one component contained in the mixture has been classified respectively as a PBT or vPvB and is present at or above 0,1 % (weight/weight).

2.4.3.3 Examples of classification of mixtures

No examples available so far

2.4.3.4 Hazard communication

Label elements for PBT and vPvB properties**:**

Classification	PBT	vPvB
Pictogram		
Signal word	Danger	Danger
Hazard statement	EUH440: Accumulates in the environment and living organisms including in humans	EUH441: Strongly accumulates in the environment and living organisms including in humans
Precautionary statement Prevention	P201 P202 P273	P201 P202 P273
Precautionary Statement Response	P391	P391
Precautionary Statement Storage		
Precautionary Statement Disposal	P501	P501

If the hazard statement EUH441 is assigned, the statement EUH440 may be omitted.

2.4.4 Hazard class 'Persistent, Mobile and Toxic or Very Persistent, Very Mobile properties´

2.4.4.1 Classification of substances

So far, no gas has been classified for Persistent, Mobile and Toxic or Very Persistent, Very Mobile properties.

2.4.4.2 Classification of mixtures

A mixture shall be classified as a PMT or vPvM where at least one of its components has been classified as a PMT or vPvM and is present at or above 0,1 % (weight/weight).

2.4.4.3 Examples of classification of mixtures

No examples available so far

2.4.4.4 Hazard communication

Label elements for PMT and vPvM properties**:**

Classification	PMT	vPvM
Pictogram		
Signal word	Danger	Danger
Hazard statement	EUH450: Can cause long-lasting and diffuse contamination of water resources	EUH451: Can cause very long-lasting and diffuse contamination of water resources
Precautionary statement Prevention	P201 P202 P273	P201 P202 P273
Precautionary Statement Response	P391	P391
Precautionary Statement Storage		
Precautionary Statement Disposal	P501	P501

If the hazard statement EUH451 is assigned, the statement EUH450 may be omitted.

2.4.5 Hazard class ‘Hazardous to the ozone layer’

2.4.5.1 Classification criteria for substances

Some substances have been identified as presenting a danger to the structure and/or the functioning of the stratospheric ozone layer. This includes substances which are listed in Annex I to Council Regulation (EC) No 2024/590 on substances that deplete the ozone layer and its future amendments. Gases listed in that Regulation are identified in section 4.4 with their ozone depleting potential (ODP) factor. **The uses of those substances (also in mixtures) are subject to authorisation. The gas cylinders shall indicate on the label for which use it is authorised (e.g. with phrase EIGA-0919, see section 6.1.C).**

2.4.5.2 Classification criteria for mixtures

Mixtures are classified as Hazardous to the Ozone Layer on the basis of the individual concentration (no summation) of the substance(s) contained therein that are also classified as Hazardous to the Ozone Layer, in accordance with the table below (Table 5.1 of CLP).

Classification of the substance	Classification of the mixture
Hazardous to the ozone layer (Category 1)	C ≥ 0.1%

2.4.5.3 Examples of classification for mixtures

Example 1:

0.08% Chlorodifluoromethane (R22) + 0.04% Dichlorodifluoromethane (R12) + 1.3% Difluoromethane (R32, HFC-32) in Nitrogen

The mixture is not classified as 'hazardous to the ozone layer' because R12 and R22, both ozone depleting substances, are not present individually above 0.1%.

Example 2:

0.12% Dichlorofluoromethane (R21) in Nitrogen

The mixture is classified as 'hazardous to the ozone layer' because R21, an ozone depleting substance, is present above 0.1%.

2.4.5.4 Hazard communication for Hazardous to the Ozone Layer (table 5.2 of the CLP)

Symbol/pictogram	
Signal Word	**Warning**
Hazard Statement	**H420: Harms public health and the environment by destroying ozone in the upper atmosphere**
Precautionary statements	**P502**

2.4.6 Fluorinated gases with a Global Warming Potential

2.4.6.1 Requirements

EU Regulation 2024/573 requires that pressure receptacles for certain listed greenhouse gases and their mixtures (called F-Gases hereafter) are labelled to indicate:

- they contain fluorinated greenhouse gases
- the industry designation of the fluorinated greenhouse gases
- the quantity of F-Gases expressed in kilograms
- and when required, for which use they are placed on the market. see phrases in 6.1.C

Since 1 January 2017, the label shall indicate in addition the 'CO2 equivalent'. The CO2 equivalent is the product of the Global Warming Potential (GWP) value for those gases with their quantity expressed in kilograms. The GWP values are listed in section 4.4. For mixtures containing those gases, the GWP of the mixture is calculated proportionally to their weight percentages. The labelling requirements are specified in the Commission Regulation (EU) 2024/2174.

2.4.6.2 Example: A 10 kg product cylinder filled with 20 vol.% hexafluoroethane in oxygen used for wafer cleaning in electronics manufacturing installations

$GWP_{mixt.}$ = Sum Mass fractions $_i$ x GWP_i where

GWP_i = GWP of the ingredient

Mass fraction$_i$ = Mass fraction of the ingredient

Mass fraction$_i$ = Volume fraction$_i$ x Molar Mass$_i$ /Sum$_i$ (Volume fraction$_i$ x Molar Mass$_i$)

Hexafluoroethane (EIGA064): GWP= 12400; MW= 138.012 kg/kMol

Oxygen (EIGA097): GWP= 0; MW= 32 kg/kMol

Mass fraction $_{C2F6}$ = 0.2 x 138/ (0.2 x 138 + 0.8 x 32) = 27.6/53.2 = 0.519
Mass fraction $_{02}$ = 0.8 x 32/(0.2 x 138 + 0.8 x 32) = 25.6/53.2 = 0.481

$GWP_{mixt.}$= (0.519 x 12400 + 0.481 x 0) = 6336

Total CO2 equivalent = 10kg x 6336= 63360 kg
The cylinder needs to bear a label with the following indications:
a) The text: **'*Contains fluorinated greenhouse gases*'**
b) The industrial designation or the chemical name: R116, PFC-116 or Hexafluoroethane
c) The phrase ***'For etching/cleaning in semiconductor industry only'***
d) The weight of the greenhouse gas mixture: **10 kg** and the mention: **CO2eq=63Tonnes**
The information needed in a), b), c) and d) are part of the CLP label as supplemental information. However, the information needed in d) is content specific and may be part of a separate label or part of a tie-on tag.

2.5 EIGA approved Software (LISAM-ExESS)

EIGA has collaborated with LISAM SYSTEMS to develop a software geared to the needs of the gas industry for the classification of gases and gas mixtures and the creation of Safety Data Sheets. This LISAM software is reserved for EIGA members only and is further described in EIGA Doc 919 section 3.

3 Labelling

3.1 General

The purpose of labelling is to give the carrier and the user of the product clear, indelible and concise indications of the hazards of the product and some safety advice on how to handle it. Labelling is the immediate consequence of the classification process described in section **1.4**.

The requirements for the content of the label for packagings containing gases are quite different in the transport regulations and in the CLP Regulation as shown in the table below.

Labelling requirements	
Transport regulations (section 5.2)	**CLP Regulation (art.17)**
	Name, address and telephone number of the supplier
	Nominal quantity of the substance or mixture in the package made available to the general public, unless this quantity is specified elsewhere on the package
Product identification	Product identification
Hazard label(s)	Hazard pictogram(s)
	Signal Word(s)
	Hazard statement(s)
	Precautionary statement(s)
	Supplemental information / Other information / UFI

3.2 Label content

3.2.1 Name, address and telephone number of the supplier

The supplier may be established outside the European Community. The ‘emergency tel. n°’ is required on the SDS but not on the label.

3.2.2 Nominal quantity of the substance or mixture

This requirement is not related to the UN-GHS and **relates only to packages placed on the market for the general public, e.g. propane and butane for the household**. The quantities should be specified as a mass in kg for liquefied gases or as a pressure for compressed gases. The quantities may be permanently marked to satisfy the requirements of the ADR on labelling in 5.2.1 or on marking in 6.2.

3.2.3 Product identification

The requirements are different for the transport regulations and the CLP Regulations and if the product is a single gas or is a gas mixture.

Product identification	
Transport regulations (section 5.2)	**CLP Regulation (art.18)**
For single gases	
• the UN number and the proper shipping name of the gas, as listed in Table A of 3.2 of ADR/RID/ADN; • in the case of a NOS position, the technical name	• the name appearing in Part 3 of Annex VI of the CLP Regulation and an identification number if it is listed; • if it not listed, an internationally recognized designation such as the IUPAC name and the CAS number
For gas mixtures	
• the UN number[Note4] and the proper shipping name of the gas mixture as listed in Table A of 3.2 of ADR/RID/ADN; • for N.O.S positions, two constituents which most predominantly contribute to the hazards shall be indicated. The two constituents are chosen in accordance with section 6.5	• the trade name or the designation of the mixture; • the identity of all substances in the mixture that contribute to the classification of the mixture as regards acute toxicity, skin corrosion or serious eye damage, germ cell mutagenicity, carcinogenicity, reproductive toxicity, respiratory or skin sensitisation, specific target organ toxicity (STOT) or aspiration hazard. The names can be limited to 4.[Note 2]

NOTES

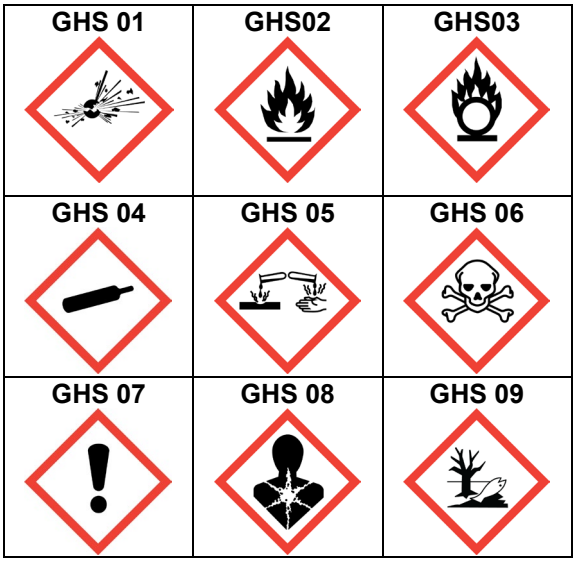
1. The product identification on the label shall be the same as on the SDS

2. The chemical names may appear on the package itself in a legible and durable way (stencilling for instance). It is current practice in the gas industry to list the full composition. If it is not the case, and if the main components are not included in the name of the mixture, the names of the constituents (up to 4) that contribute to the classification can be selected according to the rules described in section 6.6

3. The concentrations are not required on the label.

4. The size of the UN number (including the letters UN) shall not be less than 6mm on the labels for pressure receptacles of a capacity of 60 L or less. The minimum dimension is 12mm for pressure receptacles above 60 L. There is a transitional period up to the next periodic inspection after 2013 but not later than 30 June 2018 for receptacles up to 60L (ADR 1.6.1.25)

3.2.4 Hazard pictograms



The label shall include the relevant hazard pictogram(s) required by the classification for each hazard according to the chapter 2 of this document taking into account the following:

3.2.4.1 Rules of precedence for GHS pictograms

1) If the hazard pictogram ‘GHS06’ applies, the hazard pictogram ‘GHS07’ shall not appear;

2) if the hazard pictogram ‘GHS05’ applies, the hazard pictogram ‘GHS07’ shall not appear for skin or eye irritation;

3) if the hazard pictogram ‘GHS08’ applies for respiratory sensitisation, the hazard pictogram ‘GHS07’ shall not appear for skin sensitisation or for skin and eye irritation.

4) if one of the hazard pictograms ‘GHS02’ or ‘GHS06’ applies, the hazard pictogram ‘GHS04’ need not appear.

NOTE: This allowance is in line with the transport regulation that forbids affixing the ‘2.2 non-flammable, non-toxic label (the cylinder label) together with the ‘2.1 flammable label’ or with the ‘2.3 toxic label’. EIGA members are free to make use of this allowance at the earliest convenient opportunity.

3.2.4.2 Labelling of packages for both transport and CLP requirements (art.33.3)

In the case of single packages (e.g. gas cylinders, gas bundles, pressure drums, etc) that are labelled according to the rules on the transport of dangerous goods, the hazard pictogram(s) required by the CLP Regulation relating to the same hazard need not appear. This allowance does not prevent the use of both transport and CLP hazard symbol(s). Transport symbols (including the environmentally hazardous substance mark) and CLP hazard pictograms when on shoulder labels may be reduced in size to the extent described in ISO 7225. The allowance in ISO 7225 to overlap the transport symbols is not extended to CLP symbols. The CLP symbols should not overlap with each other and should not overlap with the transport symbols.

3.2.5 Signal Words: ‘Danger’ or ‘Warning’

The label shall include the relevant signal words determined by the classification for the different hazard classes in accordance with chapter 2 of this document.

Where the signal word ‘Danger’ is used on the label, the signal word ‘Warning’ shall not appear on the label.

3.2.6 Hazard statements

The label shall include all the relevant hazard statements determined by the classification for the different hazard classes in accordance with chapter 2 of this document unless there is evident duplication, e.g.:

- H318 ‘Causes serious eye damage’ may be omitted if H314 ‘Causes severe skin burns and eye damage’ is assigned

- H400 ‘Very toxic to aquatic life’ may be omitted if H410 ‘Very toxic to aquatic life with long lasting effects’ is assigned.

- Also H410 ‘Very toxic to aquatic life with long lasting effects’ may be used alone when the following combinations of H-statements are assigned *(see Table 4.1.6-a in ECHA ‘Guidance on the application of the CLP criteria’)*:

    - H400 ‘Very toxic to aquatic life’ and H411 ‘Toxic to aquatic life with long lasting effects’ or

    - H400 ‘Very toxic to aquatic life’ and H412 ‘Harmful to aquatic life with long lasting effects’ or

    - H400 ‘Very toxic to aquatic life’ and H413 ‘May cause long lasting harmful effects to aquatic life’

Attachment 6.1 of this manual shows the list of Hazard statements relevant for gaseous substances and gas mixtures.

3.2.7 Precautionary statements (PS)

Requirements and information regarding the selection of P-statements are given in the following articles of CLP and ECHA documents:

1. CLP Art. 22 gives information about the basic principles how to select PSs for the labelling.

2. CLP Art. 28 recommends the supplier to reduce the number of P-statements to 6 unless necessary to reflect the nature and the severity of the hazards.

3. The ECHA-document 'Guidance on the Application of Regulation (EC) No 1272/2008'.

P-statements are not part of the 'legal' classification of substances listed in the CLP Annex VI table 3.1.

The selection of P-statements is up to the manufacturers / suppliers.

The creation of further combined P-statements by suppliers other than those provided in the CLP is supported by the ECHA-CLP-guidance.

CLP introduces combined P-statements which consist of 2-4 single P-statements.

In general the number the P-statements has increased and the length of the statements (wording) is dependent on the language itself (maybe longer or shorter).

Selection of the most relevant PS:

Many gases are classified for multiple hazard classes (e.g. acute toxic and / or corrosive and / or CMR, combined with or without the hazard of flammability) and assigned numerous H Statements with multiple relevant P Statements.

In order to cover adequately the nature and the severity of the hazards, the recommended restriction to 6 P-Statements is only possible for gases and gas mixtures classified as:

- Gas under pressure

- Gas under pressure + H420

- Gas under pressure + oxidizing

- Gas under pressure + flammable

- Gas under pressure + only Acute toxic

For the other combinations of hazard classes and categories, EIGA recommends to extend the number of P-Statements to more than 6.

This approach has been done in table 4.6. for the pure gases.

The selection of the P-statements for gas mixtures is outlined in appendix 6.4.2 according to a prioritization process in order to select the most appropriate P-Statements.

Gas mixtures are normally labelled with a body label.

3.2.8 Supplemental Information / Other Information / UFI

Labelling information required by other legislation (e.g. F-Gases Regulation see 2.4.3) is listed in section 6.1.C

Information such as filling pressure, volume content, etc. may be added provided they do not diminish the impact of the safety information.

The Unique Formula Identifier (UFI) for mixtures that need to be notified to Poison Centres according to Annex VIII of the CLP: This 16 digit alphanumerical code preceded by the letters UFI such as **UFI: VDU1-414F-1003-1862** shall be printed on or affixed to the label**.**

NOTE The label shall be written in the official language(s) of the Member State(s) where the substance or mixture is placed on the market, unless the Member State(s) concerned provide otherwise (Art.17.2 of the CLP).

3.3 Size of the label

The CLP Regulation gives in 1.2.1 the minimum dimensions of the labels with the minimum size for the pictograms according to the volumetric size of the package.

Capacity of the package	Dimensions of the label (in millimetres)	Dimensions of each pictogram (in millimetres)
Not exceeding 3 litres:	If possible, at least 52 x 74	Not smaller than 10 x 10 If possible, at least 16 x 16
Greater than 3 litres but, not exceeding 50 litres:	At least 74 x 105	At least 23 x 23
Greater than 50 litres but not exceeding 500 litres:	At least 105 x 148	At least 32 x 32
Greater than 500 litres:	At least 148 x 210	At least 46 x 46

REGULATION (EU) 2024/2865 implements minimum dimensions of label, pictograms, font size and line spacing in CLP. Those can be used by 10th December 2024 and come in force on 1st January 2027 and on 1st January 2029 for substances and mixtures already placed on the market before 1st January 2027.

Capacity of the package	Dimensions of the label (in millimetres) for information required by Article 17	Dimensions of each pictogram (in millimetres)	Minimum font size (x-height in millimeters)
Not exceeding 0,5 litres:	If possible, at least 52 x 74	Not smaller than 10 x 10 If possible, at least 16 x 16	1,2
Greater than 0,5 litres but, not exceeding 3 litres			1,4
Greater than 3 litres but, not exceeding 50 litres:	At least 74 x 105	At least 23 x 23	1,8
Greater than 50 litres but not exceeding 500 litres:	At least 105 x 148	At least 32 x 32	2,0
Greater than 500 litres:	At least 148 x 210	At least 46 x 46	2,0

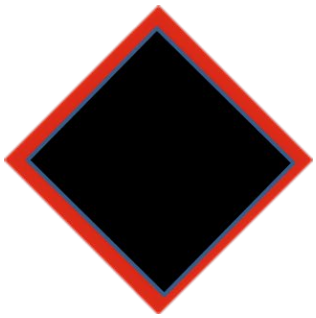
With reference to REGULATION (EU) 2024/2865 the text on the label shall have the following characteristics: (a) printed in black on a white background; (b) the distance between two lines shall be at least 120 % of the font size; (c) a single font that is easily legible and without serifs shall be used; (d) the letter spacing shall be appropriate for the selected font to be easily legible.

With reference to REGULATION (EU) 2024/2865 the label elements for substances and mixtures referred to in Article 17 shall be provided on a label in a physical form (“physical label”). In addition to the physical label, the label elements referred to in Article 17 may be provided in a digital form (“digital label”).

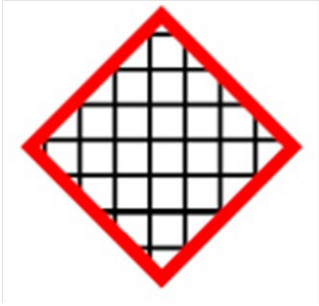
Suppliers may provide the label elements set out in section 1.6 of Annex I on a digital label only.

By derogation (see 1.3.1 of CLP), the shoulder label as described in ISO 7225 may be used for cylinders with a capacity less than 150 l provided that the information that cannot appear on the shoulder label does appear elsewhere on the package. In that case the CLP pictograms shall have the minimum dimensions defined in ISO 7225; i.e. 25 x 25 mm for a 50 litres cylinder.

It is obvious though that in view of the number of GHS pictograms and the number of H&P statements assigned to some gases and gas mixtures and the number of components to be indicated in the case of some mixtures, that the shoulder label cannot accommodate all the required content and an additional body label will be necessary. In that case the shoulder label is normally used to display the transport information while the body label is used to accommodate the GHS information. The body label is usually pre-printed with 4 coloured lozenge shapes to accommodate all possible combination of GHS symbols. The pre-printed labels are completed with a black printer to add the required GHS information according to the classification of the gas or the gas mixture. The unused lozenge(s) need(s) to be nullified to avoid confusion. Examples of 'nullification' are given below:



or



Note: Nullification by text (e.g. "Not a GHS symbol") is not recommended

For assemblies of cylinders, known as bundles, one set of transport danger label(s) with a size of minimum 10 x 10 cm is affixed on each side of the bundle. A label as suggested for single cylinders shall also be affixed close to the withdrawal connection(s).

For mobile pressure vessels larger than 150 l, e.g. drums or cryogenic cylinders, the minimum dimensions as outlined in the Regulation must be followed.

3.4 Practical example

Labelling of a 50 L gas cylinder containing a mixture of 1900 ppm Phosphine, 4.8 % Silicon tetrafluoride in Helium

Classification of Phosphine:

- for transport regulations: UN 2199 Toxic, flammable, liquefied gas; Tcrit= 51.6°C= 325 K; LC50 rat.1h= 20 ppm;

- for CLP Regulation (ECHA Data): Liq.Gas, H280; Flam. Gas 1A, H220; Pyr. Gas, H232; AcuteTox.1, H330; Skin Corr.1B, H314; Eye Dam.1, H318; Aquatic Acute 1, H400; M=1

Classification of Silicon tetrafluoride:

- for transport regulations: UN 1859 Toxic, corrosive, liquefied gas; Tcrit= -14.1°C= 259 K; LC50 rat.1h= 922 ppm;

- for CLP Regulation (Not in Annex VI. Self classification): Liq.Gas, H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318

Classification of Helium:

- for transport regulations: UN 1046 Tcrit = -268°C = 5 K

- for CLP Regulation (Not in Annex VI. Self classification): Press. Gas (Comp), H280.

3.4.1 Classification of mixture

Hazard Class	Decision on Category, Signal Word and HS	Transport Pictogram	CLP Pictogram	Precedence of pictograms
Gases under Pressure	Tcrit of mixture= 0.0019x325K + 0.048x259 K + 0.95x5K= 18K= -255°C **Press. Gas (Comp) H280: Contains gas under pressure; may explode if heated**		**GHS 04** 	**ADR label 2.2 makes GHS04 redundant**
Flammable gases	A'=0.19 / (0.19 + (0.9*95) = 0.19 / 85.69 = 0.00222 =0.222 mol% A'/Tci = 0.222/1.7 = 0.130 <1 **NOT Flammable, therefore also not pyrophoric**			
Acute toxicity	100/ATE_{mix}= sum V_i/ATE_i=0.19/10 + 4.8/461= 0.029412 ATE_{mix}=100/0.029412= 3400 ppm (4h) and 6800 ppm (1h) **Acute Tox.4, Warning** H332: Harmful if inhaled **Not toxic for transport**		**GHS 07** 	
Corrosive by inhalation for transport	100/$LC50_{mix}$=V_{corr}%/LC50 $LC50_{mix}$=100x922/4.8= 19208 ppm> 5000 ppm **Not corrosive for transport** EUH071 does not apply, H335: May cause respiratory irritation applies because C > 1%. (see note under 2.3.1.9)			
Skin Corr/Irr	Conc. Skin 1=0.19+4.8= 5%>4.99≥1% **Skin Irrit.2** **Warning** **H315: Causes skin irritation**		**GHS 07** 	**Not required for skin irritation when corrosion pictogram GHS05 applies**
Eye Damage/ Irr	Conc. Skin Corr.1≥3% **Eye Dam.1** **Danger** **H318: Causes serious eye damage**		**GHS 05** 	
Hazardous for the aquatic environment	Conc. Aquatic Acute 1 x M = 0.19 x 1 < 25% **Not Aquatic Acute 1**			

3.4.2 Label content

<table>
<tr><th colspan="5">Final labelling elements on a 50 L cylinder containing the mixture: 0.19% Phosphine, 4.8% Silicon Tetrafluoride in Helium</th></tr>
<tr><td>Product identification</td><td colspan="4">UN 1956 COMPRESSED GAS, N.O.S (Helium, Phosphine)</td></tr>
<tr><td>Pictograms</td><td colspan="4">  </td></tr>
<tr><td>Signal word, Hazard Statements</td><td colspan="4">Danger
H280: Contains gas under pressure; may exploded if heated
H332: Harmful if inhaled
H315: Causes skin irritation
H318: Causes serious eye damage
H335: May cause respiratory irritation</td></tr>
<tr><td rowspan="2">Selected Precautionary Statements (1)</td><td>Prevention</td><td>Response</td><td>Storage</td><td>Disposal</td></tr>
<tr><td>P260
P280a</td><td>P304+P340+P315
P302 + P352
P305+P351+ P338 +P315
P332+P313</td><td>P403</td><td></td></tr>
</table>

NOTE (1) The selection of the P Statements is described in full in Appendix 6.3.2.

Appendix 6.5 provides examples of shoulder labels and a combination ‘shoulder label + body label’.

3.5 Labelling of transport equipment as static storage

The labelling of transport equipment (MEGC, tank-container, etc.) according to the CLP for the use as a temporary static storage shall be separated from the transport labels and shall be complete with hazard pictograms, signal word, hazard and precautionary statements.

4 Data

This section lists the data necessary to classify all gases and their mixtures as well as to label their receptacles.

For non gaseous chemicals present in the mixture, the same data should be found in their respective datasheets.

If relevant experimental data is available, it should be used.

The following tables are maintained:

4.1 Identification Data

4.2 Physico-Chemical Data

4.3 Classification Data-Health Effects

4.4 Classification Data-Effects on the Environment

4.5 Transport Data

4.6 Labelling Data

4.1 Identification data

EIGA SDS No	Annex VI or USUAL NAME *(*) Gas data not maintained anymore in other sections*	FORMULA	CAS No	EC No
001	Acetylene (dissolved)	C2H2	74-86-2	200-816-9
002	Ammonia, anhydrous	NH3	7664-41-7	231-635-3
003A	Argon	Ar	7440-37-1	231-147-0
003B	Argon (refrigerated)	Ar	7440-37-1	231-147-0
004	*Arsenic pentafluoride (*)*	*AsF5*	*7784-36-3*	*232-061-6*
005	Arsine	AsH3	7784-42-1	232-066-3
006	Boron trichloride	BCl3	10294-34-5	233-658-4
007	Boron trifluoride	BF3	7637-07-2	231-569-5
008	*Bromochlorodifluoromethane (R12 B1) (*)*	*CBrClF2*	*353-59-3*	*206-537-9*
009	*Bromomethane(*)*	*CH3Br*	*74-83-9*	*200-813-2*
010	*Bromotrifluoroethylene (R113 B1) (*)*	*C2BrF3*	*598-73-2*	*209-948-1*
011	*Bromotrifluoromethane (R13 B1) (*)*	*CBrF3*	*75-63-8*	*200-887-6*
012	Butadiene 1,2-	1,2-C4H6	590-19-2	209-674-2
013	1,3-Butadiene	1,3-C4H6	106-99-0	203-450-8
014	Butane	n-C4H10	106-97-8	203-448-7
015	(Z)-but-2-ene	cis-C4H8	590-18-1	209-673-7
016	(E)-but-2-ene	trans-C4H8	624-64-6	210-855-3
017	but-1-ene	1-C4H8	106-98-9	203-449-2
018A	Carbon dioxide	CO2	124-38-9	204-696-9
018B	Carbon dioxide (refrigerated)	CO2	124-38-9	204-696-9
018C	Carbon dioxide (solid)	CO2	124-38-9	204-696-9
019	Carbon monoxide	CO	630-08-0	211-128-3
020	Carbonyl fluoride	CF2O	353-50-4	206-534-2
021	Carbonyl sulphide	COS	463-58-1	207-340-0
022	Chlorine	Cl2	7782-50-5	231-959-5
023	*Chlorine pentafluoride (*)*	*ClF5*	*13637-63-3*	*237-123-6*
024	Chlorine trifluoride	ClF3	7790-91-2	232-230-4
025	*Chlorodifluoroethane (R142 b) (*)*	*C2H3ClF2*	*75-68-3*	*200-891-8*
026	*Chlorodifluoroethylene (R1122) (*)*	*C2HClF2*	*359-10-4*	*206-625-7*
027	*Chlorodifluoromethane (R22) (*)*	*CHClF2*	*75-45-6*	*200-871-9*
028	Chloroethane	C2H5Cl	75-00-3	200-830-5
029	Chloromethane (R40)	CH3Cl	74-87-3	200-817-4
030	*Chloropentafluoroethane (R115) (*)*	*C2ClF5*	*76-15-3*	*200-938-2*
031	*Chlorotetrafluoroethane (R124) (*)*	*C2HClF4*	*2837-89-0*	*220-629-6*
032	*Chlorotrifluoroethane (R133a) (*)*	*C2H2ClF3*	*75-88-7*	*200-912-0*
033	Chlorotrifluoroethylene (R1113)	C2ClF3	79-38-9	201-201-8

EIGA SDS No	Annex VI or USUAL NAME *(*) Gas data not maintained anymore in other sections*	FORMULA	CAS No	EC No
034	*Chlorotrifluoromethane (R13) (*)*	*CClF3*	*75-72-9*	*200-894-4*
035	*Cyanogen (*)*	*C2N2*	*460-19-5*	*207-306-5*
036	*Cyanogen chloride(*)*	*CClN*	*506-77-4*	*208-052-8*
037	Cyclobutane	C4H8	287-23-0	206-014-5
038	Cyclopropane	C3H6	75-19-4	200-847-8
039	Deuterium	D2	7782-39-0	231-952-7
040	Diborane	B2H6	19287-45-7	242-940-6
041	*Dichlorodifluoromethane (R12) (*)*	*CCl2F2*	*75-71-8*	*200-893-9*
042	*Dichlorofluoromethane (R21) (*)*	*CHCl2F*	*75-43-4*	*200-869-8*
043	Dichlorosilane	SiH2Cl2	4109-96-0	223-888-3
044	*Dichlorotetrafluoroethane (R114) (*)*	*C2Cl2F4*	*76-14-2*	*200-937-7*
045	Difluoroethane (R152a, HFC-152a)	C2H4F2	75-37-6	200-866-1
046	Difluoroethylene 1,1- (R1132a)	C2H2F2	75-38-7	200-867-7
047	Di-methylamine	C2H7N	124-40-3	204-697-4
048	Dimethyl ether	C2H6O	115-10-6	204-065-8
049	Dimethylsilane	C2H8Si	1111-74-6	214-184-7
050	Disilane	Si2H6	1590-87-0	216-466-5
051A	Ethane	C2H6	74-84-0	200-814-8
051B	Ethane (refrigerated)	C2H6	74-84-0	200-814-8
052	Ethyl acetylene	C4H6	107-00-6	203-451-3
053	Ethyl methyl ether	C3H8O	540-67-0	
054	Ethylamine	C2H7N	75-04-7	200-834-7
055A	Ethylene	C2H4	74-85-1	200-815-3
055B	Ethylene (refrigerated)	C2H4	74-85-1	200-815-3
056	Ethylene oxide	C2H4O	75-21-8	200-849-9
057	Fluorine	F2	7782-41-4	231-954-8
058	Fluoroethane (R161, HFC-161)	C2H5F	353-36-6	206-531-6
059	Fluoromethane	CH3F	593-53-3	209-796-6
060	Germane	GeH4	7782-65-2	231-961-6
061A	Helium	He	7440-59-7	231-168-5
061B	Helium (refrigerated)	He	7440-59-7	231-168-5
062	2H-Heptafluoropropane (R227ea, HFC-227ea)	C3HF7	431-89-0	207-079-2
063	*Hexafluoroacetone (*)*	*C3F6O*	*684-16-2*	*211-676-3*
064	Hexafluoroethane (R116, PFC-116)	C2F6	76-16-4	200-939-8
065	*Hexafluoroisobutene(*)*	*C4H2F6*	*382-10-5*	*206-840-6*
066	Hexafluoropropene (R1216)	C3F6	116-15-4	204-127-4
067A	Hydrogen	H2	1333-74-0	215-605-7

EIGA SDS No	Annex VI or USUAL NAME *(*) Gas data not maintained anymore in other sections*	FORMULA	CAS No	EC No
067B	Hydrogen (refrigerated)	H2	1333-74-0	215-605-7
068	Hydrogen bromide	HBr	10035-10-6	233-113-0
069	Hydrogen chloride	HCl	7647-01-0	231-595-7
070	Hydrogen fluoride	HF	7664-39-3	231-634-8
071	Hydrogen iodide	HI	10034-85-2	233-109-9
072	Hydrogen selenide	H2Se	7783-07-5	231-978-9
073	Hydrogen sulphide	H2S	7783-06-4	231-977-3
074	Hydrogen telluride	H2Te	7783-09-7	231-981-5
075	Isobutane (R600a)	C4H10	75-28-5	200-857-2
076	2-methylpropene	C4H8	115-11-7	204-066-3
077A	Krypton	Kr	7439-90-9	231-098-5
077B	Krypton (refrigerated)	Kr	7439-90-9	231-098-5
078A	Methane	CH4	74-82-8	200-812-7
078B	Methane (refrigerated)	CH4	74-82-8	200-812-7
079	Methyl 3- butene 1	C5H10	563-45-1	209-249-1
080	Methyl vinyl ether	C3H6O	107-25-5	203-475-4
081	Methyl acetylene	C3H4	74-99-7	200-828-4
082	Mono-methylamine	CH5N	74-89-5	200-820-0
083	Methanethiol	CH4S	74-93-1	200-822-1
084	Methyl silane	CH6Si	992-94-9	213-598-5
086A	Neon	Ne	7440-01-9	231-110-9
086B	Neon (refrigerated)	Ne	7440-01-9	231-110-9
087	Neopentane	C5H12	463-82-1	207-343-7
088	Nitric oxide	NO	10102-43-9	233-271-0
089A	Nitrogen	N2	7727-37-9	231-783-9
089B	Nitrogen (refrigerated)	N2	7727-37-9	231-783-9
090 (1)	Nitrogen dioxide	NO2	(1)10102-44-0	(1)233-272-6
090 (2)	Dinitrogen tetraoxide	N2O4	(2)10544-72-6	(2)234-126-4
091	Nitrogen trifluoride	NF3	7783-54-2	232-007-1
092	*Nitrosyl chloride (*)*	*ClNO*	*2696-92-6*	*220-273-1*
093A	Dinitrogen oxide *Note: Common name: Nitrous oxide*	N2O	10024-97-2	233-032-0
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous oxide*	N2O	10024-97-2	233-032-0
094	Octafluorobutene (R1318)	C4F8	360-89-4	206-640-9
095	Octafluorocyclobutane (RC318, PFC-c-318)	C4F8	115-25-3	204-075-2
096	Octafluoropropane (R218, PFC-218)	C3F8	76-19-7	200-941-9
097A	Oxygen	O2	7782-44-7	231-956-9

EIGA SDS No	Annex VI or USUAL NAME *(*) Gas data not maintained anymore in other sections*	FORMULA	CAS No	EC No
097B	Oxygen (refrigerated)	O2	7782-44-7	231-956-9
099	Phosgene	CCl2O	75-44-5	200-870-3
100	Phosphine	PH3	7803-51-2	232-260-8
101	*Phosphorus pentafluoride (*)*	*PF5*	*7647-19-0*	*231-602-3*
102	Phosphorus trifluoride	PF3	7783-55-3	232-008-7
103	Propadiene 1,2-	C3H4	463-49-0	207-335-3
104	Propane (R290)	C3H8	74-98-6	200-827-9
105	Propylene (R1270)	C3H6	115-07-1	204-062-1
106	Selenium hexafluoride	SeF6	7783-79-1	620-577-8
107	Silane	SiH4	7803-62-5	232-263-4
108	Silicon tetrafluoride	SiF4	7783-61-1	232-015-5
109	*Stibine (*)*	*SbH3*	*7803-52-3*	*620-578-3*
110	Sulphur hexafluoride	SF6	2551-62-4	219-854-2
111	Sulphur tetrafluoride	SF4	7783-60-0	232-013-4
112	*Sulphuryl difluoride (*)*	*F2O2S*	*2699-79-8*	*220-281-5*
113	Sulphur dioxide	SO2	7446-09-5	231-195-2
114	Tetrafluoroethylene (R1114)	C2F4	116-14-3	204-126-9
116	Tetrafluoromethane (R14, PFC-14)	CF4	75-73-0	200-896-5
118	Trifluoroethane (R143a, HFC-143a)	C2H3F3	420-46-2	206-996-5
119	Trifluoromethane (R23, HFC-23)	CHF3	75-46-7	200-872-4
121	Trimethylsilane	C3H10Si	993-07-7	213-603-0
122	Tri-methylamine	C3H9N	75-50-3	200-875-0
123	Tungsten hexafluoride	WF6	7783-82-6	232-029-1
124	Bromoethylene	C2H3Br	593-60-2	209-800-6
125	Vinyl chloride	C2H3Cl	75-01-4	200-831-0
126	~~Vinyl fluoride~~Fluoroethylene	C2H3F	75-02-5	200-832-6
127	Xenon	Xe	7440-63-3	231-172-7
128	*Butane- (Containing ≥ 0.1% Butadiene-1,3) (*)*	*n-C4H10 (1,3-C4H6)*	*106-97-8*	*203-448-7*
129	*Isobutane (Containing ≥ 0.1% Butadiene-1,3) (*)*	*iso-C4H10 (1,3-C4H6)*	*75-28-5*	*200-857-2*
130	Difluoromethane (R32, HFC-32)	CH2F2	75-10-5	200-839-4
131	Hexafluoro-1,3-Butadiene	C4F6	685-63-2	211-681-0
132	Octafluorotetrahydrofuran	C4F8O	773-14-8	629-937-9
133	Tetrafluoroethane (R134a, HFC-134a)	C2H2F4	811-97-2	212-377-0
134	Refrigerant 410A *(mixture)*	N.A	N.A	N.A
135	Refrigerant 404A *(mixture)*	N.A	N.A	N.A
136	Refrigerant 407C *(mixture)*	N.A	N.A	N.A
137	Pentafluoroethane (R125, HFC-125)	C2HF5	354-33-6	206-557-8

EIGA SDS No	Annex VI or USUAL NAME *(*) Gas data not maintained anymore in other sections*	FORMULA	CAS No	EC No
138	Germanium tetrafluoride	GeF4	7783-58-6	232-011-3
139	Trimethylborane	$B(CH3)_3$	593-90-8	209-816-3
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC- 1234yf)	$C_3H_2F_4$	754-12-1	468-710-7
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R-1234ze, HFC-1234ze)	$C_3H_2F_4$	29118-24-9	471-480-0
142	Trichlorosilane	CL_3HSi	10025-78-2	233-42-5
143	Silicon Tetrachloride	$SiCl_4$	10026-04-7	233-054-0

4.2 Physico-chemical data

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
001	Acetylene (dissolved)	26	35.0	-84(s)	n.a.		3	2.3		2	yes	See table 35.2 below	No (305)
002	Ammonia, anhydrous	17	132.0	-33	20		40.1	15.4		12.2	no	-	No (630)
003A	Argon	40	-122.0	-186	n.a.	0.55					n.a	-	n.a
003B	Argon (refrigerated)	40		-186	n.a.	0.55					n.a	-	n.a
005	Arsine	78	100.0	-62.5	27.5		3.9	3.9		2	no	-	No (285)
006	Boron trichloride	117	181.9	12.5	3.2	1.5					n.a	-	n.a
007	Boron trifluoride	68	-12.3	-100	n.a.	1.5					n.a	-	n.a
012	Butadiene 1,2-	54	170.6	10.8	3.6		2	1.4		2	no	-	No (340)
013	1,3-Butadiene	54	152.0	-4.5	5.7		2	1.4		2	no	-	No (415)
014	Butane	58	152.0	-0.5	5		3.6	1.4		9.6	no	-	No (365)
017	but-1-ene	56	146.0	-6.2	5.9		3.3	1.5		9.7	no	-	No (360)
015	(Z)-but-2-ene	56	162.0	3.7	4.15		3.3	1.5		9.7	no	-	No (325)
016	(E)-but-2-ene	56	155.0	0.9	4.8		3.3	1.5		9.7	no	-	No (324)
018A	Carbon dioxide	44	31.0	-57 (@5.2 bar)	n.a.	1.5					n.a	-	n.a
018B	Carbon dioxide (refrigerated)	44	31.0		n.a.	1.5					n.a	-	n.a
018C	Carbon dioxide (solid)	44	31.0		n.a.	1.5					n.a	-	n.a
019	Carbon monoxide	28	-140.0	-191.5	n.a.		15.2	10.9		4.7	no	-	No (620)
020	Carbonyl fluoride	66	23.9	-83	n.a.	1.5					n.a	-	n.a

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
021	Carbonyl sulphide	60	101.8	-50	22.5		6.5	6.5		4.6	no	-	No (200)
022	Chlorine	71	144.0	-34	14.3				0.7		n.a	-	n.a
024	Chlorine trifluoride	92.5	186.2	12	3.9				40		n.a	-	n.a
028	Chloroethane	64.5	187.0	12.3	11.3		5.8	3.6		2	no	-	No (510)
029	Chloromethane (R40)	50.5	143.0	-23.8	11		12.3	7.6		2	no	-	No (625)
033	Chlorotrifluoroethylene (R1113)	116.5	106.0	-28.4	12.5		7.4	4.6		2	yes	4.6	No (540)
037	Cyclobutane	56	186.8	12.5	3.4		2.9	1.8		2	no	-	No data
038	Cyclopropane	42	125.0	-32.9	13.5		3.4	2.4		2	no	-	No (495)
039	Deuterium	4	-235.0	-250	n.a.		6.7	6.7		2	no	-	No (560)
040	Diborane	27.7	16.6	-92.5	n.a.		0.9	0.9		2	no	-	Yes (according to industry experience (136 - 139)
043	Dichlorosilane	101	176.0	8.4	3.8		2.5	2.5		2	no	-	No (175)
045	Difluoroethane (R152a, HFC-152a)	67	113.0	-25	12		8.7	4		2	no	-	No (455)
046	Difluoroethylene 1,1- (R1132a)	64	30.0	-84	n.a.		6.6	4.7		2	no	-	No (390)
130	Difluoromethane (R32, HFC-32)	52	78.5	-51.7	31.4		14	14		2	no	-	No (648)
047	Di-methylamine	45	164.0	7	4.6		2.8	2.8		2	no	-	No (402)
048	Dimethyl ether	46	127.0	-24.8	11.3		3.8	2.7		8.5	no	-	No (240)
049	Dimethylsilane	60	125.0	-19.6	7.7		1.2	1.2		2	no	-	No (205)

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
050	Disilane	62	158.9	-14.3	7.4		1	0.2(**)		2	no	-	Yes (-50°C)
051A	Ethane	30	32.0	-88.6	n.a.		4.5	2.4		8.8	no	-	No (515)
051B	Ethane (refrigerated)	30	32.0	-88.6	n.a.		4.5	2.4		8.8	no	-	No (515)
052	Ethyl acetylene	54	190.0	8	3.65		1.8	1.3		2	yes	See table 35.2 below	No data
054	Ethylamine	45	183.0	16.6	33		5.7	3.5		2	no	-	No (385)
053	Ethyl methyl ether	60	165.0	7.4	4.3		2.8	2		2	no	-	No (190)
055A	Ethylene	28	9.5	-103	n.a.		4.1	2.4		7.6	no	-	No (440)
055B	Ethylene (refrigerated)	28	9.5	-103	n.a.		4.1	2.4		7.6	no	-	No (440)
056	Ethylene oxide	44	196.0	10.4	3.9		4.8	2.6		2	yes	15 % with rare gases. 30 % for others	No (435)
057	Fluorine	38	-129.0	-188	n.a.				40		n.a	-	n.a
058	Fluoroethane (R161, HFC-161)	48	102.0	-37.1	17		6.1	3.8		2	no	-	No data
059	Fluoromethane	34	44.5	-78.4	n.a.		9	5.6		2	no	-	No data
060	Germane	76.6	34.8	-88.5	n.a.		1	1		2	no	-	No (88°C)
061A	Helium	4	-268.0	-269	n.a.	0.9					n.a	-	n.a
061B	Helium (refrigerated)	4	-268.0	-269	n.a.	0.9					n.a	-	n.a
062	2H-Heptafluoropropane (R227ea, HFC-227ea) **(*)**	170	100.0	-17.3	9.2	1.5	(3.7)				n.a	-	n.a
131	Hexafluoro-1,3-Butadiene	162	139.6	6	5,7		7	5.5		2	no	-	No (>500°C)

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
064	Hexafluoroethane (R116, PFC-116)	138	19.7	-78.2	n.a.	1.5					n.a	-	n.a
066	Hexafluoropropene (R1216)	150	94.0	-29.6	?	1.5					n.a	-	n.a
067A	Hydrogen	2	-240.0	-253	n.a.		5.5	4		4.3	no	-	No (560)
067B	Hydrogen (refrigerated)	2		-253	n.a.		5.5	4		4.3	no	-	No (560)
068	Hydrogen bromide	81	90.0	-66.7	42	1.5					n.a	-	n.a
069	Hydrogen chloride	36.5	51.4	-85	80.6	1.5					n.a	-	n.a
070	Hydrogen fluoride	20	188.0	19.5	?	1.5					n.a	-	n.a
071	Hydrogen iodide	128	151.0	-35.4	15.6	1.5					n.a	-	n.a
072	Hydrogen selenide	81	138.0	-41.4	20		4	4		2	no	-	No (>54°C)
073	Hydrogen sulphide	34	100.0	-60.2	36.4		8.9	3.9		9.1	no	-	No (270)
074	Hydrogen telluride	130	200.0	-1	?		1	1		2	no	-	No data
075	Isobutane (R600a)	58	135.0	-12	6.9		3.4	1.5		10.3	no	-	No (460)
076	2-methylpropene	56	145.0	-7.1	6.05		4	1.6		10.6	no	-	No (465)
077A	Krypton	84	-63.8	-153	n.a.	0.5					n.a	-	n.a
077B	Krypton (refrigerated)	84		-153	n.a.	0.5					n.a	-	n.a
078A	Methane	16	-82.0	-161	n.a.		8.7	4.4		11.0	no	-	No (595)
078B	Methane (refrigerated)	16		-161	n.a.		8.7	4.4		11.0	no	-	No (595)
079	Methyl 3- butene 1	70	177.2	20.1	2.6		2.4	1.5		2	no	-	No (365)
081	Methyl acetylene	40	130.0	-23.2	11.8		2.5	1.8		2	yes	See table 35.2 below	No (340)
082	Mono-methylamine	31	157.0	-6.3	7.9		6.9	4.9		2	no	-	No (430)

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
083	Methanethiol	48	197.0	6	4.3		5.7	4.1		2	no	-	No (360)
084	Methyl silane	46	79.3	-57.5	26.8		1.3	1.3		2	no	-	No (160)
080	Methyl vinyl ether	58	163.9	6	4.5		3.6	2.2		2	yes	3 %	No (220)
086A	Neon	20	-229.0	-246	n.a.	0.7					n.a	-	n.a
086B	Neon (refrigerated)	20	-229.0	-246	n.a.	0.7					n.a	-	n.a
087	Neopentane	72	160.0	9.5	3.8		2.1	1.3		2	no	-	No (450)
088	Nitric oxide	30	-93.0	-152	n.a.				0.3		n.a	-	n.a
089A	Nitrogen	28	-147.0	-196	n.a.	1					n.a	-	n.a
089B	Nitrogen (refrigerated)	28	-147.0	-196	n.a.	1					n.a	-	n.a
090 (1)	(1)Nitrogen dioxide	46.0	158.0	21.1	3.4				1		n.a	-	n.a
090 (2)	(2)Dinitrogen tetraoxide	46.0	158.0	21.1	3.4				1		n.a	-	n.a
091	Nitrogen trifluoride	71	-39.0	-129	n.a.				1.6		n.a	-	n.a
093A	Dinitrogen oxide *Note: Common name: Nitrous_-oxide*	44	36.4	-88.5	n.a.				0.6		n.a	-	n.a
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous_-oxide*	44	36.4	-88.5	n.a.				0.6		n.a	-	n.a
094	Octafluorobutene (R1318)	200	118.9	1.2	5.4	1.5					n.a	-	n.a
095	Octafluorocyclobutane (RC318, PFC-C-318)	200	115.0	-6.4	6.63	1.5					n.a	-	n.a

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
096	Octafluoropropane (R218, PFC-218)	188	71.9	-36.7	16.5	1.5					n.a	-	n.a
132	Octafluorotetrahydrofuran	216	126.8	-0.8	?	1.5					n.a	-	n.a
097A	Oxygen	32	-118.0	-183	n.a.				1		n.a	-	n.a
097B	Oxygen (refrigerated)	32	-118.0	-183	n.a.				1		n.a	-	n.a
137	Pentafluoroethane (R125)	120	66	-48.5	25.4	3.5					no	-	No (>750)
099	Phosgene	99	182.0	7.4	4	1.5					n.a	-	n.a
100	Phosphine	34	51.6	-88	62		1.7	1.6		2	no	-	Yes (38°C)
102	Phosphorus trifluoride	88	-2.0	-101	?	1.5					n.a	-	n.a
103	Propadiene 1,2-	40	119.9	-34.4	15		2.7	1.9		2	yes	See table 35.2 below	No (> 54°C)
104	Propane (R290)	44	96.7	-42.1	17		3.7	1.7		9.8	no	-	No (470)
105	Propylene (R1270)	42	92.4	-47.7	20.5		4.2	1.8		9.3	no	-	No (485)
106	Selenium hexafluoride	193	64.0	-34.5	?	1.5					n.a	-	n.a
107	Silane	32	-3.4	-112	n.a.		1	1.4		2	no	-	Yes (-50°C)
108	Silicon tetrafluoride	104	-14.1	-95.2(s)	?	1.5					n.a	-	n.a
113	Sulphur dioxide	64	158.0	-10	8.4	1.5					n.a	-	n.a
110	Sulphur hexafluoride	146	45.5	-64(s)	n.a.	4					n.a	-	n.a
111	Sulphur tetrafluoride	108	91.0	-40.4	?	1.5					n.a	-	n.a
133	Tetrafluoroethane (R134a, HFC-134a) (*)	102	101	-26.1	13.2	1.5	(4.5)				n.a	-	n.a

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
114	Tetrafluoroethylene (R1114)	100	33.0	-75.6	n.a.		10.5	10.5		2	yes	10.5	No (180)
116	Tetrafluoromethane (R14, PFC-14)	88	-45.0	-128	n.a.	2					n.a	-	n.a
118	Trifluoroethane (R143a, HFC-143a)	84	73.0	-47.6	23		11.3	7		2	no	-	No (750)
119	Trifluoromethane (R23, HFC-23) **(*)**	70	25.6	-82.2	n.a.	1.5	(8.7)				n.a	-	n.a
122	Tri-methylamine	59	160.0	3	4.5		3.2	2		2	no	-	No (190)
121	Trimethylsilane	74.2	158.9	6.7	3.9		1.3	1.3		2	no	-	No (235)
123	Tungsten hexafluoride	298	195.4	17	2.3	1.5					n.a	-	n.a
124	Bromoethylene	107	199.9	15.7	3		9	5.6		2	yes	5.6	No (> 54°C)
125	Vinyl chloride	62.5	158.9	-13.7	7.4		6.1	3.8		2	yes	3.8	No (415)
126	~~Vinyl fluoride~~ Fluoroethylene	46	55.0	-72.2	46.5		4.7	2.9		2	yes	3	No (500)
127	Xenon	131	16.6	-108	n.a.	0.5					n.a	-	n.a
138	Germanium tetrafluoride	148.6	?	-36.5	?	1.5					n.a	-	n.a
139	Trimethylborane	56	160.5	-20.2	?		1	1		2	no	-	Yes (< 54°C)
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC- 1234yf)	114	95	-29	5.8(20°c)		6.2	6.2 (ASTM E681-04)			no		No (405)

EIGA SDS No	AnnexVI or USUAL NAME (*) Partially halogenated hydrocarbon- see Note 2 of 2.2.2.3	MOLE WGHT	Tcrit °C	Tboil °C	Pvap @50°C Bar (a)	ISO 10156:2017 PARAMETERS K_k	T_{ci} %	L_i %	C_i	LOC %	Chemically unstable Manual of tests and criteria of UNRTDG – section 35) yes/no/n.a.	Max.Conc.%	Pyrophoric gases yes/no/n.a. (auto- ignition temp.°C)
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R1234ze, HFC-1234ze) (*)	114	109	-19	4.2(20°c)	1.5					no		No (368)
142	Trichlorosilane	135.5		32	0.66 (20°C)			6.9		2	no		NO (224)
143	Silicon Tetrachloride (Note1)	169.9		56.9	0.29(22.5°C)						no		No(>650)

(**) data from gas supplier

NOTE 1: Only used as pure not for mixture formulation

Table 35.2: Specific concentration limits for binary mixtures with acetylene. These concentration limits may also be applied to butyne-1 (ethylacetylene), propadiene and propyne

Concentration limit for acetylene in mol %	Maximum (filling) pressure in bar for a mixture with						
	N_2	CO_2	NH_3	H_2	CH_4	C_3H_8	C_2H_4
3.0	200.0						
4.0	100.0						
5.0				40.0			40.0
6.0	80.0						
8.0	60.0						
10.0	50.0	38.0	5.6	20.0	100.0	6.0	20.0
15.0	30.0	30.0		10.0			10.0
20.0	25.0	20.0	6.2	5.0	50.0	6.6	7.5
25.0	20.0	15.0					5.0
30.0	10.0	10.0	6.9		25.0	7.3	
35.0			7.3				
40.0					15.0	8.2	
45.0							
50.0					5.0	9.3	
60.0						10.8	

4.3 Classification data - Health effects

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
001	Acetylene (dissolved)	no acute toxicity	601-015-00-0	Press.Gas (Diss.) H280; Flam. Gas 1A, H220; Chem. Unst. Gas A, H230;		no acute toxicity						
002	Ammonia, anhydrous	4000 (P200)	007-001-00-5	Press. Gas (Liq.) H280; Flam. Gas 2, H221; Acute Tox.3, H331; Skin Corr. 1B, H314; Eye Dam.1, H318 Aquatic Acute 1, H400; Aquatic Chronic 2, H411	ECHA Data for H411 incl. EUH071 in Label.	2000	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1= STOT SE. 3 H335***
003A	Argon	no acute toxicity	not included	Press. Gas (Comp) H280		no acute toxicity						
003B	Argon (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.) H281		no acute toxicity						
005	Arsine	178 (P200)	033-006-00-7	Press. Gas (Liq.) H280; Flam. Gas 1A, H220; Acute Tox. 1 *, H330; STOT RE.2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	changed from Acute Tox Cat.2 into Acute Tox. Cat.1 by inhalation based on LC50	45 (ECHA data)						≥10=STOT RE. 2 H373
006	Boron trichloride	2541 (P200)	005-002-00-5	Press. Gas (Liq.), H280; Acute Tox. 2, H330; Acute Tox. 2, H300; Skin Corr. 1B H314; Eye Dam.1, H318 STOT SE3, H335	**'minimum' classification of Annex VI does not correspond to LC50 used to calculate mixtures**	194 (ECHA data)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
007	Boron trifluoride	864 (P200)	005-001-00-X	Press. Gas (Liq.), H280; Acute Tox. 2, H330; Skin Corr. 1A, H314; Eye Damage 1, H318; STOT SE3, H335; STOT RE 2, H373;	ECHA data (H335 added to Annex VI)	432 (ECHA data)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335*** ≥10 = STOT RE. 2 H373
012	Butadiene 1,2-	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
013	1,3-Butadiene	no acute toxicity	601-013-00-X	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Carc.1A, H350; Muta.1B, H340		no acute toxicity			≥0.1= Cat1	≥0.1= Cat1		
014	Butane	no acute toxicity	601-004-00-0	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
017	but-1-ene	no acute toxicity	601-012-00-4	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
015	(Z)-but-2-ene	no acute toxicity	601-012-00-4	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
016	(E)-but-2-ene	no acute toxicity	601-012-00-4	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
018A	Carbon dioxide	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
018B	Carbon dioxide (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.), H281		no acute toxicity						
018C	Carbon dioxide (solid)	no acute toxicity	not included	not classified as dangerous substance		no acute toxicity						
019	Carbon monoxide	3760 (P200)	006-001-00-2	Press. Gas (Comp), H280; Flam. Gas 1B, H221; Repr.1A, H360D; Acute tox.3, H331; STOT RE.1, H372		1300 (CLP)					≥0.3= Cat1	≥10= STOT RE.1 H372 ≥1= STOT RE.2 H373

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
020	Carbonyl fluoride	360 (P200)	not included	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	34,3 (ECHA data)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
021	Carbonyl sulphide	1700 (P200)	not included	Press. Gas (Liq.), H280; Flam. Gas 1B, H221; Acute Tox.3, H331		850						
022	Chlorine	293 (P200)	017-001-00-7	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.2, H330; Eye Irrit.2, H319; Skin Irrit.2, H315; Aquatic Acute 1, H400 STOT SE3, H335		146.5	≥10=Cat 2	≥10=Cat 2				***≥ 1=STOT SE. 3 H335***
024	Chlorine trifluoride	299 (P200)	not included	Press. Gas (Liq.), H280; Ox.Gas 1, H270; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	149.5	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
028	Chloroethane	no acute toxicity	602-009-00-0	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Carc.2, H351; Aquatic Chronic 3, H412		no acute toxicity				≥1=Cat 2		
029	Chloromethane (R40)	5133 (ISO) not considered for CLP classification	602-001-00-7	Press. Gas (Liq.), H280; Flam. Gas 1B, H221; Carc.2, H351; Repr.2, H361fd STOT RE.2, H373	ECHA data					≥1=Cat 2	≥3=Cat2	≥10 = STOT RE. 2 H373

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
033	Chlorotrifluoroethylene (R1113)	2000 (P200)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Acute Tox.3, H331 STOT SE1, H370 STOT RE1, H372	Different from Registration dossier to be aligned with classification for transport: Chem Unst. added and Tox.3 instead of Tox.4	1000						≥ 10= STOT SE 1 H370 ≥ 1= STOT SE 2 H371 ≥ 10=STOT RE 1 H372 ≥1= STOT RE2 H373
037	Cyclobutane	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
038	Cyclopropane	no acute toxicity	601-016-00-6	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
039	Deuterium	no acute toxicity	not included	Press. Gas (Comp), H280; Flam. Gas 1B, H221		no acute toxicity						
040	Diborane	80 (P200)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232 Acute Tox.1, H330		40						
043	Dichlorosilane	314 (P200)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2, H330; Skin Corr.1B, H314; Eye Dam.1, H318	EUH071 added to the Label.	157	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
045	Difluoroethane (R152a, HFC-152a)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220	ECHA data	no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
046	Difluoroethylene 1,1- (R1132a)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220	ECHA data	no acute toxicity						
130	Difluoromethane (R32, HFC-32)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1B, H221	ECHA data	no acute toxicity						
047	Di-methylamine	5290 (ISO)	612-001-00-9	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.4, H332; STOT SE 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318 Aquatic Chronic 3; H412	ECHA data EUH071 added to the Label.	2645	***≥5=Cat2***	***≥5=Cat1*** ***≥0.5=Cat 2***				***≥ 5=STOT SE. 3 H335***
048	Dimethyl ether	no acute toxicity	603-019-00-8	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
049	Dimethylsilane	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
050	Disilane	9500 Not in ISO; proposed by analogy with silane	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232	LC50 disregarded because of REACH Consortia							
051A	Ethane	no acute toxicity	601-002-00-X	Press. Gas (Liq.), H280; Flam. Gas 1A, H220	ECHA data	no acute toxicity						
051B	Ethane (refrigerated)	no acute toxicity	601-002-00-X	Press.Gas(Ref. Liq.), H281; Flam. Gas 1A, H220	ECHA data	no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
052	Ethyl acetylene	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231;		no acute toxicity						
054	Ethylamine	16000 (ISO)	612-002-00-4	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox4, H332; Eye Irrit.2, H319; STOT SE. 3, H335	ECHA data	4320 (ECHA data)		≥10=Cat 2				***≥ 5=STOT SE. 3 H335*** (same as methylamine)
053	Ethyl methyl ether	no acute toxicity	603-020-00-3	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
055A	Ethylene	no acute toxicity	601-010-00-3	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; STOT SE. 3, H336	ECHA data	no acute toxicity						≥20= STOT SE. 3 H336
055B	Ethylene (refrigerated)	no acute toxicity	601-010-00-3	Press. Gas (Ref. Liq.), H281; Flam. Gas 1A, H220; STOT SE. 3, H336	ECHA data	no acute toxicity						≥20= STOT SE. 3 H336

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
056	Ethylene oxide	2900 (P200)	603-023-00-X	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas A, H230; Carc.1B, H350; Muta.1B, H340; Repr. 1B, H360Fd Acute Tox.3, H331; Acute tox. 3, H301 Eye Dam. 1, H318; Skin Corr. 1, H314 STOT SE. 3 H335; STOT SE3, H336 STOT RE1, H372	ECHA data AnnexVI 14 ATP)	700 (ATE as of 14th ATP)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2	≥0.1= Cat1	≥0.1= Cat1	≥0.3= Cat1	***≥ 1=STOT SE 3 H335*** ≥ 1=STOT RE 2 H373 ≥ 10=STOT RE 1 H372 ≥ 20=STOT SE 3 H336
057	Fluorine	185 (P200)	009-001-00-0	Press. Gas (Comp), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318	changed from Acute Tox Cat.2 into Acute Tox. Cat.1 by inhalation based on LC50 EUH071 added to the Label.	92.5	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
058	Fluoroethane (R161, HFC-161)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
059	Fluoromethane	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
060	Germane	620 (P200)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2; H330		310						
061A	Helium	no acute toxicity	not included	Press. Gas (Comp), H280		no acute toxicity						
061B	Helium (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.), H281		no acute toxicity						
062	2H-Heptafluoropropane (R227ea, HFC-227ea) **(*)**	no acute toxicity	not included	Press. Gas (Liq.), H280	ECHA data	no acute toxicity						
131	Hexafluoro-1,3-Butadiene	1300 (Industry data)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220 Acute Tox.3; H331 STOT RE 2, H373 Aquatic Chronic 3, H412	ECHA data	667						≥10 = STOT RE. 2 H373
064	Hexafluoroethane (R116, PFC-116)	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
066	Hexafluoropropene (R1216)	6120 (from LC50/4h)	602-061-00-4	Press. Gas (Liq.), H280; Acute Tox.4, H332; STOT SE. 3, H335; STOT SE. 2, H371; STOT RE. 2, H373	ECHA data	3060 (ECHA data)						***≥ 1=STOT SE. 3 H335*** ≥10 = STOT SE. 2 H371 ≥10 = STOT RE. 2 H373
067A	Hydrogen	no acute toxicity	001-001-00-9	Press. Gas (Comp), H280; Flam. Gas 1A, H220		no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
067B	Hydrogen (refrigerated)	no acute toxicity	001-001-00-9	Press. Gas (Ref. Liq.), H281; Flam. Gas 1A, H220		no acute toxicity						
068	Hydrogen bromide	2860 (P200)	035-002-00-0	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318 STOT SE3, H335	ECHA database+ Acute Tox.Cat.3 added due to LC50;	1430	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
069	Hydrogen chloride	2810 (P200)	017-002-00-2	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	588	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
070	Hydrogen fluoride	1307 (P200)	009-002-00-6	Acute Tox.2, H330; Acute Tox.1, H310; Acute Tox.2, H300; Skin Corr.1A, H314; Eye Dam.1, H318	ECHA Data EUH071 added to the Label.	100 (generic ATE)	C≥5=Cat 1 C≥1=Cat 2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
071	Hydrogen iodide	2860 (P200)	053-002-00-9	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318	Acute Tox.Cat.3 added due to LC50; EUH071 added to the Label.	1430	***C≥0.2=Cat1 0.2>C≥0.02 = Cat2***	***C≥0.2= Cat 1 0.2>C≥0.02 = Cat2***				***≥0.02= STOT SE. 3 H335***
072	Hydrogen selenide	51 (P200 and ISO)	034-002-00-8 (selenium compounds)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.1, H330; Aquatic Acute 1,H400; Aquatic Chronic 1, H410		25,5						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
073	Hydrogen sulphide	712 (P200)	016-001-00-4	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2; H330; Eye Irrit. 2, H319 STOT SE3, H335; Aquatic Acute 1, H400	Supplier and ECHA Data	440 (ATE as of 21st ATP)		≥10=Cat 2				***≥ 1=STOT SE. 3 H335***
074	Hydrogen telluride	51 (ISO)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.1, H330		25.5						
075	Isobutane (R600a)	no acute toxicity	601-004-00-0	Press. Gas (Liq.), H280; Flam. Gas 1A, H220	ECHA Data	no acute toxicity						
076	2-methylpropene	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220	ECHA Data	no acute toxicity						
077A	Krypton	no acute toxicity	not included	Press. Gas (Comp), H280		no acute toxicity						
077B	Krypton (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.), H281		no acute toxicity						
078A	Methane	no acute toxicity	601-001-00-4	Press. Gas (Comp), H280; Flam. Gas 1A, H220	ECHA Data	no acute toxicity						
078B	Methane (refrigerated)	no acute toxicity	601-001-00-4	Press. Gas (Ref. Liq.), H281; Flam. Gas 1A, H220	ECHA Data	no acute toxicity						
079	Methyl 3- butene 1	no acute toxicity	not included	Flam.Liq.1 H224		no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
081	Methyl acetylene	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220 Chem. Unst. Gas B, H231; STOT SE3, H335;		no acute toxicity						***≥ 1=STOT SE. 3 H335***
082	Mono-methylamine	7110 (ISO)	612-001-00-9	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.3, H331; STOT SE. 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318		1600	***≥5=Cat2***	***≥5=Cat1*** ***≥0.5=Cat 2***				***≥ 5=STOT SE. 3 H335***
083	Methanethiol	1350 (P200)	016-021-00-3	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.3, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410;		675						
084	Methyl silane	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
080	Methyl vinyl ether	no acute toxicity	603-021-00-9	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231		no acute toxicity						
086A	Neon	no acute toxicity	not included	Press. Gas (Comp), H280		no acute toxicity						
086B	Neon (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.), H281		no acute toxicity						

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						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
087	Neopentane	no acute toxicity	601-005-00-6	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Aquatic Chronic 2, H411		no acute toxicity						
088	Nitric oxide	115 (P200)	not included	Press. Gas (Comp), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318	EUH071 added to the Label.	57.5	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 0.5= STOT SE 3 H335*** (same as NO2)
089A	Nitrogen	no acute toxicity	not included	Press. Gas (Comp), H280		no acute toxicity						
089B	Nitrogen (refrigerated)	no acute toxicity	not included	Press. Gas (Ref. Liq.), H281		no acute toxicity						
090 (1)	(1)Nitrogen dioxide	115 (P200)	007-002-00-0	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318	changed from Acute Tox Cat.2 into Acute Tox. Cat.1 by inhalation based on LC50 EUH071 added to the Label.	57.5	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 0.5= STOT SE 3 H335***

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
090 (2)	(2)Dinitrogen tetraoxide	115 (P200)	007-002-00-0	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318	changed from Acute Tox Cat.2 into Acute Tox. Cat.1 by inhalation based on LC50 EUH071 added to the Label.	57.5	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 0.5= STOT SE 3 H335***
091	Nitrogen trifluoride	6700 (ISO)	not included	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.4, H332; STOT RE2, H373		3350						≥10 = STOT RE 2 H373
093A	Dinitrogen oxide *Note: Common name: Nitrous oxide*	no acute toxicity	007-031-00-9	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Repr. 1B, H360Df; STOT SE3, H336; STOT RE 1, H372 (nervous system); Ozone 1, H420		no acute toxicity					≥0.3 = Cat1B	≥ 20 = STOT SE 3 H336 ≥10 = STOT RE 1 H372 ≥1 = STOT RE 2 H373
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous oxide*	no acute toxicity	007-031-00-9	Press. Gas (Ref. Liq.), H281; Ox. Gas 1, H270; Repr. 1B, H360Df; STOT SE3, H336; STOT RE 1, H372 (nervous system); Ozone 1, H420		no acute toxicity					≥0.3= Cat1B	≥ 20 = STOT SE 3 H336 ≥10 = STOT RE 1 H372 ≥1 = STOT RE 2 H373

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
094	Octafluorobutene (R1318)	12000 (ISO)	not included	Press. Gas (Liq.), H280; Acute Tox.4, H332		6000						
095	Octafluorocyclobutane (RC318, PFC-C-318)	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
096	Octafluoropropane (R218, PFC-218)	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
132	Octafluorotetrahydrofuran	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
097A	Oxygen	no acute toxicity	008-001-00-8	Press. Gas (Comp), H280; Ox. Gas 1, H270		no acute toxicity						
097B	Oxygen (refrigerated)	no acute toxicity	008-001-00-8	Press. Gas (Ref. Liq.), H281; Ox. Gas 1, H270		no acute toxicity						
137	Pentafluoroethane (R125)	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
099	Phosgene	5 (P200)	006-002-00-8	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1B, H314; Eye Dam.1, H318	changed from Acute Tox Cat.2 into Acute Tox. Cat.1 by inhalation based on LC50 EUH071 added to the Label.	2.3 (ECHA)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***

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						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
100	Phosphine	20 (P200)	015-181-00-1	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232 Acute Tox.1, H330; Skin Corr.1B, H314; Eye Dam.1, H318 Aquatic Acute 1, H400	ECHA Data	10 (ATE as of 15th ATP)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
102	Phosphorus trifluoride	436 (ISO)	not included	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	218	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
103	Propadiene 1,2-	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231;		no acute toxicity						
104	Propane (R290)	no acute toxicity	601-003-00-5	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
105	Propylene (R1270)	no acute toxicity	601-011-00-9	Press. Gas (Liq.), H280; Flam. Gas 1A, H220;		no acute toxicity						
106	Selenium hexafluoride	50 (P200)	034-002-00-8 (selenium compounds)	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318	classification of 'selenium compounds' in Annex VI does not fit. EUH071 added to the Label.	25	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***

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						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
107	Silane	19000 (ISO)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232	LC50 disregarded because of REACH Consortia							
108	Silicon tetrafluoride	922 (P200)	not included	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	461	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
113	Sulphur dioxide	2520 (P200)	016-011-00-9	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1B, H314; Eye Dam.1, H318 STOT SE 1, H370	ECHA Data EUH071 added to the Label.	1000 (ATE as of 21st ATP)	≥5=Cat1 ≥1=Cat2	≥3=Cat 1 ≥1=Cat2				***≥ 1=STOT SE 2 H371*** ***≥ 10=STOT SE 1 H370***
110	Sulphur hexafluoride	no acute toxicity	not included	Press. Gas (Liq.), H280	ECHA Data	no acute toxicity						
111	Sulphur tetrafluoride	40 (P200)	not included	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	20	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
133	Tetrafluoroethane (R134a, HFC-134a) **(*)**	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
114	Tetrafluoroethylene (R1114)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc.1B, H350; STOT SE2, H371	ECHA Data	no acute toxicity				≥0.1= Cat1		≥10=STOT SE.2 H371

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						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
116	Tetrafluoromethane (R14, PFC-14)	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
118	Trifluoroethane (R143a, HFC-143a)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1B, H221;		no acute toxicity						
119	Trifluoromethane (R23, HFC-23) **(*)**	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
122	Tri-methylamine	7000 (ISO)	612-001-00-9	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.4, H332; STOT SE. 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318	ECHA Data	3500	***≥5=Cat2***	***≥5=Cat1*** ***≥0.5=Cat 2***				***≥ 5=STOT SE. 3 H335***
121	Trimethylsilane	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		no acute toxicity						
123	Tungsten hexafluoride	218 (P200)	not included	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318	EUH071 added to the Label.	109	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
124	Bromoethylene	no acute toxicity	602-024-00-2	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc. 1B, H350		no acute toxicity				≥0.1=Cat1		
125	Vinyl chloride	no acute toxicity	602-023-00-7	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc. 1A, H350	ECHA Data	no acute toxicity				≥0.1=Cat1		

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						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
126	Fluoroethylene	no acute toxicity	602-111-00-5	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Muta 2, H341; Carc. 1A, H350; STOT RE 2, H373	ECHA Data	no acute toxicity			≥1=Cat2	≥0.1= Cat1		≥10=STOT RE.2 H373
127	Xenon	no acute toxicity	not included	Press. Gas (Liq.), H280		no acute toxicity						
138	Germanium tetrafluoride	280 (based on 4h)	not included	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318 STOT SE1, H370 STOT RE 1, H372	ECHA Data (Inventory)	140 (from supplier's data)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				≥ 10=STOT SE. 1 H370 ≥ 1=STOT SE. 2 H371 ≥10=STOT RE.1 H372 ≥1=STOT RE.2 H373
139	Trimethylborane	200 (based on 4h)	not included	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232 Acute Tox.2, H330 Skin Corr.1B, H314; Eye Dam.1, H318 STOT SE3, H335	Supplier Data	100 (ATE estimate for mixture classification)	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC-1234yf)	no acute toxicity	not included	Press. Gas (Liq.), H280; Flam. Gas 1B, H221	ECHA Data (registration)	no acute toxicity						

EIGA SDS No	Annex VI or USUAL NAME	LC50/rat 1h from P200 or from ISO 10298 (v)ppm	Annex VI Index No	CLP Classification as per Annex VI, REACH registration or as proposed by EIGA	Source and comments on Classification	Concentration limits for hazard classes and categories for health effects Specific concentration limits are marked ***bold italic***						
						Acute Tox. (inhalation) **LC50/rat 4h ppm**	**Skin Corr. 1 Skin Irrit. 2** **%**	**Eye Dam.1 Eye Irrit. 2** **%**	**Muta. 1 Muta. 2** **%**	**Carc. 1 Carc. 2** **%**	**Repr. 1 Repr. 2** **%**	**STOT SE1 STOT SE2 STOT SE3 STOT RE1 STOT RE2** **%**
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R1234ze, HFC-1234ze)	no acute toxicity	not included	Press. Gas (Liq.), H280	ECHA Data (registration)	no acute toxicity						
142	Trichlorosilane	Inhalation (4h): 7,6 mg/L (vapour) oral: LD50 1030 mg/kg bw	014-001-00-9	Flam liq 1, H224 Water react 1, H260 Acute tox 3, H331 Acute tox 4, H302 Skin corr 1A, H314 Eye dam 1, H318	ECHA Data (harmonized classification)	7.6 mg/L (vapour) (ATE as of 18th ATP) Converted to 1260ppm						***≥ 1=STOT SE. 3 H335***
143	Silicon Tetrachloride	1312 (ISO)	014-002-4	Acute Tox.3, H301, H331; Skin Corr.1A, H314; Eye Dam.1, H318; STOT SE3, H335;	ECHA data (registration)	656	≥5=Cat1 ≥1=Cat2	≥3=Cat1 ≥1=Cat2				***≥ 1=STOT SE. 3 H335***

4.4 Classification data - Effects on the environment

EIGA SDS No	ANNEX VI or USUAL NAME	Ozone layer		Global warming			Aquatic environment	
		Annex I EC Reg. 2024/590		EU Reg. 2024/573				
		CFC/ HCFC Group	Ozone Depl. Pot.	Listed in Annex I, II or III (yes)	GWP listed in Annex I, II, III or VI	GWP Not listed (1)	Aquatic. Env.	M factor
001	Acetylene (dissolved)						No known acute aquatic toxicity	
002	Ammonia, anhydrous				0		Aquatic Acute 1 Aquatic Chronic 2	1 (conf)
003A	Argon						No known acute aquatic toxicity	
003B	Argon (refrigerated)						No known acute aquatic toxicity	
005	Arsine						Aquatic Acute 1; Aquatic Chronic 1	1 1
006	Boron trichloride						No known acute aquatic toxicity	
007	Boron trifluoride						No known acute aquatic toxicity	
012	Butadiene 1,2-						No known acute aquatic toxicity	
013	1,3-Butadiene						No known acute aquatic toxicity	
014	Butane				0,006		No known acute aquatic toxicity	
017	but-1-ene						No known acute aquatic toxicity	
015	(Z)-but-2-ene						No known acute aquatic toxicity	
016	(E)-but-2-ene						No known acute aquatic toxicity	
018A	Carbon dioxide					1	No known acute aquatic toxicity	
018B	Carbon dioxide (refrigerated)					1	No known acute aquatic toxicity	
018C	Carbon dioxide (solid)					1	No known acute aquatic toxicity	
019	Carbon monoxide						No known acute aquatic toxicity	
020	Carbonyl fluoride						No known acute aquatic toxicity	
021	Carbonyl sulphide						No known acute aquatic toxicity	
022	Chlorine						Aquatic Acute 1	100
024	Chlorine trifluoride						No known acute aquatic toxicity	
028	Chloroethane						Aquatic Chronic 3	
029	Chloromethane (R40)				5,54		No known acute aquatic toxicity	
033	Chlorotrifluoroethylene (R1113)						No known acute aquatic toxicity	
037	Cyclobutane						No known acute aquatic toxicity	
038	Cyclopropane						No known acute aquatic toxicity	
039	Deuterium						No known acute aquatic toxicity	

EIGA SDS No	ANNEX VI or USUAL NAME	Ozone layer		Global warming			Aquatic environment	
		Annex I EC Reg. 2024/590		EU Reg. 2024/ 573		GWP Not listed (1)		
		CFC/ HCFC Group	Ozone Depl. Pot.	Listed in Annex I, II or III (yes)	GWP listed in Annex I, II, III or VI		Aquatic. Env.	M factor
040	Diborane						No known acute aquatic toxicity	
043	Dichlorosilane						No known acute aquatic toxicity	
045	Difluoroethane (R152a, HFC-152a)			yes	124		No known acute aquatic toxicity	
046	Difluoroethylene 1,1- (R1132a)				0,052		No known acute aquatic toxicity	
130	Difluoromethane (R32, HFC-32)			yes	675		No known acute aquatic toxicity	
047	Di-methylamine						Aquatic Chronic 3	1
048	Dimethyl ether				1		No known acute aquatic toxicity	
049	Dimethylsilane						No known acute aquatic toxicity	
050	Disilane						No known acute aquatic toxicity	
051A	Ethane				0,437		No known acute aquatic toxicity	
051B	Ethane (refrigerated)				0,437		No known acute aquatic toxicity	
052	Ethyl acetylene						No known acute aquatic toxicity	
054	Ethylamine						No known acute aquatic toxicity	
053	Ethyl methyl ether						No known acute aquatic toxicity	
055A	Ethylene				4		No known acute aquatic toxicity	
055B	Ethylene (refrigerated)				4		No known acute aquatic toxicity	
056	Ethylene oxide						No known acute aquatic toxicity	
057	Fluorine						No known acute aquatic toxicity	
058	Fluoroethane (R161, HFC-161)			yes	12		No known acute aquatic toxicity	
059	Fluoromethane			yes	92		No known acute aquatic toxicity	
060	Germane						No known acute aquatic toxicity	
061A	Helium						No known acute aquatic toxicity	
061B	Helium (refrigerated)						No known acute aquatic toxicity	
062	2H-Heptafluoropropane (R227ea, HFC-227ea) **(*)**			yes	3220		No known acute aquatic toxicity	
131	Hexafluoro-1,3-Butadiene						Aquatic Chronic 3	1
064	Hexafluoroethane (R116, PFC-116)			yes	12400		No known acute aquatic toxicity	
066	Hexafluoropropene (R1216)						No known acute aquatic toxicity	
067A	Hydrogen				6		No known acute aquatic toxicity	
067B	Hydrogen (refrigerated)				6		No known acute aquatic toxicity	

EIGA SDS No	ANNEX VI or USUAL NAME	Ozone layer		Global warming			Aquatic environment	
		Annex I EC Reg. 2024/590		EU Reg. 2024/ 573		GWP Not listed (1)		
		CFC/ HCFC Group	Ozone Depl. Pot.	Listed in Annex I, II or III (yes)	GWP listed in Annex I, II, III or VI		Aquatic. Env.	M factor
068	Hydrogen bromide						No known acute aquatic toxicity	
069	Hydrogen chloride						No known acute aquatic toxicity	
070	Hydrogen fluoride						No known acute aquatic toxicity	
071	Hydrogen iodide						No known acute aquatic toxicity	
072	Hydrogen selenide						Aquatic Acute 1; Aquatic Chronic 1	1 1
073	Hydrogen sulphide						Aquatic Acute 1	10
074	Hydrogen telluride						No known acute aquatic toxicity	
075	Isobutane (R600a)				0		No known acute aquatic toxicity	
076	2-methylpropene						No known acute aquatic toxicity	
077A	Krypton						No known acute aquatic toxicity	
077B	Krypton (refrigerated)						No known acute aquatic toxicity	
078A	Methane				27,9		No known acute aquatic toxicity	
078B	Methane (refrigerated)				27,9		No known acute aquatic toxicity	
079	Methyl 3- butene 1						No known acute aquatic toxicity	
081	Methyl acetylene						No known acute aquatic toxicity	
082	Mono-methylamine						No known acute aquatic toxicity	
083	Methanethiol						Aquatic Acute 1; Aquatic Chronic 1	1 1
084	Methyl silane						No known acute aquatic toxicity	
080	Methyl vinyl ether						No known acute aquatic toxicity	
086A	Neon						No known acute aquatic toxicity	
086B	Neon (refrigerated)						No known acute aquatic toxicity	
087	Neopentane						Aquatic Chronic 2	
088	Nitric oxide						No known acute aquatic toxicity	
089A	Nitrogen						No known acute aquatic toxicity	
089B	Nitrogen (refrigerated)						No known acute aquatic toxicity	
090 (1)	(1)Nitrogen dioxide						No known acute aquatic toxicity	
090 (2)	(2)Dinitrogen tetraoxide						No known acute aquatic toxicity	
091	Nitrogen trifluoride			yes	17400		No known acute aquatic toxicity	
093A	Dinitrogen oxide *Note: Common name: Nitrous_oxide*				273		No known acute aquatic toxicity	

EIGA SDS No	ANNEX VI or USUAL NAME	Ozone layer		Global warming			Aquatic environment	
		Annex I EC Reg. 2024/590		EU Reg. 2024/ 573		GWP Not listed (1)		
		CFC/ HCFC Group	Ozone Depl. Pot.	Listed in Annex I, II or III (yes)	GWP listed in Annex I, II, III or VI		Aquatic. Env.	M factor
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous oxide*				273		No known acute aquatic toxicity	
094	Octafluorobutene (R1318)						No known acute aquatic toxicity	
095	Octafluorocyclobutane (RC318, PFC-C-318)			yes	10200		No known acute aquatic toxicity	
096	Octafluoropropane (R218, PFC-218)			yes	9290		No known acute aquatic toxicity	
132	Octafluorotetrahydrofuran						No known acute aquatic toxicity	
097A	Oxygen						No known acute aquatic toxicity	
097B	Oxygen (refrigerated)						No known acute aquatic toxicity	
137	Pentafluoroethane (R125)			yes	3500		No known acute aquatic toxicity	
099	Phosgene						No known acute aquatic toxicity	
100	Phosphine						Aquatic Acute 1	1
102	Phosphorus trifluoride						No known acute aquatic toxicity	
103	Propadiene 1,2-						No known acute aquatic toxicity	
104	Propane (R290)				0,02		No known acute aquatic toxicity	
105	Propylene (R1270)				0		No known acute aquatic toxicity	
106	Selenium hexafluoride						No known acute aquatic toxicity	
107	Silane						No known acute aquatic toxicity	
108	Silicon tetrafluoride						No known acute aquatic toxicity	
113	Sulphur dioxide						No known acute aquatic toxicity	
110	Sulphur hexafluoride			yes	24300		No known acute aquatic toxicity	
111	Sulphur tetrafluoride						No known acute aquatic toxicity	
133	Tetrafluoroethane (R134a, HFC-134a) **(*)**			yes	1430		No known acute aquatic toxicity	
114	Tetrafluoroethylene (R1114)						No known acute aquatic toxicity	
116	Tetrafluoromethane (R14, PFC-14)			yes	7380		No known acute aquatic toxicity	
118	Trifluoroethane (R143a, HFC-143a)			yes	4470		No known acute aquatic toxicity	
119	Trifluoromethane (R23, HFC-23) **(*)**			yes	14800		No known acute aquatic toxicity	
122	Tri-methylamine						No known acute aquatic toxicity	
121	Trimethylsilane						No known acute aquatic toxicity	
123	Tungsten hexafluoride						No known acute aquatic toxicity	
124	Bromoethylene						No known acute aquatic toxicity	

EIGA SDS No	ANNEX VI or USUAL NAME	Ozone layer		Global warming			Aquatic environment	
		Annex I EC Reg. 2024/590		EU Reg. 2024/ 573		GWP Not listed (1)		
		CFC/ HCFC Group	Ozone Depl. Pot.	Listed in Annex I, II or III (yes)	GWP listed in Annex I, II, III or VI		Aquatic. Env.	M factor
125	Vinyl chloride						No known acute aquatic toxicity	
126	~~Vinyl fluoride~~ Fluoroethylene						No known acute aquatic toxicity	
127	Xenon						No known acute aquatic toxicity	
138	Germanium tetrafluoride						No known acute aquatic toxicity	
139	Trimethylborane						No known acute aquatic toxicity	
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC- 1234yf)			yes	0,501		No known acute aquatic toxicity	
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R1234ze, HFC-1234ze)			yes	1,37		No known acute aquatic toxicity	
142	Trichlorosilane						No known acute aquatic toxicity	
143	Silicon Tetrachloride						No known acute aquatic toxicity	

(1) ~~Based on the Fourth Assessment Report adopted by the Intergovernmental Panel on Climate Change~~ http://www.ipcc.ch/publications_and_data/ar4/wg1/en/erratataserrata-errata.html#2-14table. These values are not to be considered for the calculation of the GWP of mixtures containing fluorinated gases.

4.5 Transport data

A. Pure gases

EIGA SDS No	Annex VI or USUAL NAME *see Note	UN No	UN Class	UN Sub. risks	ADR/RID Classific. Code	Trpt Symbols ADR	Env. Hazard. Subst. Mark
001	Acetylene (dissolved)*	1001	2.1		4F	2.1	
002	Ammonia, anhydrous	1005	2.3	8	2TC	2.3+8	yes
003A	Argon	1006	2.2		1A	2.2	
003B	Argon (refrigerated)	1951	2.2		3A	2.2	
005	Arsine	2188	2.3	2.1	2TF	2.3+2.1	yes
006	Boron trichloride	1741	2.3	8	2TC	2.3+8	
007	Boron trifluoride	1008	2.3	8	2TC	2.3+8	
012	Butadiene 1,2-*	1010	2.1		2F	2.1	
013	1,3-Butadiene*	1010	2.1		2F	2.1	
014	Butane*	1011	2.1		2F	2.1	
017	but-1-ene*	1012	2.1		2F	2.1	
015	(Z)-but-2-ene*	1012	2.1		2F	2.1	
016	(E)-but-2-ene*	1012	2.1		2F	2.1	
018A	Carbon dioxide	1013	2.2		2A	2.2	
018B	Carbon dioxide (refrigerated)	2187	2.2		3A	2.2	
018C	Carbon dioxide (solid)						
019	Carbon monoxide	1016	2.3	2.1	1TF	2.3+2.1	
020	Carbonyl fluoride	2417	2.3	8	2TC	2.3+8	
021	Carbonyl sulphide	2204	2.3	2.1	2TF	2.3+2.1	
022	Chlorine	1017	2.3	8	2TOC	2.3+5.1+8	yes
024	Chlorine trifluoride	1749	2.3	5.1 + 8	2TOC	2.3+5.1+8	
028	Chloroethane	1037	2.1		2F	2.1	
029	Chloromethane (R40)	1063	2.1		2F	2.1	
033	Chlorotrifluoroethylene (R1113)	1082	2.3	2.1	2TF	2.3+2.1	
037	Cyclobutane*	2601	2.1		2F	2.1	
038	Cyclopropane*	1027	2.1		2F	2.1	
039	Deuterium	1957	2.1		1F	2.1	
040	Diborane	1911	2.3	2.1	2TF	2.3+2.1	
043	Dichlorosilane	2189	2.3	2.1 + 8	2TFC	2.3+2.1+8	
045	Difluoroethane (R152a, HFC-152a)	1030	2.1		2F	2.1	
046	Difluoroethylene 1,1- (R1132a)	1959	2.1		2F	2.1	
130	Difluoromethane (R32, HFC-32)	3252	2.1		2F	2.1	
047	Di-methylamine	1032	2.1		2F	2.1	
048	Dimethyl ether	1033	2.1		2F	2.1	
049	Dimethylsilane	3161	2.1		2F	2.1	
050	Disilane	3553	2.1		2F	2.1	
051A	Ethane*	1035	2.1		2F	2.1	
051B	Ethane (refrigerated)*	1961	2.1		3F	2.1	
052	Ethyl acetylene*	2452	2.1		2F	2.1	
054	Ethylamine	1036	2.1		2F	2.1	
053	Ethyl methyl ether	1039	2.1		2F	2.1	
055A	Ethylene*	1962	2.1		2F	2.1	
055B	Ethylene (refrigerated)*	1038	2.1		3F	2.1	
056	Ethylene oxide	1040	2.3	2.1	2TF	2.3+2.1	
057	Fluorine	1045	2.3	5.1 + 8	1TOC	2.3+5.1+8	
058	Fluoroethane (R161, HFC-161)	2453	2.1		2F	2.1	

EIGA SDS No	Annex VI or USUAL NAME *see Note	UN No	UN Class	UN Sub. risks	ADR/RID Classific. Code	Trpt Symbols ADR	Env. Hazard. Subst. Mark
059	Fluoromethane	2454	2.1		2F	2.1	
060	Germane	2192	2.3	2.1	2TF	2.3+2.1	
061A	Helium	1046	2.2		1A	2.2	
061B	Helium (refrigerated)	1963	2.2		3A	2.2	
062	2H-Heptafluoropropane (R227ea, HFC-227ea) **(*)**	3296	2.2		2A	2.2	
131	Hexafluoro-1,3-Butadiene	3160	2.3	2.1	2TF	2.3+2.1	
064	Hexafluoroethane (R116, PFC-116)	2193	2.2		2A	2.2	
066	Hexafluoropropene (R1216)	1858	2.2		2A	2.2	
067A	Hydrogen	1049	2.1		1F	2.1	
067B	Hydrogen (refrigerated)	1966	2.1		3F	2.1	
068	Hydrogen bromide	1048	2.3	8	2TC	2.3+8	
069	Hydrogen chloride	1050	2.3	8	2TC	2.3+8	
070	Hydrogen fluoride	1052	8	6.1	CT1	8+6.1	
071	Hydrogen iodide	2197	2.3	8	2TC	2.3+8	
072	Hydrogen selenide	2202	2.3	2.1	2TF	2.3+2.1	yes
073	Hydrogen sulphide	1053	2.3	2.1	2TF	2.3+2.1	yes
074	Hydrogen telluride	3160	2.3	2.1	2TF	2.3+2.1	
075	Isobutane (R600a)*	1969	2.1		2F	2.1	
076	2-methylpropene*	1055	2.1		2F	2.1	
077A	Krypton	1056	2.2		1A	2.2	
077B	Krypton (refrigerated)	1970	2.2		3A	2.2	
078A	Methane*	1971	2.1		1F	2.1	
078B	Methane (refrigerated)*	1972	2.1		3F	2.1	
079	Methyl 3- butene 1*	2561	3		F1	3	
081	Methyl acetylene*	1060	2.1		2F	2.1	
082	Mono-methylamine	1061	2.1		2F	2.1	
083	Methanethiol	1064	2.3	2.1	2TF	2.3+2.1	yes
084	Methyl silane	3161	2.1		2F	2.1	
080	Methyl vinyl ether	1087	2.1		2F	2.1	
086A	Neon	1065	2.2		1A	2.2	
086B	Neon (refrigerated)	1913	2.2		3A	2.2	
087	Neopentane*	2044	2.1		2F	2.1	
088	Nitric oxide	1660	2.3	5.1 + 8	1TOC	2.3+5.1+8	
089A	Nitrogen	1066	2.2		1A	2.2	
089B	Nitrogen (refrigerated)	1977	2.2		3A	2.2	
090 (1)	(1)Nitrogen dioxide	1067	2.3	5.1 + 8	2TOC	2.3+5.1+8	
090 (2)	(2)Dinitrogen tetraoxide						
091	Nitrogen trifluoride	2451	2.2	5.1	2O	2.2+5.1	
093A	Dinitrogen oxide *Note: Common name: Nitrous -oxide*	1070	2.2	5.1	2O	2.2+5.1	
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous -oxide*	2201	2.2	5.1	3O	2.2+5.1	
094	Octafluorobutene (R1318)	2422	2.2		2A	2.2	
095	Octafluorocyclobutane (RC318, PFC-C-318)	1976	2.2		2A	2.2	
096	Octafluoropropane (R218, PFC-218)	2424	2.2		2A	2.2	
132	Octafluorotetrahydrofuran	3163	2.2		2A	2.2	
097A	Oxygen	1072	2.2	5.1	1O	2.2+5.1	

EIGA SDS No	Annex VI or USUAL NAME *see Note	UN No	UN Class	UN Sub. risks	ADR/RID Classific. Code	Trpt Symbols ADR	Env. Hazard. Subst. Mark
097B	Oxygen (refrigerated)	1073	2.2	5.1	3O	2.2+5.1	
137	Pentafluoroethane (R125)	3220	2.2		2A	2.2	
099	Phosgene	1076	2.3	8	2TC	2.3+8	
100	Phosphine	2199	2.3	2.1	2TF	2.3+2.1	yes
102	Phosphorus trifluoride	3308	2.3	8	2TC	2.3+8	
103	Propadiene 1,2-*	2200	2.1		2F	2.1	
104	Propane (R290)*	1978	2.1		2F	2.1	
105	Propylene (R1270)*	1077	2.1		2F	2.1	
106	Selenium hexafluoride	2194	2.3	8	2TC	2.3+8	
107	Silane	2203	2.1		2F	2.1	
108	Silicon tetrafluoride	1859	2.3	8	2TC	2.3+8	
113	Sulphur dioxide	1079	2.3	8	2TC	2.3+8	
110	Sulphur hexafluoride	1080	2.2		2A	2.2	
111	Sulphur tetrafluoride	2418	2.3	8	2TC	2.3+8	
133	Tetrafluoroethane (R134a, HFC-134a) **(*)**	3159	2.2		2A	2.2	
114	Tetrafluoroethylene (R1114)	1081	2.1		2F	2.1	
116	Tetrafluoromethane (R14, PFC-14)	1982	2.2		2A	2.2	
118	Trifluoroethane (R143a, HFC-143a)	2035	2.1		2F	2.1	
119	Trifluoromethane (R23, HFC-23) **(*)**	1984	2.2		2A	2.2	
122	Tri-methylamine	1083	2.1		2F	2.1	
121	Trimethylsilane	3161	2.1		2F	2.1	
123	Tungsten hexafluoride	2196	2.3	8	2TC	2.3+8	
124	Bromoethylene	1085	2.1		2F	2.1	
125	Vinyl chloride	1086	2.1		2F	2.1	
126	~~Vinyl fluoride~~ Fluoroethylene	1860	2.1		2F	2.1	
127	Xenon	2036	2.2		2A	2.2	
138	Germanium tetrafluoride	3308	2.3	8	2TC	2.3+8	
139	Trimethylborane	3160	2.3	2.1	2TF	2.3+2.1	
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC- 1234yf)	3161	2.1		2F	2.1	
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R1234ze, HFC-1234ze)	3163	2.2		2A	2.2	
142	Trichlorosilane	1295	4.3	8	WFC	4.3+3+8	
143	Silicon Tetrachloride	1818	8		C1	8	

NOTE (*) Gases identified as 'hydrocarbon gas'. Mixtures consisting only of hydrocarbon gases are transported under UN1964 HYDROCARBON GAS MIXTURE, COMPRESSED, N.O.S or UN1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S instead of the respective generic N.O.S. positions UN1954 COMPRESSED GAS, FLAMMABLE N.O.S. or UN3161 LIQUEFIED GAS, FLAMMABLE, N.O.S.

B. Non-flammable mixtures with UN numbers containing flammable components

Name of Mixture	Components (flammable component in bold)	Composition (w/w%)	UN No.	Safety Category Note 1
Ethylene oxide and carbon dioxide mixture	**Ethylene oxide/** Carbon dioxide	(**9**/91)	1952	-
Ethylene oxide and dichlorodifluoromethane mixture	**Ethylene oxide**/ R-12	(**12.5**/87.5)	3070	-
Ethylene oxide and chlorotetrafluoroethane mixture	**Ethylene oxide**/ R-124	(**8.8**/91.2)	3297	-
Ethylene oxide and pentafluoroethane mixture	**Ethylene oxide**/ R-125	(**7.9**/92.1)	3298	-
Ethylene oxide and tetrafluoroethane mixture	**Ethylene oxide**/ R-134a	(**5.6**/94.4)	3299	-
R-401A	R-22/**R-152a**/R-124	(53.0/**13.0**/34.0)	1078	A1
R-401B	R-22/**R-152a**/R-124	(61.0/**11.0**/28.0)	1078	A1
R-401C	R-22/**R-152a**/R-124	(33.0/**15.0**/52.0)	1078	A1
R-402A	R-125/**R-290**/R-22	(60.0/**2.0**/38.0)	3163	A1
R-402B	R-125/**R-290**/R-22	(38.0/**2.0**/60.0)	3163	A1
R-403B	**R-290**/R-22/R-218	(**5.0**/56.0/39.0)	3163	A1
R-404A	R-125/**R-143a**/R-134a	(44.0/**52.0**/4.0)	3337	A1
R-407A	**R-32**/R-125/R-134a	(**20.0**/40.0/40.0)	3338	A1
R-407B	**R-32**/R-125/R-134a	(**10.0**/70.0/20.0)	3339	A1
R-407C	**R-32**/R-125/R-134a	(**23.0**/25.0/52.0)	3340	A1
R-407D	**R-32**/R-125/R-134a	(**15.0**/15.0/70.0)	3163	A1
R-407E	**R-32**/R-125/R-134a	(**25.0**/15.0/60.0)	3163	A1
R-408A	R-125/**R-143a**/R-22	(7.0/**46.0**/47.0)	3163	A1
R-409A	R-22/R-124/**R-142b**	(60.0/25.0/**15.0**)	1078	A1
R-409B	R-22/R-124/**R-142b**	(65.0/25.0/**10.0**)	1078	A1
R-410A	**R-32**/R-125	(**50.0**/50.0)	3163	A1
R-410B	**R-32**/R-125	(**45.0**/55.0)	3163	A1
R-414A	R-22/R-124/**R-600a**/**R-142b**	(51.0/28.5/**4.0**/**16.5**)	3163	A1
R-414B	R-22/R-124/**R-600a**/**R-142b**	(50.0/39.0/**1.5**/**9.5**)	1078	A1
R-416A	R-134a/R-124/**R-600**	(59.0/39.5/**1.5**)	1078	A1
R-417A	R-125/R-134a/**R-600**	(46.6/50.0/**3.4**)	3163	A1
R-420A	R-134a/**R-142b**	(88.0/**12.0**)	1078	A1
R-422A	R-125/R-134a/**R-600a**	(85.1/11.5/**3.4**)	3163	A1
R-422B	R-125/R-134a/**R-600a**	(55.0/42.0/**3.0**)	3163	A1
R-422C	R-125/R-134a/**R-600a**	(82.0/15.0/**3.0**)	3163	A1
R-500	R-12/**R-152a**	(73.8/**26.2**)	2602	A1
R-504	**R-32**/R-115	(**48.2**/51.8)	3163	not assigned
R-507A	R-125/**R-143a**	(50.0/**50.0**)	3163	A1

NOTE 1 Safety Category from ANSI/ASHRAE Standard 34-2019 'Designation and Safety Classifications of Refrigerants'.
NOTE 2 Selection of UN number 1078 based on density and vapour pressure data as defined in ADR
NOTE 3 For non-listed refrigerants see ANSI/ASHRAE Standard 34-2019

C. Mixtures with dedicated UN number containing flammable components

Identifier	ADR key	Flammable	Gas components in ADR (V/V%)
_1	1041+2+2F+239+--	Yes	Ethylene oxide: >9 % - 87 % ; Carbon dioxide: 13 % - < 91 %
_10	3138+2+3F+223+--	Yes	Propylene: 0 % - 6 % ; Acetylene: 0 % - 22,5 % ; Ethylene: 71,5 % - 100 %
_11	3297+2+2A+20+--	No	Ethylene oxide: 0 % - 8,8 % ; Chlorotetrafluoroethane: 91,2 % - 100 %
_12	3298+2+2A+20+--	No	Ethylene oxide: 0 % - 7,9 % ; Pentafluoroethane: 92,1 % - 100 %
_13	3299+2+2A+20+--	No	Ethylene oxide: 0 % - 5,6 % ; Tetrafluoroethane: 94,4 % - 100 %
_14	3300+2+2TF+263+--	Yes	Ethylene oxide: > 87 % - 100 % ; Carbon dioxide: 0 % - < 13 %

NOTE For non-listed refrigerants see ANSI/ASHRAE Standard 34-2019

4.6 Labelling data

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
001	Acetylene (dissolved)	Press.Gas (Diss.) H280; Flam. Gas 1A,H220; Chem. Unst. Gas A, H230;		Danger	H280; H220; H230; EIGA0779B	**P210 P202**	**P377 P381**	**P403**	
002	Ammonia, anhydrous	Press. Gas (Liq.) H280; Flam. Gas 2, H221; Acute Tox.3, H331; Skin Corr. 1B, H314; Eye Dam.1, H318 Aquatic Acute 1, H400; Aquatic Chronic 2, H411		Danger	H280; H221; H331; H314; H410; EUH071	**P210 P280a P260 P273**	**P377 P381 P303+P361+P353+P315 P304+P340+P315 P305+P351+P338+P315**	**P403 P405**	
003A	Argon	Press. Gas (Comp) H280		Warning	H280; EIGA0357			**P403**	
003B	Argon (refrigerated)	Press. Gas (Ref. Liq.) H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
005	Arsine	Press. Gas (Liq.) H280; Flam. Gas 1A, H220; Acute Tox. 1 *, H330; STOT RE.2, H373; Aquatic Acute 1, H400; Aquatic Chronic 1, H410		Danger	H280; H220; H330; H373; H410	**P210 P260 P273**	**P377 P381 P304+340+P315 P308+P313**	**P403 P405**	
006	Boron trichloride	Press. Gas (Liq.), H280; Acute Tox. 2, H330; Acute Tox. 2, H300; Skin Corr. 1B, H314; Eye Dam.1, H318 STOT SE3, H335		Danger	H280; EUH014; H330; H300; H314; EUH071 (instead of H335)	**P260 P280a**	**P304+340+P315 P303+P361+P353+P315 P305+P351+P338+P315**	**P403 P405**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
007	Boron trifluoride	Press. Gas (Liq.), H280;; Acute Tox. 2, H330; Skin Corr. 1A, H314; Eye Damage 1, H318; STOT RE 2, H373; STOT SE3, H335		Danger	H280; EUH014; H330; H314; H373; EUH071 (instead of H335)	**P260 P280a**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+P338+P315 P308+P313**	**P403 P405**	
012	Butadiene 1,2-	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
013	1,3-Butadiene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Carc.1A, H350; Muta.1B, H340		Danger	H280; H220; H350; H340 EIGA0803	**P210 P202**	**P377 P308+P313 P381**	**P403**	
014	Butane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
017	but-1-ene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
015	(Z)-but-2-ene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
016	(E)-but-2-ene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
018A	Carbon dioxide	Press. Gas (Liq.), H280		Warning	H280; EIGA0357			**P403**	
018B	Carbon dioxide (refrigerated)	Press. Gas (Ref. Liq.) H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
018C	Carbon dioxide (solid)	not classified as dangerous substance			not classified as dangerous substance; EIGA0357			**P403**	
019	Carbon monoxide	Press. Gas (Comp), H280; Flam. Gas 1B, H221; Repr.1A, H360D; Acute tox.3, H331; STOT RE.1, H372		Danger	H280; H221; H360D; H331; H372; EIGA0803	**P210** **P202** **P260**	**P377** **P381** **P304+P340** **P315**	**P403** **P405**	
020	Carbonyl fluoride	Press. Gas (Liq.), H280; Acute Tox.1 H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P260** **P280a**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+P338+P315**	**P403** **P405**	
021	Carbonyl sulphide	Press. Gas (Liq.), H280; Flam. Gas 1B, H221; Acute Tox.3, H331		Danger	H280; H221; H331	**P210** **P260**	**P377** **P304+P340+P315** **P381**	**P403** **P405**	
022	Chlorine	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.2, H330; Eye Irrit.2, H319; Skin Irrit.2, H315; Aquatic Acute 1, H400; STOT SE3, H335		Danger	H280; H270; H330; H319; H315; H400; EUH071 (instead of H335)	**P280a** **P244** **P260** **P220** **P273**	**P304+P340+P315** **P305+P351+P338+P315** **P302+P352** **P332+P313** **P370+P376**	**P403** **P405**	
024	Chlorine trifluoride	Press. Gas (Liq.), H280; Ox.Gas 1, H270; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H270; H330; H314; EUH071	**P220** **P260** **P244** **P280a**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+P338+P315**	**P403** **P405**	

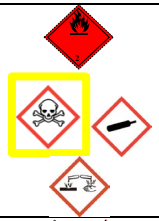
EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
028	Chloroethane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Carc.2, H351; Aquatic Chronic 3, H412		Danger	H280; H220; H351; H412	**P202** **P210** **P273** **P280b**	**P377** **P381** **P308+P313**	**P403**	
029	Chloromethane (R40)	Press. Gas (Liq.), H280; Flam. Gas 1B, H221; Carc.2, H351; Repr.2, H361fd STOT RE.2, H373		Danger	H280; H221; H351; H361fd; H373	**P202** **P210** **P260** **P280b**	**P377** **P381** **P308+P313**	**P403**	
033	Chlorotrifluoroethylene (R1113)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Acute Tox.3, H331 STOT SE1, H370 STOT RE1, H372		Danger	H280; H220; H231 H331; H370; H372	**P210** **P260** **P202**	**P377** **P381** **P304+P340+P315** **P308+P313**	**P410+P403** **P405**	
037	Cyclobutane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377** **P381**	**P403**	
038	Cyclopropane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377** **P381**	**P403**	
039	Deuterium	Press. Gas (Comp), H280; Flam. Gas 1B, H221		Danger	H280; H221	**P210**	**P377** **P381**	**P403**	
040	Diborane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr.Gas, H232 Acute Tox.1, H330		Danger	H280; H220; H232 H330	**P210** **P260** **P280a**	**P377** **P381** **P304+P340+P315**	**P403** **P405**	
043	Dichlorosilane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2, H330; Skin Corr.1B, H314; Eye Dam.1, H318		Danger	H280; H220, H330; H314; EUH071	**P210** **P260** **P280a**	**P377** **P381** **P304+P340+P315** **P303+P361+P353+P315** **P305+P351+P338+P315**	**P403** **P405**	
045	Difluoroethane (R152a, HFC-152a)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220; EIGA0787B	**P210**	**P377** **P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
046	Difluoroethylene 1,1-(R1132a)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
130	Difluoromethane (R32, HFC-32)	Press. Gas (Liq.), H280; Flam. Gas 1B, H221		Danger	H280; H221; EIGA0787B	**P210**	**P377 P381**	**P403**	
047	Di-methylamine	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.4, H332; STOT SE 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318 Aquatic Chronic 3; H412		Danger	H280; H220; H332; H315; H318; H412; EUH071 (instead of H335)	**P210 P260 P280a P273**	**P377 P381 P304+340+P315 P305+P351+ P338+P315 P332+P313 P302+P352**	**P403**	
048	Dimethyl ether	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
049	Dimethylsilane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
050	Disilane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr.Gas, H232		Danger	H280; H220; H232	**P210 P280a**	**P377 P381**	**P403**	
051A	Ethane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
051B	Ethane (refrigerated)	Press. Gas (Ref. Liq.), H281 Flam. Gas 1A, H220		Danger	H281; H220	**P210 P282**	**P377 P381 P336+P315**	**P403**	
052	Ethyl acetylene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231;		Danger	H280; H220; H231	**P210 P202**	**P377 P381**	**P410+P403**	
054	Ethylamine	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.4, H332; Eye Irrit.2, H319; STOT SE. 3, H335		Danger	H280; H220; H332; H319; H335	**P210 P260 P280a**	**P377 P381 P304+340+P315 P305+P351+ P338+P315**	**P403**	
053	Ethyl methyl ether	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
055A	Ethylene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; STOT SE. 3, H336		Danger	H280; H220; H336	**P210** **P260**	**P304+P340+P315** **P377** **P381**	**P403**	
055B	Ethylene (refrigerated)	Press. Gas (Ref. Liq.), H281 Flam. Gas 1A, H220; STOT SE. 3, H336		Danger	H281; H220; H336	**P210** **P260** **P282**	**P304+P340+P315** **P336+P315** **P377** **P381**	**P403**	
056	Ethylene oxide	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas A, H230; Carc.1B, H350; Muta.1B, H340; Repr. 1B, H360Fd Acute Tox.3, H331; Acute tox. 3, H301 Eye Dam. 1, H318; Skin Corr. 1, H314 STOT SE3 H335; STOT SE3, H336 STOT RE1, H372		Danger	H280; H220; H230; H350; H340; H360Fd, H331; H301, H314; EUH071 (instead of H335); H372; H336 EIGA0803	**P210** **P260** **P202** **P280a**	**P304+P340+P315** **P305+P351+P338+P315** **P308+P313** **P377** **P381** **P302+P352** **P332+P313**	**P410+P403** **P405**	
057	Fluorine	Press. Gas (Comp), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H270; H330; H314; EUH071	**P260** **P244** **P280a** **P220**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+P338+P315** **P370+P376**	**P403** **P405**	
058	Fluoroethane (R161, HFC-161)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220 EIGA0787B	**P210**	**P377** **P381**	**P403**	
059	Fluoromethane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220; EIGA0787B	**P210**	**P377** **P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
060	Germane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2; H330		Danger	H280; H220; H330	**P210 P260**	**P377 P381 P304+P340+P315**	**P403 P405**	
061A	Helium	Press. Gas (Comp), H280		Warning	H280; EIGA0357; EIGA0983			**P403**	
061B	Helium (refrigerated)	Press. Gas (Ref. Liq.), H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
062	2H-Heptafluoropropane (R227ea, HFC-227ea) **(*)**	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
131	Hexafluoro-1,3-Butadiene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220 Acute Tox.3; H331 STOT RE 2, H373 Aquatic Chronic 3, H412		Danger	H280; H220 H331; H373; H412	**P210 P260 P273**	**P377 P381 P304+P340+P315 P308+P313**	**P403 P405**	
064	Hexafluoroethane (R116, PFC-116)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
066	Hexafluoropropene (R1216)	Press. Gas (Liq.), H280; Acute Tox.4, H332; STOT SE. 3, H335; STOT SE. 2, H371; STOT RE. 2, H373		Warning	H280; H332; H335; H371; H373	**P260**	**P304+P340+P315 P308+P313**	**P403**	
067A	Hydrogen	Press. Gas (Comp), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
067B	Hydrogen (refrigerated)	Press. Gas (Ref. Liq.), H281; Flam. Gas 1A, H220		Danger	H281; H220	**P210 P282**	**P377 P381 P336+P315**	**P403**	
068	Hydrogen bromide	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318 STOT SE3, H335		Danger	H280; H331; H314; EUH071 (instead of H335)	**P260 P280a**	**P304+P340+P315 P305+P351+P338+P315 P303+P361+P353+P315**	**P403 P405**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
069	Hydrogen chloride	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H331; H314; EUH071	**P260 P280a**	**P304+P340+P315 P305+P351+P338+P315 P303+P361+P353+P315**	**P403 P405**	
070	Hydrogen fluoride	Acute Tox.2, H330; Acute Tox.1, H310; Acute Tox.2, H300; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H330; H310; H300; H314; EUH071	**P260 P262 P280a**	**P304+P340+P315 P305+P351+P338+P315 P303+P361+P353+P315**	**P403 P405**	
071	Hydrogen iodide	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H331; H314; EUH071;	**P260 P280a**	**P304+P340+P315 P305+P351+P338+P315 P303+P361+P353+P315**	**P403 P405**	
072	Hydrogen selenide	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.1, H330; Aquatic Acute 1,H400; Aquatic Chronic 1, H410		Danger	H280; H220; H330; H410	**P210 P260 P273**	**P377 P381 P304+P340+P315**	**P403 P405**	
073	Hydrogen sulphide	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.2; H330; Eye Irrit. 2, H319 STOT SE3, H335; Aquatic Acute 1, H400		Danger	H280; H220; H330; H319; H335; H400	**P210 P260 P273**	**P377 P381 P304+P340+P315**	**P403 P405**	
074	Hydrogen telluride	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.1, H330		Danger	H280; H220; H330	**P210 P260**	**P377 P381 P304+P340+P315**	**P403 P405**	
075	Isobutane (R600a)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
076	2-methylpropene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
077A	Krypton	Press. Gas (Comp), H280		Warning	H280; EIGA0357			**P403**	
077B	Krypton (refrigerated)	Press. Gas (Ref. Liq.), H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
078A	Methane	Comp.Gas, H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	
078B	Methane (refrigerated)	Press. Gas (Ref. Liq.), H281; Flam. Gas 1A, H220		Danger	H281; H220	**P210 P282**	**P377 P381 P336+P315**	**P403**	
079	Methyl 3- butene 1	Flam.Liq.1, H224		Danger	H224	**P210 P243 P280a P242**	**P303+P361+P353**	**P403**	
081	Methyl acetylene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220 Chem. Unst. Gas B, H231 STOT SE. 3, H335		Danger	H280; H220; H231;H335	**P210 P202**	**P377 P381**	**P410+P403**	
082	Mono-methylamine	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.3, H331; STOT SE. 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318		Danger	H280; H220; H331; H335; H315; H318	**P210 P260 P280a**	**P377 P381 P304+340+P315 P305+P351+ P338+P315 P332+P313 P302+P352**	**P403**	
083	Methanethiol	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.3, H331; Aquatic Acute 1, H400; Aquatic Chronic 1, H410;		Danger	H280; H220; H331; H410;	**P210 P260 P273**	**P377 P381 P304+P340+P315**	**P403 P405**	
084	Methyl silane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377 P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
080	Methyl vinyl ether	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231		Danger	H280; H220; H231	**P210 P202**	**P377 P381**	**P410+P403**	
086A	Neon	Press. Gas (Comp), H280		Warning	H280; EIGA0357			**P403**	
086B	Neon (refrigerated)	Press. Gas (Ref. Liq.), H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
087	Neopentane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Aquatic Chronic 2, H411		Danger	H280; H220; H411	**P210 P273**	**P377 P381**	**P403**	
088	Nitric oxide	Comp.Gas, H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318		Danger	H280; H270; H330; H314; EUH071	**P244 P260 P220 P280a**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315 P370+P376**	**P403 P405**	
089A	Nitrogen	Press. Gas (Comp), H280		Warning	H280; EIGA0357			**P403**	
089B	Nitrogen (refrigerated)	Press. Gas (Ref. Liq.), H281		Warning	H281; EIGA0357	**P282**	**P336+P315**	**P403**	
090 (1)	(1)Nitrogen dioxide	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318		Danger	H280; H270; H330; H314; EUH071	**P244 P260 P280a P220**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315 P370+P376**	**P403 P405**	
090 (2)	(2)Dinitrogen tetraoxide	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.1, H330; Skin Corr. 1B, H314; Eye Dam.1, H318		Danger	H280; H270; H330; H314; EUH071	**P244 P260 P280a P220**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315 P370+P376**	**P403 P405**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
091	Nitrogen trifluoride	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Acute Tox.4, H332; STOT RE2, H373		Danger	H280; H270; H332; H373; EIGA0787B	**P220 P244 P260**	**P304+P340+P315 P370+P376**	**P403**	
093A	Dinitrogen oxide *Note: Common name: Nitrous oxide*	Press. Gas (Liq.), H280; Ox. Gas 1, H270; Repr. 1B, H360Df; STOT SE3, H336; STOT RE 1, H372; Ozone 1, H420		Danger	H280; H270; H360Df; H336; H372; H420; EIGA0803; EIGA0983; EIGA1245	**P202 P220 P244 P260 P280b**	**P304+P340+P315 P308+P313 P370+P376**	**P403**	
093B	Dinitrogen oxide (refrigerated) *Note: Common name: Nitrous oxide*	Press. Gas (Ref. Liq.), H281; Ox. Gas 1, H270; Repr. 1B, H360Df; STOT SE3, H336; STOT RE 1, H372; Ozone 1, H420		Danger	H281; H270; H360Df;H336; H372; H420; EIGA0803	**P202 P220 P244 P260 P280b P282**	**P304+P340+P315 P308+P313 P336+P315 P370+P376**	**P403**	
094	Octafluorobutene (R1318)	Press. Gas (Liq.), H280; Acute Tox.4, H332		Warning	H280; H332	**P260**	**P304+P340+P315**	**P403**	
095	Octafluorocyclobutane (RC318, PFC-C-318)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
096	Octafluoropropane (R218, PFC-218)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357 EIGA0787B			**P403**	
132	Octafluorotetrahydrofuran	Press. Gas (Liq.), H280		Warning	H280; EIGA0357			**P403**	
097A	Oxygen	Press. Gas (Comp), H280; Ox. Gas 1, H270		Danger	H280; H270	**P220 P244**	**P370+P376**	**P403**	
097B	Oxygen (refrigerated)	Press. Gas (Ref. Liq.), H281; Ox. Gas 1, H270		Danger	H281; H270	**P220 P244 P282**	**P336+P315 P370+P376**	**P403**	
137	Pentafluoroethane (R125)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357 EIGA0787B			**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
099	Phosgene	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1B, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P280a** **P260**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+** **P338+P315**	**P403** **P405**	
100	Phosphine	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr.Gas, H232 Acute Tox.1, H330; Skin Corr.1B, H314; Eye Dam.1, H318 Aquatic Acute 1, H400		Danger	H280; H220; H232; H330; H314; H400 EUH071	**P210** **P280a** **P260** **P273**	**P377** **P381** **P304+P340+P315** **P303+P361+P353+P315** **P305+P351+** **P338+P315**	**P403** **P405**	
102	Phosphorus trifluoride	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P280a** **P260**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+** **P338+P315**	**P403** **P405**	
103	Propadiene 1,2-	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231;		Danger	H280; H220; H231;	**P210** **P202**	**P377** **P381**	**P410+P403**	
104	Propane (R290)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377** **P381**	**P403**	
105	Propylene (R1270)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220;		Danger	H280; H220;	**P210**	**P377** **P381**	**P403**	
106	Selenium hexafluoride	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P280a** **P260**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+** **P338+P315**	**P403** **P405**	
107	Silane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr.Gas, H232		Danger	H280; H220; H232	**P210** **P280a**	**P377** **P381**	**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
108	Silicon tetrafluoride	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P280a P260**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315**	**P403 P405**	
113	Sulphur dioxide	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1B, H314; Eye Dam.1, H318 STOT SE 1, H370		Danger	H280; H331; H314; EUH071, H370	**P280a P260**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315**	**P403 P405**	
110	Sulphur hexafluoride	Press. Gas (Liq.), H280		Warning	H280; EIGA0357 EIGA0787B EIGA0983			**P403**	
111	Sulphur tetrafluoride	Press. Gas (Liq.), H280; Acute Tox.1, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P280a P260**	**P304+P340+P315 P303+P361+P353+P315 P305+P351+ P338+P315**	**P403 P405**	
133	Tetrafluoroethane (R134a, HFC-134a) **(*)**	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
114	Tetrafluoroethylene (R1114)	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc.1B, H350; STOT SE2, H371		Danger	H280; H220; H350, H371, H231; EIGA0803	**P210 P260 P202**	**P377 P381 P308+P313**	**P410+P403**	
116	Tetrafluoromethane (R14, PFC-14)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
118	Trifluoroethane (R143a, HFC-143a)	Press. Gas (Liq.), H280; Flam. Gas 1B, H221;		Danger	H280; H221; EIGA0787B	**P210**	**P377 P381**	**P403**	
119	Trifluoromethane (R23, HFC-23) **(*)**	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
122	Tri-methylamine	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Acute Tox.4, H332; STOT SE. 3, H335; Skin Irrit.2, H315; Eye Dam.1, H318		Danger	H280; H220; H332; H335; H315; H318	**P210** **P260** **P280a**	**P377** **P381** **P304+340+P315** **P305+P351+** **P338+P315** **P332+P313** **P302+P352**	**P403**	
121	Trimethylsilane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220		Danger	H280; H220	**P210**	**P377** **P381**	**P403**	
123	Tungsten hexafluoride	Press. Gas (Liq.), H280; Acute Tox.2, H330; Skin Corr.1A, H314; Eye Dam.1, H318		Danger	H280; H330; H314; EUH071	**P260** **P280a**	**P303+P361+** **P353+P315** **P304+340+P315** **P305+P351+** **P338+P315**	**P403** **P405**	
124	Bromoethylene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc. 1B, H350		Danger	H280; H220 H231; H350; EIGA0803	**P202** **P210**	**P308+313** **P377** **P381**	**P410+P403**	
125	Vinyl chloride	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Carc. 1A, H350		Danger	H280; H220; H231; H350; EIGA0803	**P202** **P210**	**P308+313** **P377** **P381**	**P410+P403**	
126	~~Vinyl fluoride~~ Fluoroethylene	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Chem. Unst. Gas B, H231; Muta 2, H341; Carc. 1A, H350; STOT RE 2, H373		Danger	H280; H220; H231; H341; H350; H373; EIGA0803	**P202** **P210** **P260**	**P377** **P381** **P308+P313**	**P410+P403**	
127	Xenon	Press. Gas (Liq.), H280		Warning	H280; EIGA0357			**P403**	
138	Germanium tetrafluoride	Press. Gas (Liq.), H280; Acute Tox.3, H331; Skin Corr.1A, H314; Eye Dam.1, H318 STOT SE 1, H370 STOT RE 1, H372		Danger	H280; H331; H314; H370; H372 EUH071	**P280a** **P260**	**P304+P340+P315** **P303+P361+P353+P315** **P305+P351+** **P338+P315**	**P403** **P405**	

EIGA SDS No	AnnexVI or USUAL NAME	CLP Classification recommended by EIGA	Pictograms	Signal Word	Hazard Statements+ Supplemental information	Precautionary Statements			
						Prevention	Response	Storage	Dispo-sal
139	Trimethylborane	Press. Gas (Liq.), H280; Flam. Gas 1A, H220; Pyr. Gas, H232 Acute Tox.2, H330 Skin Corr.1B, H314; Eye Dam.1, H318 STOT SE3, H335		Danger	H280; H220; H232; H330; H314; EUH071	**P210** **P260** **P280a**	**P377** **P381** **P304+P340+P315** **P303+P361+P353+P315** **P305+P351+P338+P315**	**P403** **P405**	
140	2,3,3,3-Tetrafluoroprop-1-ene (R1234yf, HFC- 1234yf)	Press. Gas (Liq.), H280; Flam. Gas 1B, H221;		Danger	H280; H221; EIGA0787B	**P210**	**P377** **P381**	**P403**	
141	(1E)-1,3,3,3-tetrafluoroprop-1-ene (R1234ze, HFC-1234ze)	Press. Gas (Liq.), H280		Warning	H280; EIGA0357; EIGA0787B			**P403**	
142	Trichlorosilane	Flam Liq.1, H224 Water-react.1, H260 Acute Tox.3, H331 Acute Tox. 4, H302 Skin Corr. 1A, H314 Eye Dam. 1, H318		Danger	H224 H260 H331 H302 H314 EUH014; EUH029; EUH071	**P210** **P223** **P260** **P280**	**P301+P330+P331** **P303+P361+P353+P315** **P304+P340+P315** **P305+P351+P338+P315**	**P403** **P405**	
143	Silicon Tetrachloride	Acute Tox.3, H301, H331; Skin Corr.1A, H314; Eye Dam.1, H318; STOT SE3, H335		Danger	H301, H331; H314; EUH014; EUH071	**P280a** **P260**	**P301+P330+P331** **P303+P361+P353+P315** **P304+P340+P315** **P305+P351+P338+P315**	**P403+P233** **P405**	

5 Glossary

ADN	European prescriptions for the international transport of dangerous goods by inland waterways.
ADR	International Agreement concerning the carriage of Dangerous goods by Road.
ATE	Acute Toxicity Estimate expressed in ppm for gases
ATP	Adaptation to Technical Progress
C&L	Classification and Labelling
CA	Competent Authority
CAS	Chemical Abstract Service.
CEN	European committee for standardisation
Ci	Coefficient for oxygen equivalency (specific to each oxidising gas)
CLP	Classification, Labelling and Packaging
CLP Regulation	EC Regulation 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	carcinogenic, mutagenic and reprotoxic
DPD	European Directive 1999/45/EC on the classification and labelling of Dangerous Preparations
DSD	European Directive 67/548/EEC on the classification and labelling of Dangerous Substances
EC	European Community
EC Directive	Directive issued by the EC requiring changes to national legislation in member states.
EC Number	Other name for the chemical substances inventory number (EINECS number or ELINCS number).
EINECS	European inventory of existing commercial chemical substances.
ELINCS	European List of Notified Chemical Substances (list of chemical substances which have been notified by their producers or importers after publication of the EINECS).
EU	European Union
Generic mixture group	Group of mixtures exhibiting similar physical and chemical properties.
GHS	Globally Harmonised System for the Classification and Labelling of Chemicals (developed within the United Nations structure). Also known as the ‘Purple Book’.
ISO	International Organization for Standardization
K_k	Coefficient of equivalency of an inert gas relative to nitrogen
LC50	Lethal concentration 50, quantity of a substance, administered by inhalation, required to kill 50% of a target population within a specified time.
LFL	Lower flammability limit in air of a flammable gas.
LOC	Limiting Oxygen Concentration
MDI	Metered Dose Inhaler

OJEU	Official Journal of the European Union.
Orange Book	Common name for UN publication 'Recommendations on the Transport of Dangerous Goods'.
ppb	parts per billion (in volume if not otherwise specified).
ppm	part per million (in volume if not otherwise specified).
Pseudo critical temperature (PCT)	Volume weighted average of the components' critical temperature.
REACH Regulation	EC Regulation 1907/2006 concerning the Registration, Authorisation and Restriction of Chemicals
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail.
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
Tci	Maximum flammable gas content for which a mixture of the flammable gas in nitrogen is not flammable in air
TDG	Transport of Dangerous Goods
UFI	Unique Formula Identifier
UN ECE	United Nations Economic Commission for Europe.
UNSCE-GHS	United Nations Sub-Committee of Experts on the Globally Harmonised System
UNSCE-TDG	United Nations Sub-Committee of Experts on the Transport of Dangerous Goods
WP15	Working Party 15, the UN Committee that is the custodian of the ADR Regulation

6 Attachments

6.1 List of Hazard Statements, Precautionary Statements and Supplemental labelling information relevant for gases and gas mixtures

6.2 Flow charts of the classification process for gas mixtures

6.3 Label content for generic mixtures

6.4 Rules for the naming of the constituents on the transport label

6.5 Rules for the naming of the constituents on the CLP label

6.6 Examples of labelling lay-outs

6.1 List of Hazard Statements, Precautionary Statements and Supplemental labelling information relevant for gases and gas mixtures

A. Selected Hazard Statements with their codes and classification category

H-Stat.code	Statement	Hazard category
H220	**Extremely flammable gas**	Flam.Gas Cat. 1A
H221	**Flammable gas**	Flam.Gas Cat. 1B, 2
H225	**Highly flammable liquid and vapour**	Flam. Liq. 2 (e.g. methyl butane)
H230	**May react explosively even in the absence of air**	Chem.Unst. Gas A
H231	**May react explosively even in the absence of air at elevated pressure and/or temperature**	Chem.Unst. Gas B
H232	**May ignite spontaneously if exposed to air**	Pyrophoric gas
H270	**May cause or intensify fire; oxidizer**	Ox.Gas 1
H280	**Contains gas under pressure; may explode if heated**	Comp.Gas, Liq.Gas, Diss.Gas
H281	**Contains refrigerated gas; may cause cryogenic burns or injury**	Refr.Liq.Gas
H300	**Fatal if swallowed**	Acute Tox.1 oral
H301	**Toxic if swallowed**	Acute Tox. 3 oral
H310	**Fatal in contact with skin**	Acute Tox.1 dermal
H314	**Causes severe skin burns and eye damage**	Skin Corr.1
H315	**Causes skin irritation**	Skin Irrit.2
H318	**Causes serious eye damage**	Eye Dam.1; (may be omitted if H314 is assigned)
H319	**Causes serious eye irritation**	Eye Irrit. 2
H330	**Fatal if inhaled**	Acute Tox.1, Acute Tox. 2 inhalation
H331	**Toxic if inhaled**	Acute Tox. 3 inhalation
H332	**Harmful if inhaled**	Acute Tox. 4
H335	**May cause respiratory irritation**	STOT SE 3
H336	**May cause drowsiness or dizziness**	STOT SE 3
H340	**May cause genetic defects**	Muta. 1A, B
H341	**Suspected of causing genetic defects**	Muta. 2
H350	**May cause cancer**	Carc. 1A, B
H351	**Suspected of causing cancer**	Carc. 2
H360	**May damage fertility or the unborn child**	Repr. 1A, B
H360F	**May damage fertility**	Repr. 1A, B
H360D	**May damage the unborn child**	Repr. 1A, B
H360FD	**May damage fertility and the unborn child**	Repr. 1A, B
H360Fd	**May damage fertility. Suspected of damaging the unborn child**	Repr. 1A, B
H360Df	**May damage the unborn child. Suspected of damaging fertility.**	Repr. 1A, B
H361	**Suspected of damaging fertility or the unborn child**	Repr. 2

H361f	**Suspected of damaging fertility**	Repr. 2
H361d	**Suspected of damaging the unborn child**	Repr. 2
H361fd	**Suspected of damaging fertility and the unborn child**	Repr. 2
H370	**Causes damage to organs**	STOT SE 1
H371	**May cause damage to organs**	STOT SE 2
H372	**Causes damage to organs through prolonged or repeated exposure**	STOT RE 1
H373	**May cause damage to organs through prolonged or repeated exposure**	STOT RE 2
H400	**Very toxic to aquatic life**	Aquatic Acute 1(may be omitted if H410 is assigned)
H410	**Very toxic to aquatic life with long lasting effects**	Aquatic Chronic 1
H411	**Toxic to aquatic life with long lasting effects**	Aquatic Chronic 2
H412	**Harmful to aquatic life with long lasting effects**	Aquatic Chronic 3
H413	**May cause long lasting harmful effects to aquatic life**	Aquatic Chronic 4
H420	**Harms public health and the environment by destroying ozone in the upper atmosphere**	Ozone
EUH014	**Reacts violently with water**	e.g. boron trichloride
EUH071	**Corrosive to the respiratory tract**	To be affixed on labels for gases classified 2.3+8 for transport or Skin.corr.1
EUH 380	May cause endocrine disruption in humans	Endocrine disruptor for human health ED HH 1
EUH 381	Suspected of causing endocrine disruption in humans	Endocrine disruptor for human health ED HH 2
EUH 430	May cause endocrine disruption in the environment	Endocrine disruptor for the environment ED ENV 1
EUH 431	Suspected of causing endocrine disruption in the environment	Endocrine disruptor for the environment ED ENV 2
EUH 440	Accumulates in the environment and living organisms including in humans	Persistent, bioaccumulative and toxic Very persistent and very bioaccumulative PBT
EUH 441	Strongly accumulates in the environment and living organisms including in humans	Persistent, bioaccumulative and toxic Very persistent and very bioaccumulative vPvB
EUH 450	Can cause long-lasting and diffuse contamination of water resources	Persistent, mobile and toxic Very persistent and very mobile PMT
EUH 451	Can cause very long-lasting and diffuse contamination of water resources	Persistent, mobile and toxic Very persistent and very mobile vPvM

B. Selected Precautionary Statements from PS connected to Hazard Categories relevant for gases and for a use at a work place (no consumer use)

Code	Precautionary Statement	Applicability	Selected/Not selected
Prevention precautionary statements			

Code	Precautionary Statement	Applicability	Selected/Not selected
P201	Obtain special instructions before use.	Muta.1; Muta. 2; Carc. 1; Carc. 2; Repr. 1 ; Repr. 2 **ED HH 1; ED HH 2; ED ENV 1; ED ENV 2; PBT; vPvB; PMT;vPvM**	Not selected, use P202 instead
P202	**Do not handle until all safety precautions have been read and understood.**	**Chem.Unst. A; Chem.Unst. B; Muta. 1; Muta. 2; Carc. 1; Carc. 2; Repr. 1 ; Repr. 2; ED HH 1; ED HH 2;**	**Selected**
P210	**Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking**	**Flam. Gas 1A; Flam. Gas 1B; Flam. Gas 2**	**Selected**
P220	**Keep away from clothing and other combustible materials.**	**Ox. Gas 1**	**Selected**
P222	Do not allow contact with air.		Not selected, deemed unnecessary for gases under pressure
P233	Keep container tightly closed.		Not selected, intended for volatile liquids
P244	**Keep valves and fittings free from oil and grease**	**Ox. Gas 1**	**Selected**
P260-EIGA	**Do not breathe gas, vapours**	**Acute Tox. 1; Acute Tox. 2; Skin Corr. 1; STOT SE1/SE2; STOT RE 1/RE 2 ; Acute Tox. 3; Acute Tox. 4; STOT SE 3**	**Selected** *(not for gas cylinders labelled for medical uses e.g. medical N2O)*
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.	Acute Tox. 3; Acute Tox. 4; STOT SE3	Not selected, use P260 instead that is more stringent
P262	**Do not get in eyes, on skin, or on clothing.**	**Acute Tox Dermal 1 or 2**	**Selected (HF only)**
P263	**Avoid contact during pregnancy and while nursing.**	**ED HH 1; ED HH 2**	**Selected**
P264	Wash ... thoroughly after handling.	Skin Corr. 1; Skin Irrit. 2; Eye Irrit. 2 ; STOT SE1/SE2 ; STOT RE1	Not selected, intended for liquids or solids
P270	Do not eat, drink or smoke when using this product.	STOT SE1/SE2 ; STOT RE1	Not selected, intended for liquids or solids
P271	Use only outdoors or in a well-ventilated area.	Acute Tox. 1; Acute Tox. 2; Acute Tox. 3; Acute Tox. 4; STOT SE3	Not selected intended for open processes with volatile liquids, to be covered in ES of SDS where necessary by a specific process
P273	**Avoid release to the environment.**	**Aquatic Acute 1; Aquatic Chronic 1/2/3; ED ENV 1; ED ENV 2; PBT; vPvB; PMT;vPvM**	**Selected**

Code	Precautionary Statement	Applicability	Selected/Not selected
P280a	**Wear protective gloves, protective clothing, eye protection, face protection.**	**Skin Corr. 1 ; Skin Irrit. 2 ; Eye Dam. 1 ; Eye Irrit. 2 ; Pyr.Gas**,**Flam. Liq. 1**	**Selected** (hearing protection not considered)
P280b	**Wear protective gloves, protective clothing, eye protection.**	**Muta. 1; Muta. 2; Carc. 1; Carc. 2; Repr. 1 ; Repr. 2; ED HH 1; ED HH 2;**	**Selected** (hearing protection not considered); not for mixtures containing CO as only CMR component; not used if P280a is used
P282	**Wear cold insulating gloves and either face shield or eye protection.**	**Ref. Liq. Gas**	**Selected**
P284	Wear respiratory protection.	Acute Tox.1; Acute Tox. 2	Not selected, intended for open processes with volatile liquids
Response precautionary statements			
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.	Skin Corr. 1	Not selected, not a plausible cause of exposure for gases
P302 + P352	**IF ON SKIN: Wash with plenty of water.**	**Skin Irrit. 2**	**Selected**
P303 + P361 + P353	**IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.**	**Skin Corr. 1**	**Selected, but only for liquefied gases. Unlikely cause of exposure for compressed gas mixtures; combined with P315**
P304 + P340	**IF INHALED: Remove person to fresh air and keep comfortable for breathing.**	**Acute Tox. 1; Acute Tox. 2; Acute Tox. 3; Acute Tox. 4; Skin Corr. 1; STOT SE3**	**Selected; combine with P315** *(not for gas cylinders labelled for medical uses e.g. medical N2O)*
P305 + P351 + P338	**IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**	**Skin Corr. 1; Eye Dam. 1; Eye Irrit. 2**	**Selected, combine with P315**
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor/....	STOT SE1	Not selected, use P308+P313 instead
P308 + P313	**IF exposed or concerned: Get medical advice.**	**Muta. 1; Muta. 2; Carc. 1; Carc. 2; Repr. 1; Repr. 2; STOT SE1/SE2; STOT RE1/RE2 ; ED HH 1; ED HH 2;**	**Selected** with advice only
P310	Immediately call a POISON CENTER or doctor/physician.	Acute Tox. 1; Acute Tox. 2; Skin Corr.1; Eye Dam. 1	Not selected, use P315 instead

Code	Precautionary Statement	Applicability	Selected/Not selected
P311	Call a POISON CENTER or doctor/physician.	Acute Tox. 3;	Not selected, use P315 instead
P312	Call a POISON CENTER or doctor/physician if you feel unwell.	Acute Tox. 4; STOT SE3	Not selected, use P315 instead
P314	Get medical advice/attention if you feel unwell.	STOT RE1/RE2	Not selected, use P308+P313 instead
P315	**Get Immediate medical advice.**	**Press. Gas (Ref. Liq.)**	**Selected (in combined phrases)**
P320	Specific treatment is urgent (see ... on this label).	Acute Tox. 1; Acute Tox. 2	Not selected, covered in SDS
P321	Specific treatment (see ... on this label).	Acute Tox. 3; Skin Corr. 1 ; Skin Irrit. 2 ; STOT SE1	Not selected, covered in SDS
P332 + P313	**If skin irritation occurs: Get medical advice.**	**Skin Irrit. 2;**	**Selected**
P336	**Thaw frosted parts with lukewarm water. Do not rub affected area.**	**Press. Gas (Ref. Liq.)**	**Selected and combined with P315**
P337+ P313	If eye irritation persists: Get medical advice/attention.	Skin Irrit. 2; Eye Irrit. 2	Not selected, use P305+P351+P338 combined with P315
P362+ P364	Take off contaminated clothing and wash it before reuse.	Skin Irrit. 2	Not selected, unlikely cause of exposure for gas mixtures
P363	Wash contaminated clothing before reuse.	Skin Corr. 1	Not selected, unlikely cause of exposure for gas mixtures
P370+ P376	**In case of fire: Stop leak if safe to do so.**	**Ox. Gas 1**	**Selected**
P377	**Leaking gas fire: Do not extinguish, unless leak can be stopped safely.**	**Flam.Gas 1A; Flam.Gas 1B; Flam.Gas 2**	**Selected**
P381	**In case of leakage, eliminate all ignition sources.**	**Flam.Gas 1A; Flam.Gas 1B; Flam.Gas 2**	**Selected**
P391	Collect spillage.	Aquatic Acute 1; Aquatic chronic 1/2; **ED HH 1; ED HH 2; ED ENV 1; ED ENV 2; PBT; vPvB; PMT;vPvM**	Not selected, irrelevant for gases
Storage precautionary statements			
P403	**Store in a well-ventilated place.**	**Press.Gas (Comp, Liq, Ref.liq, Diss) Flam.Gas 1A; Flam.Gas 1B; Flam.Gas 2; Ox.Gas 1; Acute Tox.1; Acute Tox.2; Acute Tox. 3; STOT SE3**	**Selected**
P403+ P233	Store in a well-ventilated place. Keep container tightly closed.	Acute Tox. 1; Acute Tox. 2; Acute Tox. 3; STOT SE3	Not selected. For volatile liquids; use P403 alone.

Code	Precautionary Statement	Applicability	Selected/Not selected
P405	**Store locked up.**	**Acute Tox. 1; Acute Tox. 2; Acute Tox. 3; Skin Corr. 1; Muta. 1; Muta. 2; Carc. 1; Carc. 2; Repr. 1; Repr. 2; STOT SE1/SE2; STOT SE3 ; ED HH 1; ED HH 2; ED ENV 1; ED ENV 2**	**Selected for Acute Tox.1, 2 and 3.**
P410	Protect from sunlight.	Press.Gas (Comp., Liq., Diss.)	Not selected By REGULATION (EU) 2016/918 P410 may be omitted for gases filled in transportable gas cylinders in accordance with packing instruction P200 of the UN RTDG, unless those gases are subject to (slow) decomposition or polymerisation.
P410+ P403	**Protect from sunlight. Store in a well-ventilated place.**	**Chem. Unst. Gas except for acetylene.**	**Selected**
Disposal precautionary statements			
P501	Dispose of contents/container to.....	Acute Tox. 1; Acute Tox. 2; Acute Tox. 3; Skin Corr. 1; Muta. 1; Muta. 2; Carc. 1; Carc. 2; Repr. 1; Repr. 2; STOT SE1/SE2; STOT SE3; STOT RE1/RE2 ; **ED HH 1; ED HH 2; ED ENV 1; ED ENV 2; PBT; vPvB; PMT;vPvM**	Not selected, specific disposal recommendations to be covered in SDS
EIGAP501	**Disposal to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.**	**Lime**	**Selected**
P502	Refer to manufacturer **or** supplier for information on recovery **or** recycling	Ozone	Not selected. Specific disposal recommendations to be covered in SDS

C. Supplemental labelling information for gases and gas mixtures (art.25 CLP)

LISAM code	Statement	Applicability
EIGA0357	Asphyxiant in high concentrations	Gas specific , asphyxiant and inert mixtures
EIGA0779B	Dispose of cylinder via gas supplier only. Cylinder contains a porous material which in some cases contains asbestos fibres.	Acetylene
EIGA0787B	Contains fluorinated greenhouse gases.	Gases listed in Annex I,II, III of Reg. (EU) 2024/573and their mixtures
EIGA0803	Restricted to professional users.	CMR Category 1A or 1B, see Annex XVII of REACH
EIGA0919a	Contains a substance authorised only for essential laboratory use	‘Gases listed in Reg. 2024/590 and their mixtures
EIGA0983	Do not inhale product on purpose because of the risk of asphyxiation.	Gas specific (He, SF6, N2O (not for medical use))
EIGA1138	Imported for destruction only.	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1139	For direct bulk export outside EU only.	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1140	For use in military equipment only.	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1141	For etching / cleaning in semiconductor industry only.	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1142	For feedstock use only	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1143	For MDI production only.	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1144	100% Reclaimed	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1145	100% Recycled	For F-gases (and their mixtures) listed in Annex I ,II, III of Reg. 2024/573
EIGA1245	Do not inhale product on purpose because of the risk of narcotic effects.	Nitrous oxide (not for medical use)

6.2 Flow charts of classification process of gaseous mixtures

Page 1:
Classification for physical hazards

GHS Chapter 2.5: Gases under pressure

Note: Liquid mixtures containing components, which are all classified as flammable liquids and flammable gases, should be classified as Flammable Liquid, Category 1, if the content of liquefied flammable gases is ≥ 5%

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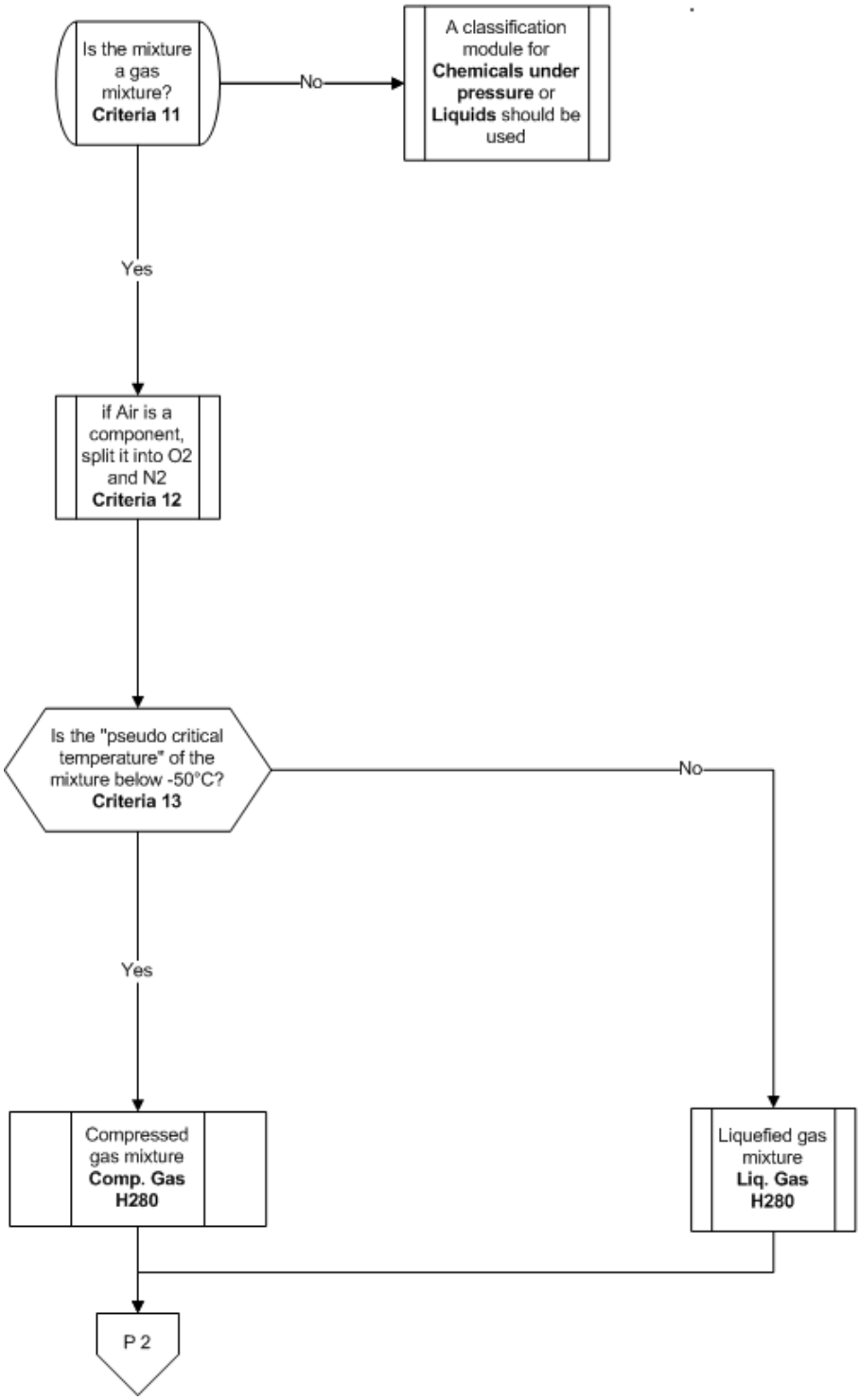
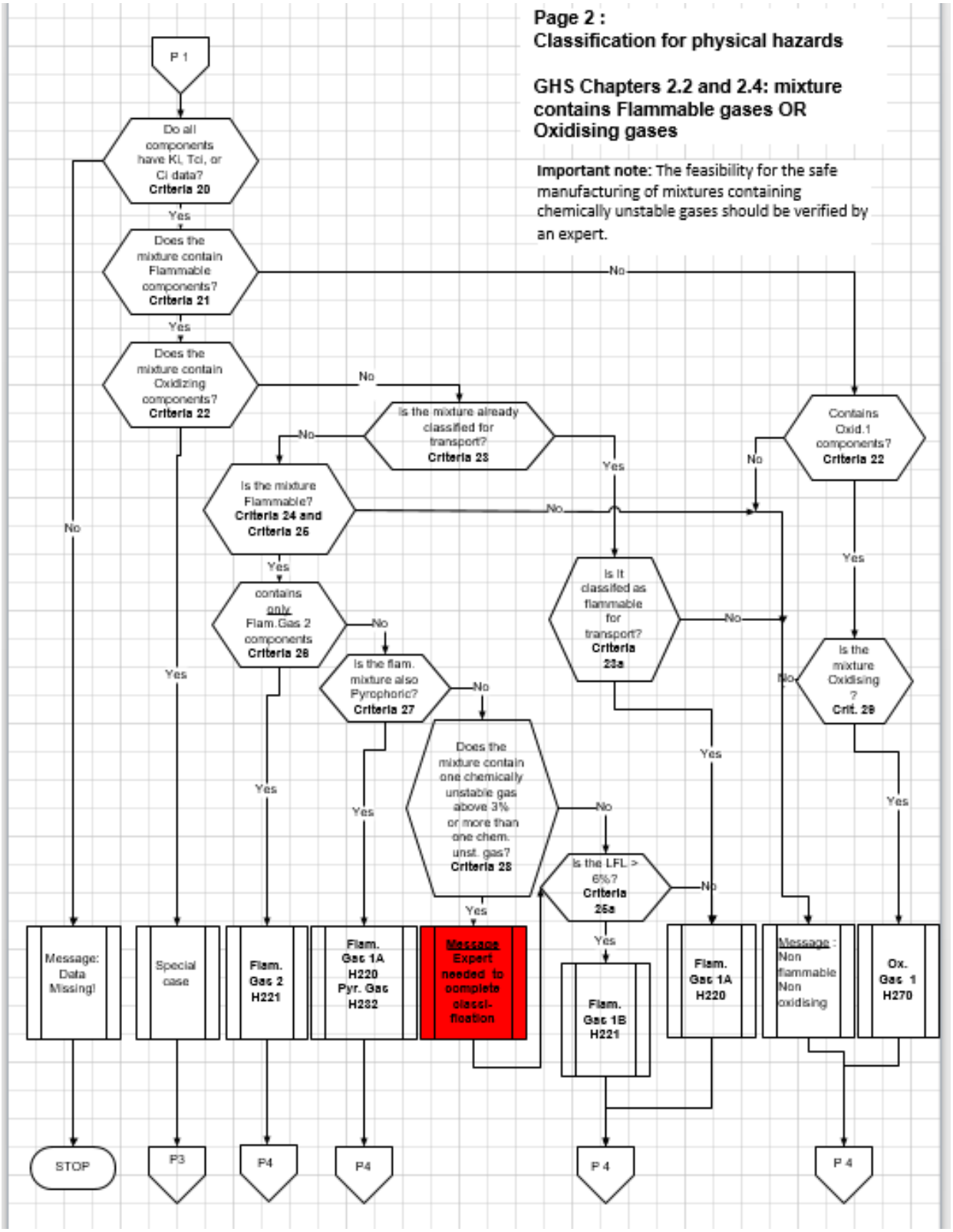
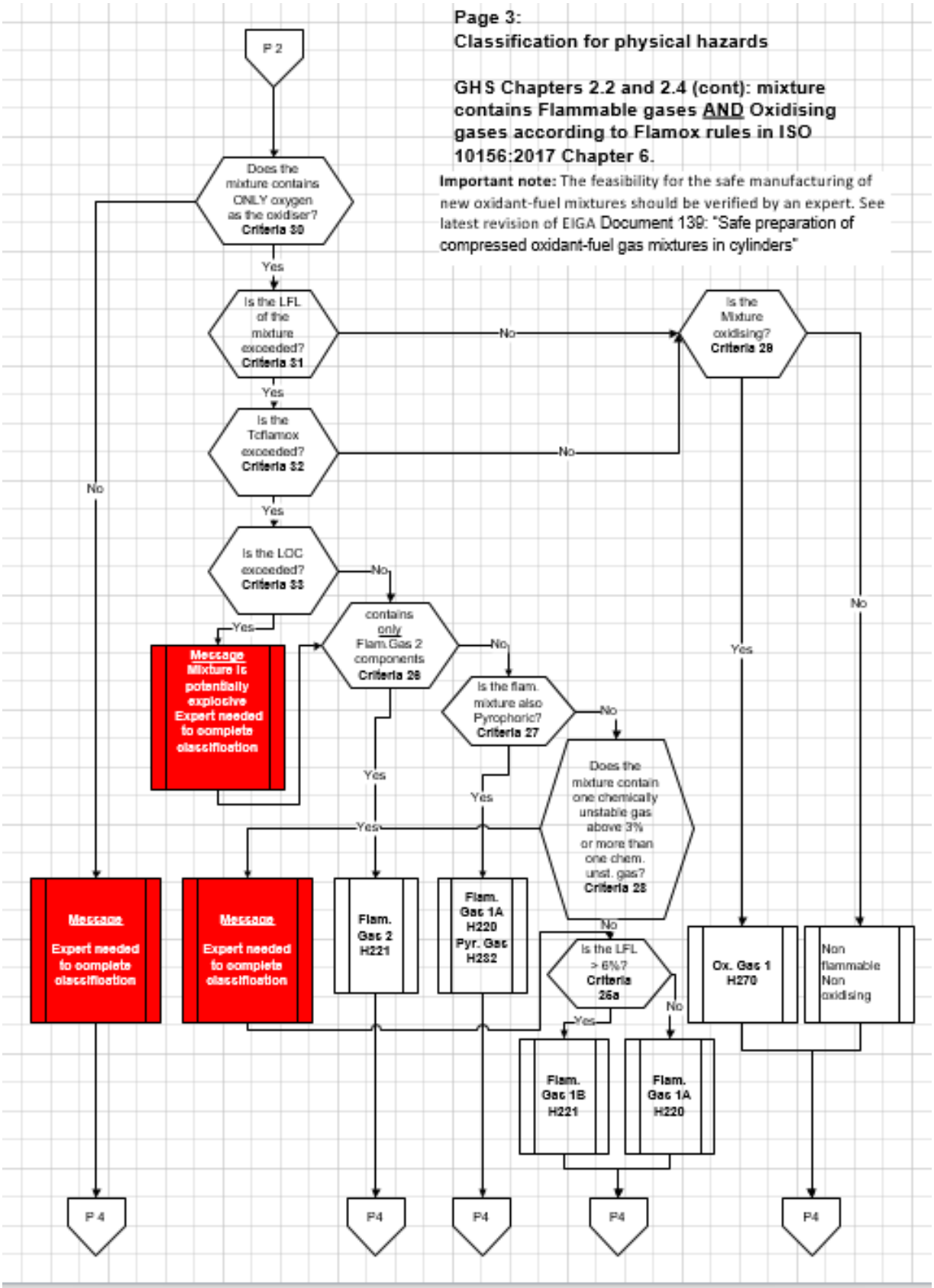
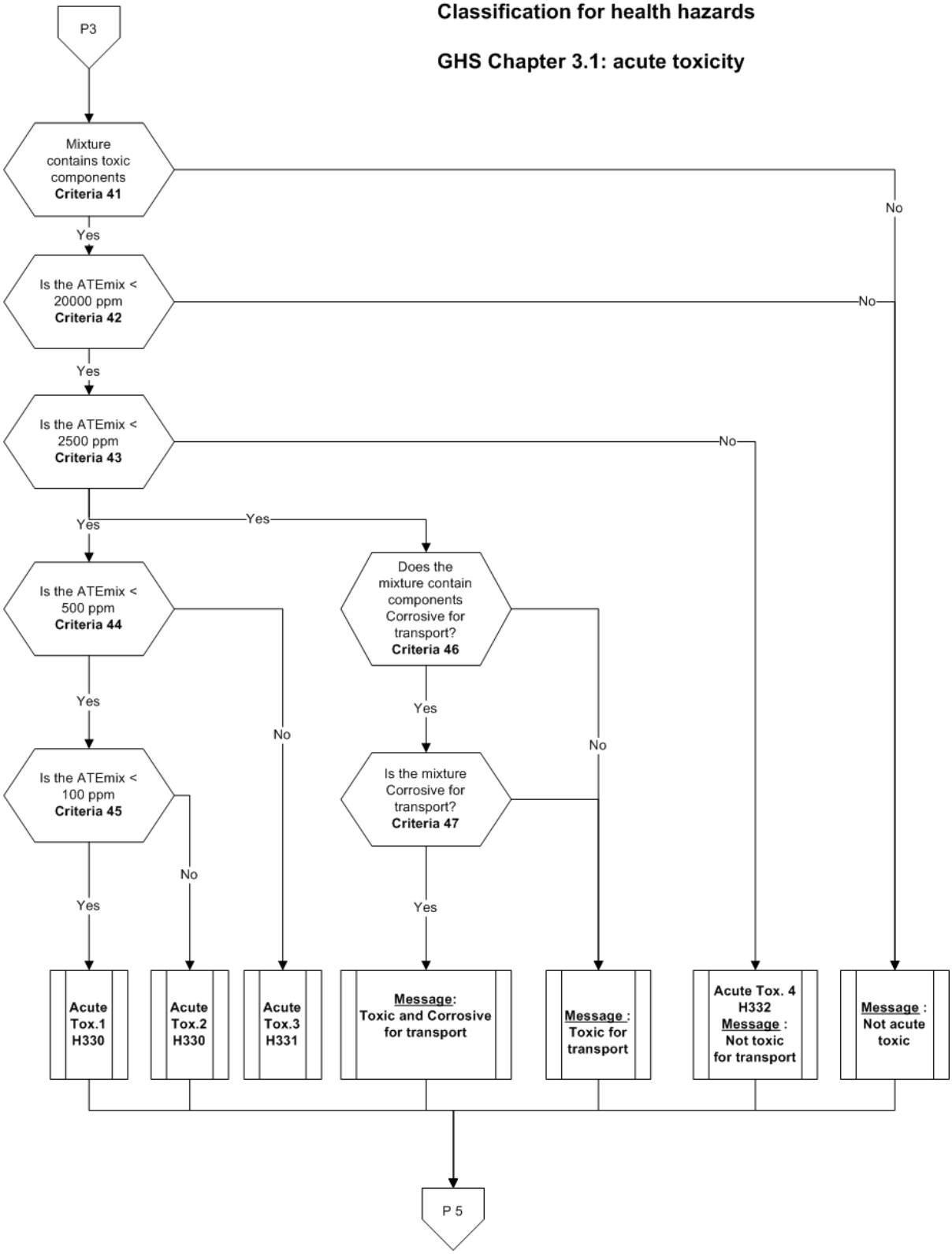



Page 2 :
Classification for physical hazards
GHS Chapters 2.2 and 2.4: mixture contains Flammable gases OR Oxidising gases
Important note: The feasibility for the safe manufacturing of mixtures containing chemically unstable gases should be verified by an expert.
P 1
Do all components have KI, Tci, or CI data? Criteria 20
Yes
No
Does the mixture contain Flammable components? Criteria 21
Yes
No
Does the mixture contain Oxidizing components? Criteria 22
Yes
No
Is the mixture already classified for transport? Criteria 23
No
Yes
Is the mixture Flammable? Criteria 24 and Criteria 26
No
Yes
Contains only Flam.Gas 2 components Criteria 28
No
Yes
Is the flam. mixture also Pyrophoric? Criteria 27
No
Yes
Does the mixture contain one chemically unstable gas above 3% or more than one chem. unst. gas? Criteria 28
No
Yes
Is it classified as flammable for transport? Criteria 23a
No
Yes
Is the LFL > 6%? Criteria 25a
No
Yes
Contains Oxid.1 components? Criteria 22
No
Yes
Is the mixture Oxidising ? Crit. 29
No
Yes
Message: Data Missing!
Special case
Flam. Gas 2 H221
Flam. Gas 1A H220 Pyr. Gas H232
Message Expert needed to complete classi-fication
Flam. Gas 1B H221
Flam. Gas 1A H220
Message : Non flammable Non oxidising
Ox. Gas 1 H270
STOP
P3
P4
P4
P 4
P 4


Page 3:
Classification for physical hazards
GHS Chapters 2.2 and 2.4 (cont): mixture contains Flammable gases AND Oxidising gases according to Flamox rules in ISO 10156:2017 Chapter 6.
Important note: The feasibility for the safe manufacturing of new oxidant-fuel mixtures should be verified by an expert. See latest revision of EIGA Document 139: "Safe preparation of compressed oxidant-fuel gas mixtures in cylinders"
P 2
Does the mixture contains ONLY oxygen as the oxidiser? Criteria 30
Yes
No
Is the LFL of the mixture exceeded? Criteria 31
Yes
No
Is the Tcflamox exceeded? Criteria 32
Yes
No
Is the LOC exceeded? Criteria 33
Yes
No
Message Mixture is potentially explosive Expert needed to complete classification
contains only Flam.Gas 2 components Criteria 26
Yes
No
Is the flam. mixture also Pyrophoric? Criteria 27
Yes
No
Does the mixture contain one chemically unstable gas above 3% or more than one chem. unst. gas? Criteria 28
Yes
No
Is the Mixture oxidising? Criteria 28
Yes
No
Message Expert needed to complete classification
Message Expert needed to complete classification
Flam. Gas 2 H221
Flam. Gas 1A H220 Pyr. Gas H232
Is the LFL > 6%? Criteria 26a
Yes
No
Flam. Gas 1B H221
Flam. Gas 1A H220
Ox. Gas 1 H270
Non flammable Non oxidising
P 4
P4
P4
P4
P4

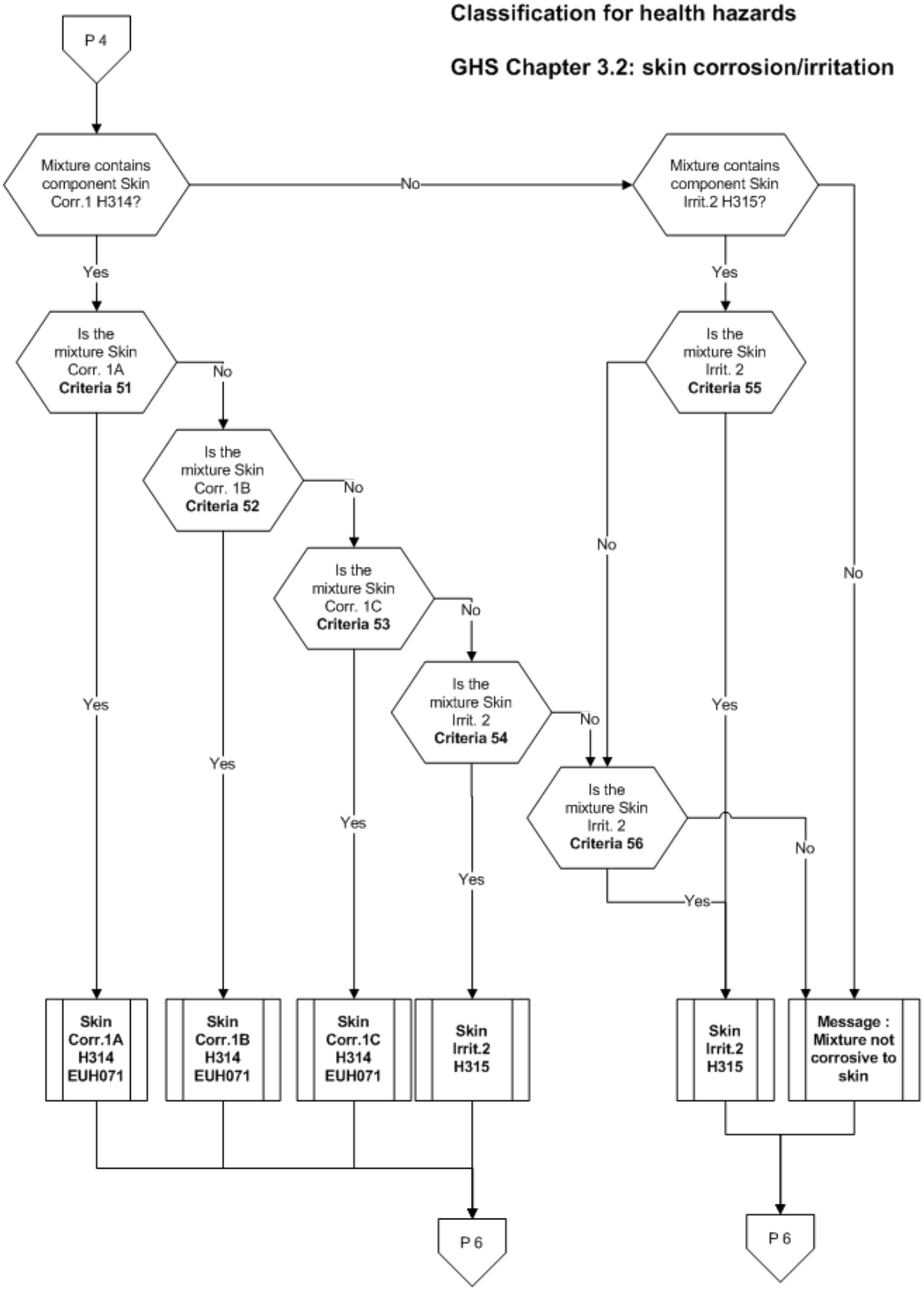
Page 4:
Classification for health hazards

GHS Chapter 3.1: acute toxicity



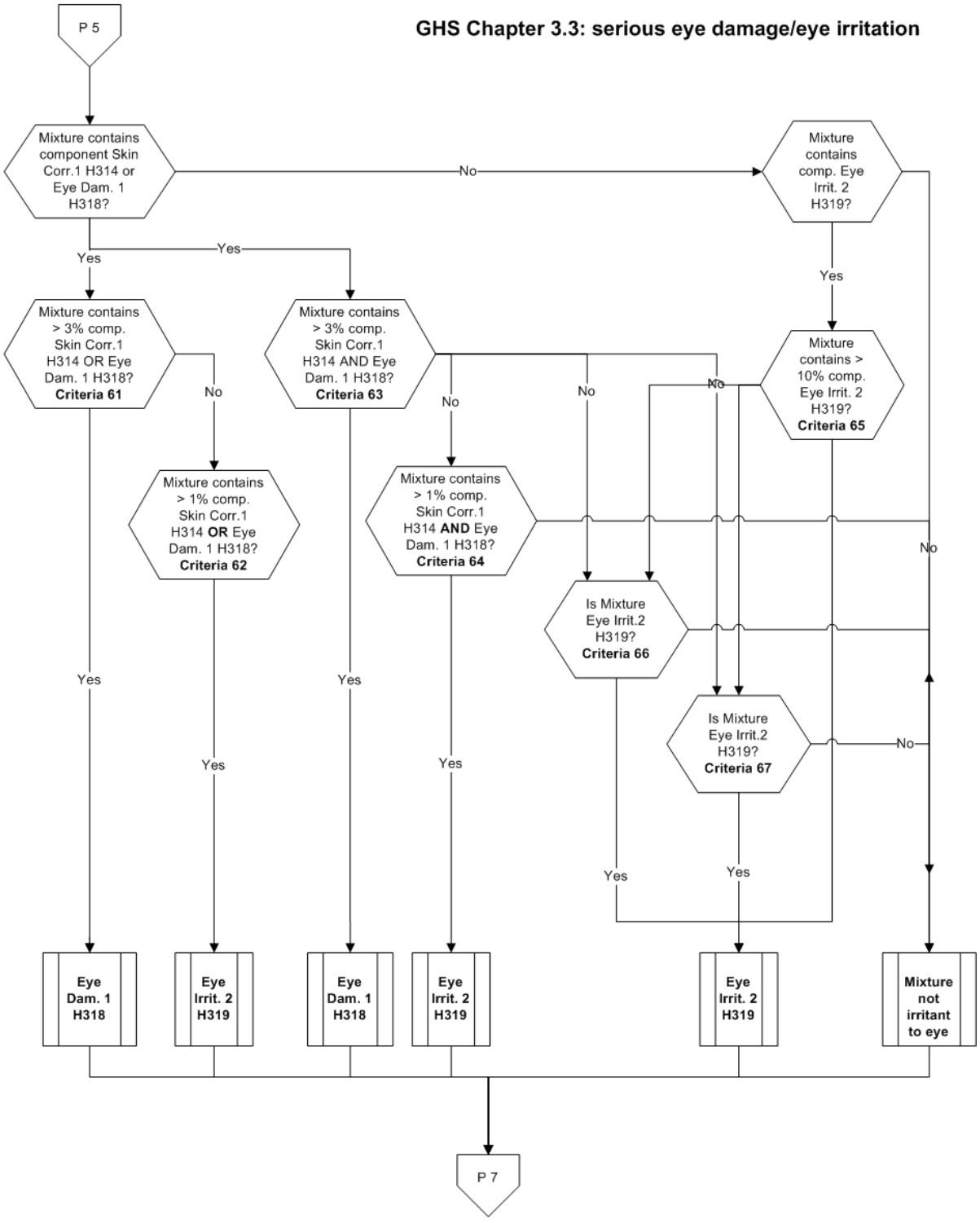
Page 5:
Classification for health hazards

GHS Chapter 3.2: skin corrosion/irritation



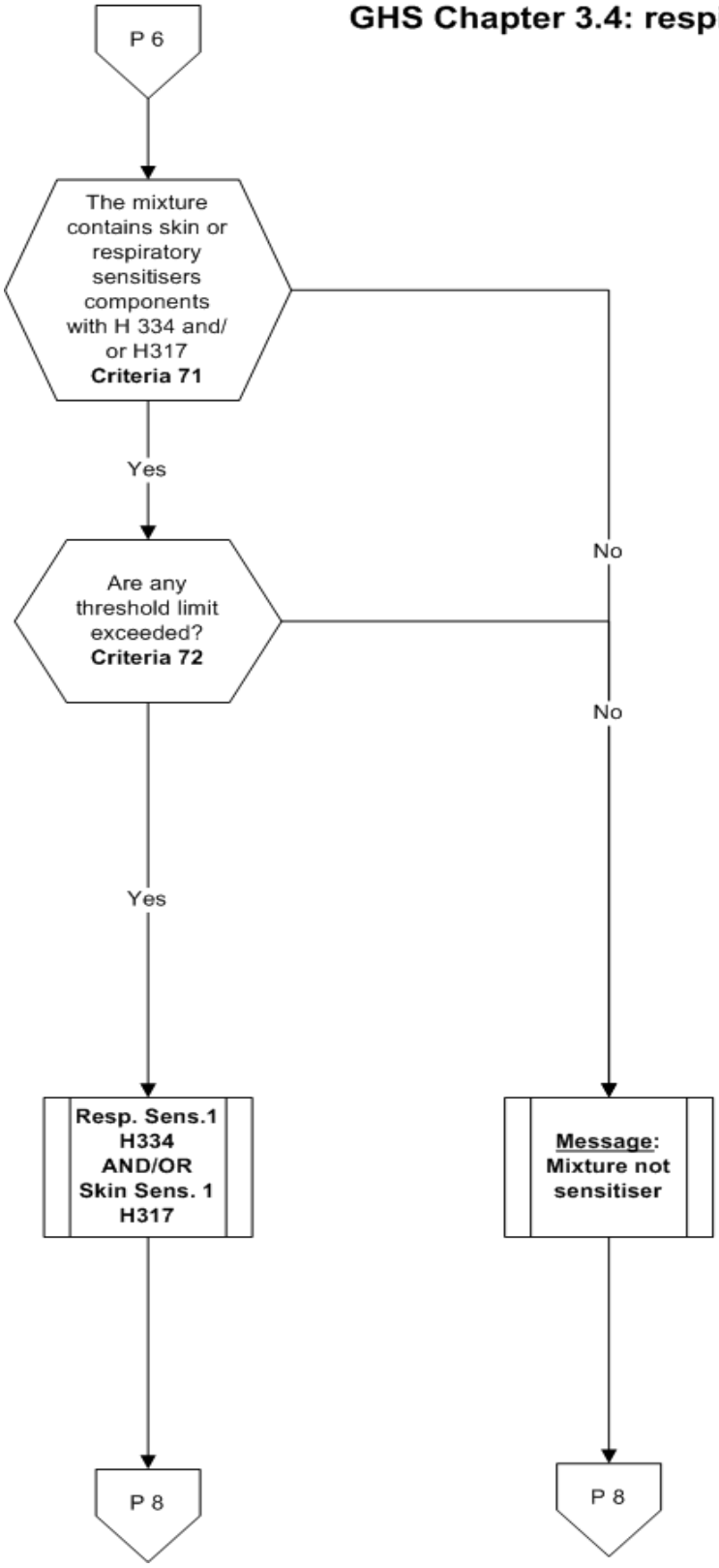
Page 6:
Classification for health hazards

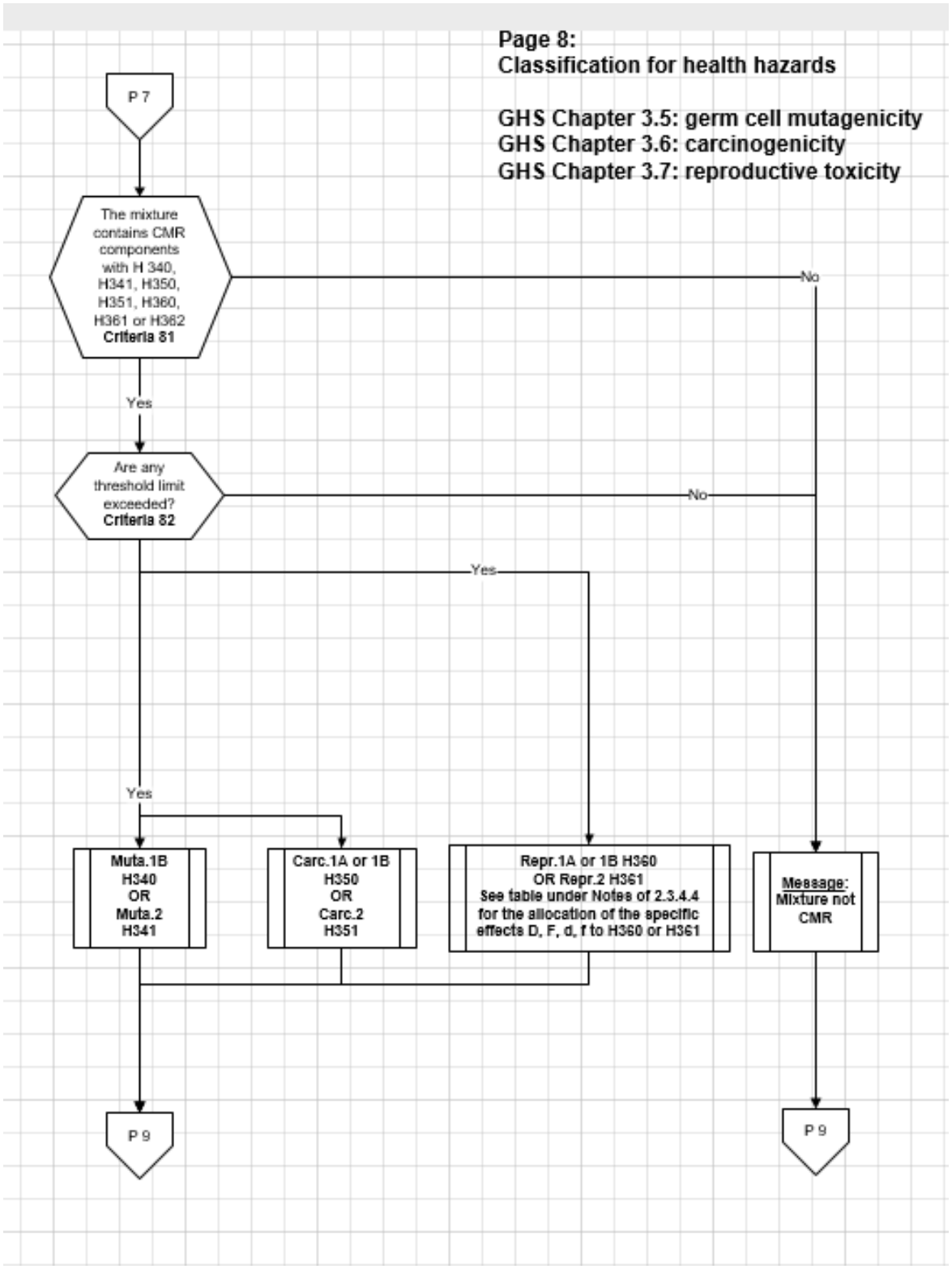
GHS Chapter 3.3: serious eye damage/eye irritation



Page 7:
Classification for health hazards

GHS Chapter 3.4: respiratory or skin sensitisation

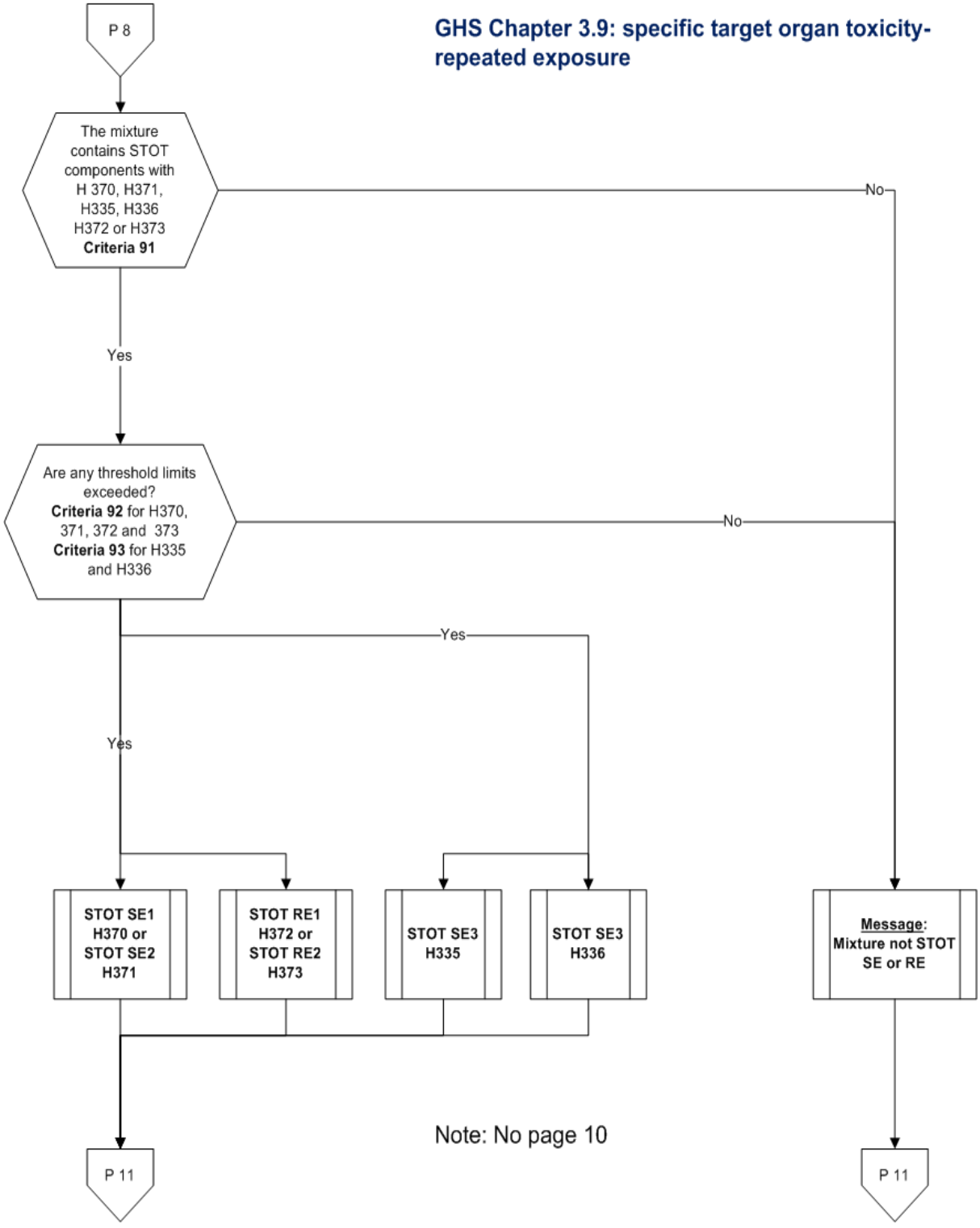



Page 8:
Classification for health hazards
GHS Chapter 3.5: germ cell mutagenicity
GHS Chapter 3.6: carcinogenicity
GHS Chapter 3.7: reproductive toxicity
P 7
The mixture contains CMR components with H 340, H341, H350, H351, H360, H361 or H362
Criteria 81
No
Yes
Are any threshold limit exceeded?
Criteria 82
No
Yes
Yes
Muta.1B H340 OR Muta.2 H341
Carc.1A or 1B H350 OR Carc.2 H351
Repr.1A or 1B H360 OR Repr.2 H361 See table under Notes of 2.3.4.4 for the allocation of the specific effects D, F, d, f to H360 or H361
Message: Mixture not CMR
P 9
P 9

Page 9:
Classification for health hazards

GHS Chapter 3.8: specific target organ toxicity-single exposure

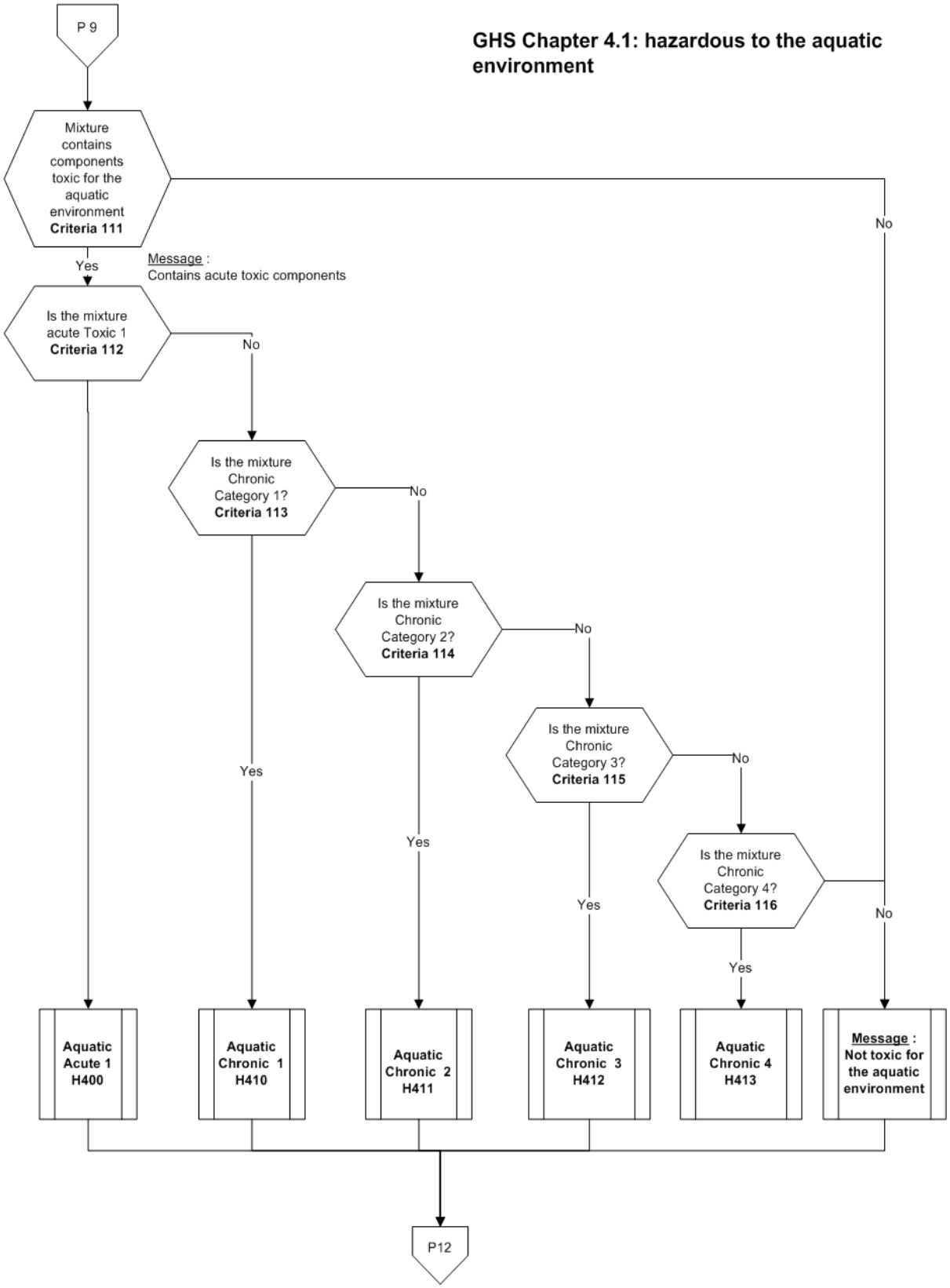
GHS Chapter 3.9: specific target organ toxicity-repeated exposure



Note: No page 10

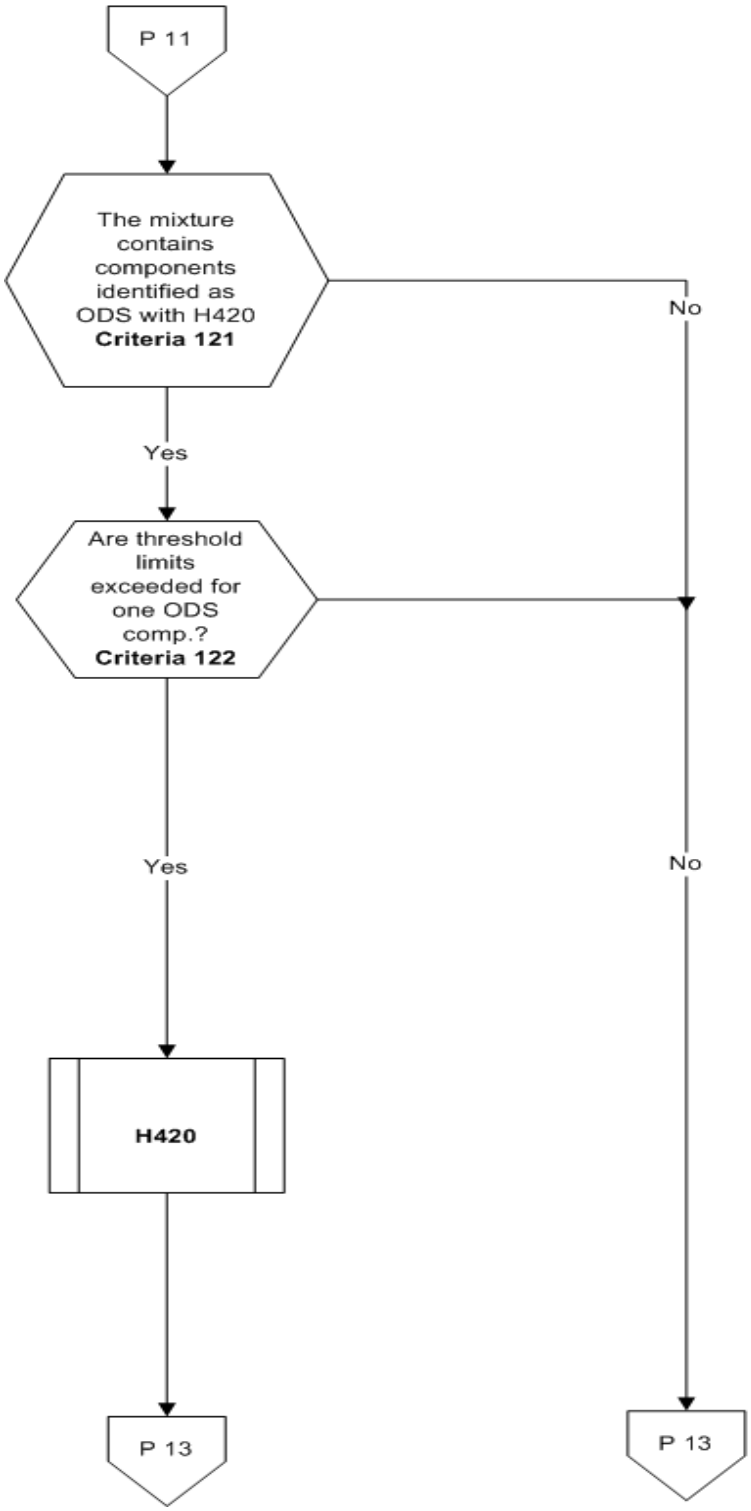
Page 11:
Classification for environmental hazards

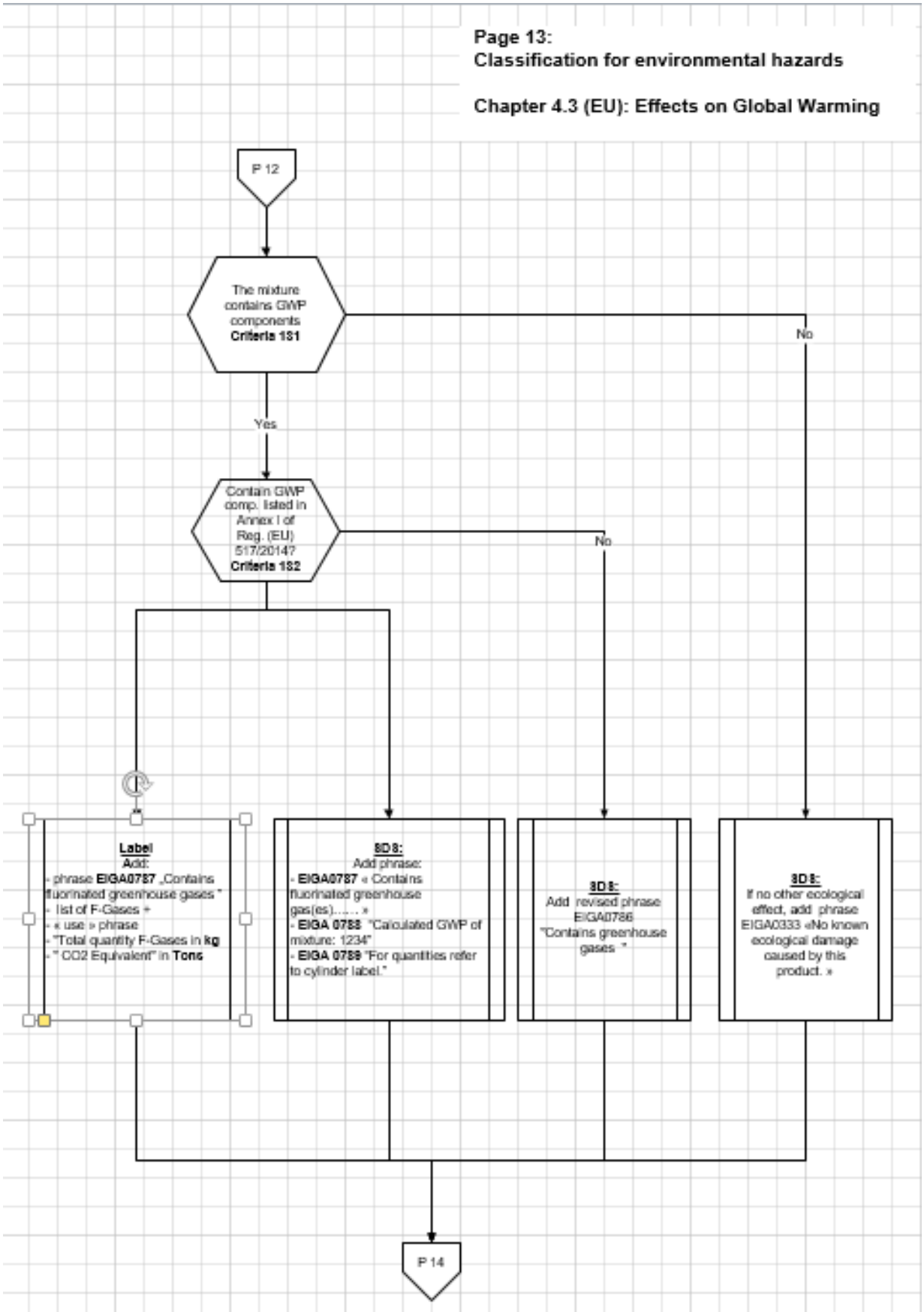
GHS Chapter 4.1: hazardous to the aquatic environment



Page 12:
Classification for environmental hazards

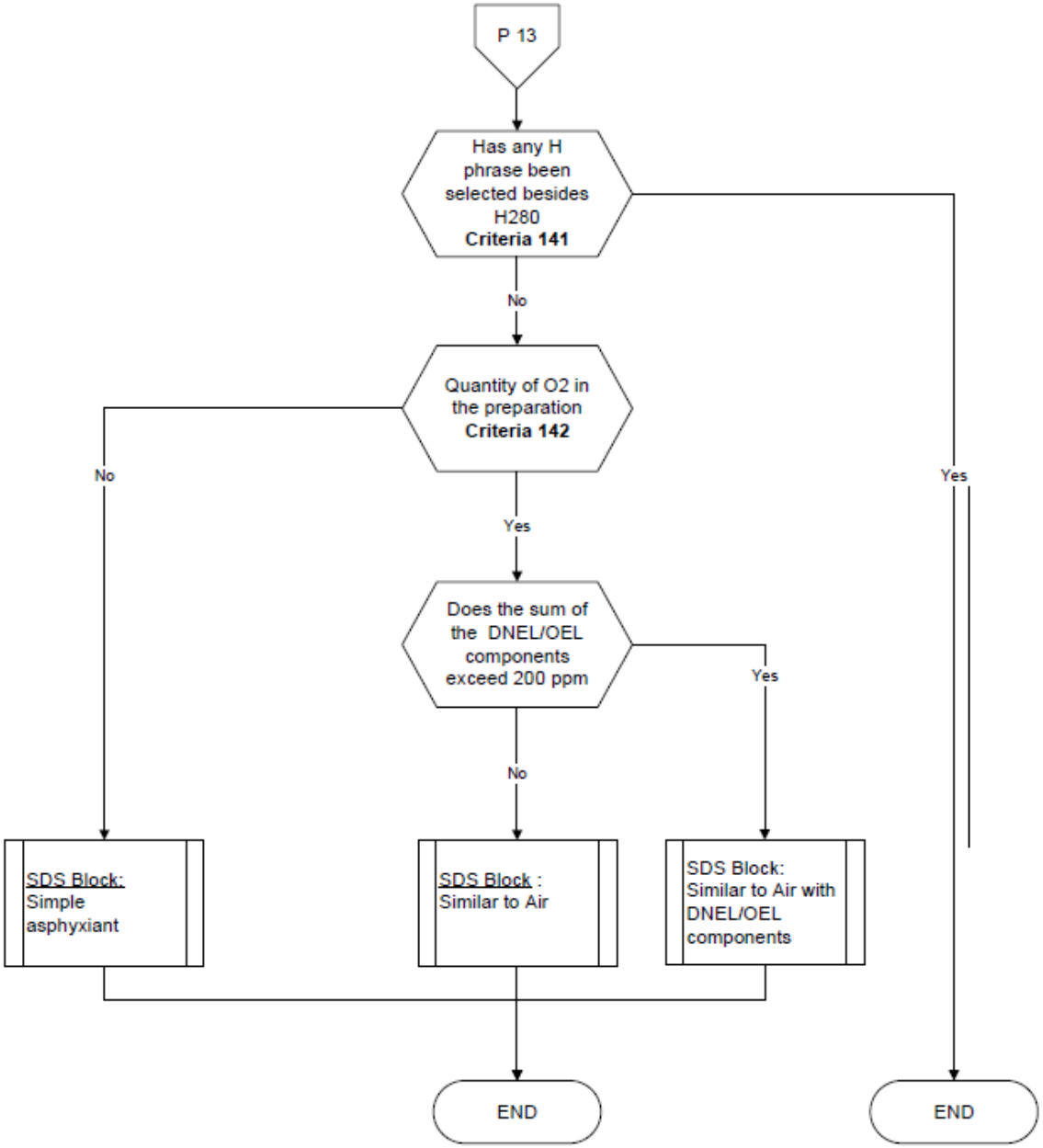
Chapter 4.2: hazardous to the ozone layer




Page 13:
Classification for environmental hazards
Chapter 4.3 (EU): Effects on Global Warming
P 12
The mixture contains GWP components
Criteria 131
No
Yes
Contain GWP comp. listed in Annex I of Reg. (EU) 517/2014?
Criteria 132
No
Label
Add:
- phrase EIGA0787 „Contains fluorinated greenhouse gases "
- list of F-Gases +
- « use » phrase
- "Total quantity F-Gases in kg
- " CO2 Equivalent" in Tons
SDS:
Add phrase:
- EIGA0787 « Contains fluorinated greenhouse gas(es)..... »
- EIGA 0788 "Calculated GWP of mixture: 1234"
- EIGA 0789 "For quantities refer to cylinder label."
SDS:
Add revised phrase EIGA0786
"Contains greenhouse gases "
SDS:
If no other ecological effect, add phrase EIGA0333 «No known ecological damage caused by this product. »
P 14

Page 14

Asphyxiant - Similar to AIR



Criteria description

Criteria Nr	Formula
Page 1 Physical state	
11	Mixtures that contain gases and liquids are classified as 'Gases under pressure' if the pressure in the receptacle is higher than 200 kPa (2 bar) at 20°C AND the concentration of gases is higher than 50% (in weight%).
12	If the substance 000A (Air) is selected, it is split in : Xi * 21 % of 097A (Oxygen) Xi * 79 % of 089A (Nitrogen)
13	If $\sum(Xi * Tki) > 223K$ (-50°C), the gas mixture is a liquefied gas. Tk is the critical temperature of the gas component in Kelvin.
Page 2 and Page 3 Flammability and oxy-potential	
20	All components shall have either a Ki, a Tci or a Ci value.
21	Does the mixture contain components with Tci > 0 ?
22	Does the mixture contain components with Ci > 0 ? If yes, message: 'contains flammable and oxidizing components'
23	The mixture falls into the limits of concentrations to be identified as a distinct UN number (see section 4.5 tables B and C)
23a	The mixture falls into the limits of concentrations to be identified as a distinct UN number and is classified as flammable for transport (see section 4.5 table C)
24	If the mixture contains: • more than 0.5% of partially halogenated hydrocarbons (see Table section 4.2) **AND** • more than 0.25% of flammable components the non-flammable partially halogenated hydrocarbons are considered as flammable components with Tc values between brackets in Table 4.2
25	Is the mixture flammable? See ISO10156:2017 section 4.3 If $\sum_{i=1}^{n} A_i\left(\frac{100}{T_{ci}}-1\right) \le \sum_{k=1}^{p} B_k K_k$ the mixture is not flammable in air
25a	Is the lower flammability limit (LFL) of the gas mixture > 6%? See ISO10156:2017 section 4.5.3 eq. (6) for calculation of LFL for a mixture
26	Are all flammable gases identified with Flam. Gas 2 H221
27	The mixture contains more than 1% of pyrophoric components. If the result is >1, the mixture is pyrophoric.
28	For compressed flammable gas mixtures containing one chemically unstable gas, is the criteria described in section 35 of the Manual of Tests and Criteria of the UNRTDG exceeded? For more than one chemically unstable component, expert advice needed.
29	ISO 10156 –section 5.3 If Oxidizing Power (OP) > 23.5 the mixture is more oxidizing than air.
30	Is the FLAMOX mixture containing another oxidising gas than oxygen?

31	Is the sum of the flammable components >= $LEL_{(mix)}$? For mixture containing more that one flammable component: $LEL(mix) = \frac{\sum A_i}{\sum \left(\frac{A}{LEL} \right)_i}$ where Ai are the concentrations in mole % of the flammable components The sum of the flammable compoments is adjusted with a normalisation factor for inert gases other than N2: Normalisation factor F= $\frac{1}{1 + \sum_{k=1}^{p} (K_k - 1) B_k}$ Where B_k is the inert gas concentration and K_k the coefficient of equivalency
32	Is the TC Flamox exceeded? $T_{ci}(flamox) = T_{ci} \times (1 - x_{O2} / 21\%)$ Where x_{O2} is the oxygen concentration times the normalisation factor F For mixture containing more that one flammable component: $T_c(mix) = \frac{\sum A_i}{\sum \left(\frac{A}{T_c} \right)_i}$ where Ai are the concentrations in mole % of the flammable components
33	Is the LOC of the mixture exceeded? For mixture containing more that one flammable component: $LOC(mix) = \frac{\sum A_i}{\sum \left(\frac{A}{LOC} \right)_i}$ where Ai are the concentrations in mole % of the flammable components. The oxygen concentration is adjusted with a normalization factor for inert gases other than N2 (see criteria 31)
Page 4 Acute toxicity	
41	Does the mixture contain components with H330, H331 or H332 and with LC50 /4h value (ATE)? Calculate ATE of the mixture $\frac{100}{\mathrm{ATE_{mix}}} = \sum_{\mathrm{n}} \frac{\mathrm{C_i}}{\mathrm{ATE_i}}$ If the LC50 values are maintained in rat/1h, the threshold limits in criteria 42, 43, 44 and 45 should be multiplied by 2
42	If ATEmix > 20000, the mixture is not Acute Toxic
43	If ATEmix > 2500, the mixture is Acute Tox.4
44	If ATEmix > 500, the mixture is Acute Tox.3
45	If ATEmix > 100, the mixture is Acute Tox.2 otherwise, the mixture is Acute Tox.1
46	Does the mixture contain components with ADR group TC ?
47	Calculate ATEmix for mixture components containing the symbols TC If ATEmix ≤ 2500, the mixture is Corrosive for ADR. EUH071 is assigned
Page 5 Skin corrosion/irritation	
51	If sum Skin Corr. 1A components $\geq$ 5%, the mixture is Skin Corr. 1A
52	If sum Skin Corr. 1A + 1B components $\geq$ 5%, the mixture is Skin Corr. 1B
53	If sum Skin Corr. 1A + 1B +1C components $\geq$ 5%, the mixture is Skin Corr. 1C

54	If sum Skin Corr. 1 components $\geq$ 1%, the mixture is Skin Irrit. 2
55	If sum Skin Irrit. 2 components $\geq$ 10%, the mixture is Skin Irrit. 2
56	If sum the sum Skin Corr. 1 components x10 plus the sum % Skin Irrit. 2 components $\geq$ 10%, mixture is Skin Corr. 2 The following formula shall be used in case where Specific Concentration Limits (SCL) are defined for one or more components but can be used in all cases: The mixture is classified for skin corrosion/irritation if the Sum of (ConcA / clA) + (ConcB / clB) + …. + (ConcZ / clZ) is $\geq$ 1 Where ConcA = the concentration of substance A in the mixture; clA = the concentration limit (either specific or generic) for substance A for the hazard considered; ConcB = the concentration of substance B in the mixture; clB = the concentration limit (either specific or generic) for substance B; etc.
Page 6 Serious eye damage/eye irritation	
61	If sum Skin Corr.1 components OR Eye Dam.1 components $\geq$ 3%, the mixture is Eye Dam.1 H318
62	If sum Skin Corr.1 components OR Eye Dam.1 components $\geq$ 1%, the mixture is Eye Irrit.2 H319
63	If sum Skin Corr.1 components AND Eye Dam.1 components $\geq$ 3%, the mixture is Eye Dam.1 H318
64	If sum Skin Corr.1 components AND Eye Dam.1 components $\geq$ 1%, the mixture is Eye Irrit.2 H319
65	If sum Eye Irrit. 2 components $\geq$ 10%, the mixture is Eye Irrit.2 H319
66	If sum Eye Dam.1 components x10 plus the sum Eye Irr.2 components $\geq$ 10%, the mixture is Eye Irrit.2 H319
67	If sum (Skin Corr.1 components AND Eye Dam.1 components) X 10 plus sum Eye Irrit.2 components $\geq$ 10%, mixture is Eye Irrit.2 H319 The following formula shall be used in case where Specific Concentration Limits (SCL) are defined for one or more components but can be used in all cases: The mixture is classified for serious eye damage/eye irritation if the Sum of (ConcA / clA) + (ConcB / clB) + …. + (ConcZ / clZ) is $\geq$ 1 Where ConcA = the concentration of substance A in the mixture; clA = the concentration limit (either specific or generic) for substance A for the hazard considered; ConcB = the concentration of substance B in the mixture; clB = the concentration limit (either specific or generic) for substance B; etc.
Page 7 Respiratory or skin sensitisation	
71	Mixture contains respiratory or skin sensitizing components with H 334 and/or H317
72	Is one of the Xi of the components higher than one of the threshold limits
Page 8 Mutagenicity, carcinogenicity and toxic for reproduction	
81	The mixture contains CMR components with H 340, H341, H350, H351, H360, H361 or H362
82	Is one of the Xi of the components higher than one of the generic or specific concentration limits (values in table 4.3)
Page 9 STOT- single exposure and STOT-repeated exposure	
91	The mixture contains STOT Single Exposure or STOT Repeated exposure with H370, H371, H335, H336, H371 or H372

92	Is one of the Xi of the components higher than one of the generic or specific concentration limits for H 370, H371, H372 or H373 (values in table 4.3)
93	Is $\sum \frac{Xi(H335)}{ConcL(H335)} \geq 1$ or Is $\sum \frac{Xi(H336)}{ConcL(H336)} \geq 1$ (values in table 4.3)
Page 10 No page 10	
Page 11 Hazardous to the aquatic environment	
111	The mixture contains components with H400, H410, H411, H412 or H413
112	If sum Acute Category 1 x M components (with H400) $\geq$ 25%, the mixture is Aquatic Acute with H400
113	If sum Chronic Cat.1 x M components. $\geq$ 25%, the mixture is Aquatic Chronic 1 with H410
114	If sum (Mx10xChronic Cat.1 comp.) + Chronic Cat.2 comp. $\geq$ 25%, the mixture is Aquatic Chronic 2 with H411
115	If sum (Mx100xChronic Cat.1 comp). + (10xChronic Cat.2 comp.) + Chronic Cat.3 comp. $\geq$ 25%, the mixture is Aquatic Chronic 3 with H412
116	If sum Chronic Cat.1 comp. + Chronic Cat.2 comp. + Chronic Cat.3 comp. + Chronic Cat.4 comp. $\geq$ 25%, the mixture is Aquatic Chronic 4 with H413
Page 12 Hazardous for the ozone layer	
121	Mixture contains ODS (ozone depleting substances) components with H420
122	One of the Xi of the ODS components is higher than 0.1%
Page 13 Effects on global warming	
131	Mixture contains components with GWP value not equal to zero.(see table 4.4)
132	Are GWP components listed in Annex I,II, III, VI of Reg.(EU) 2024/573 (see table 4.4) The GWP of the mixture shall be calculated as follows $\sum \left(Cgwp(W\%) \times GWPvalue \right)$ **Cgwp (W%) = Cgwp (Vol%) x MWg/Sum (CixMWi)**
Page 14 Special Transport (ADR) Classification	
141	Mixture is hazardous (contains at least one H statement beside H280)
142	Quantity of Oxygen in the mixture If < 18%: Simple Asphyxiant If 18%<=C<= 23.5% similar to air

6.3 Label content for generic mixtures

6.3.1 Ranking of the P Statements

Art.28 of CLP recommends limiting the number of P-statements on the label to 6 statements in order not to overload the label. To achieve this objective, EIGA has adopted the following strategy:

1. the relevant H-statements (see section 6.1) have been ranked with the priority given to the acute categories and to the short term effects

NEW RANK	H-Statement	Classification	Type of effects
1	H330	Acute Tox. 1-2 inhalation	short term
2	H331	Acute Tox. 3 inhalation	short term
3	H332	Acute Tox. 4 inhalation	short term
4	H310	Acute Tox. 1-2 dermal (HF only)	short term
5	H220	Flam. Gas 1A	short term
6	H230	Flam. Gas 1A , Chem. Unst 1A	short term
7	H231	Flam. Gas 1A , Chem. Unst 1B	short term
8	H221	Flam. Gas 1B	short term
9	H221	Flam. Gas 2	short term
10	H270	Ox. Gas 1	short term
11	H318	Eye Dam. 1	short term
12	H314	Skin. Corr. 1	short term
13	H370	STOT SE1	short term
14	H371	STOT SE2	short term
15	H360 (also with F, D, FD, Fd or Df)	Repr. 1A /B	long term
16	H350	Carc. 1A/B	long term
17	H340	Muta. 1A/B	long term
18	EUH380	ED HH 1	long term
19	H361(also with f, d or fd)	Repr. 2	long term
20	H351	Carc. 2	long term
21	H341	Muta. 2	long term
22	EUH381	ED HH 2	long term
23	H319	Eye Irrit. 2	short term
24	H315	Skin Irrit. 2	short term
25	H372	STOT RE1	long term
26	H373	STOT RE2	long term
27	H281	Refr.Gas	short term
28	H280	Compr.Gas	short term
29	H280	Liq. Gas	short term
30	H335	STOT SE3 Respir. Irrit.	short term
31	H336	STOT SE3 Drowsiness	short term
32	H400	Aquatic Acute 1	short term
33	EUH441	vPvB	long term
34	EUH451	vPvM	long term
35	EUH440	PBT	long term
36	EUH450	PMT	long term
37	H410	Aquatic Chronic 1	long term
38	EUH430	ED ENV 1	long term
39	H411	Aquatic Chronic 2	long term

NEW RANK	H-Statement	Classification	Type of effects
40	EUH431	ED ENV 2	long term
41	H412	Aquatic Chronic 3	long term
42	H420	Hazardous to the ozone layer	long term not used because P502 is not selected (see table 6.1B)

Note: H232 is not considered as it will not trigger P-phrases other than selected by EIGA and already covered by H230 and H231.

2. The P-statements assigned to each H-statement have been further ranked with the priority given to the PS for Prevention before Storage and Disposal respectively. The final ranking is given in the table below:

Table A: P-Statement Ranking Number

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
1	H330	Acute Tox. 1-2 inh.	**1**	P260-EIGA
1	H330	Acute Tox. 1-2 inh	**2**	P304+P340+ P315
2	H331	Acute Tox. 3 inh	**1**	P260-EIGA
2	H331	Acute Tox. 3 inh	**2**	P304+P340+ P315
3	H332	Acute Tox. 4 inh	**1**	P260-EIGA
3	H332	Acute Tox. 4 inh	**2**	P304+P340+ P315
4	H310	Acute Tox. 1 derm.	**3**	P262
4	H310	Acute Tox. 1 derm.	**4**	P280a
4	H310	Acute Tox. 1 derm.	**5**	P302 + P352
5	H220	Flam. Gas 1A	**6**	P210
6	H230	Flam. Gas 1A , Chem. Unst 1A	**7**	P202
7	H231	Flam. Gas 1A , Chem. Unst 1B	**7**	P202
8	H221	Flam. Gas 1B	**6**	P210
9	H221	Flam. Gas2	**6**	P210
10	H270	Ox. Gas 1	**8**	P244
11	H318	Eye Dam. 1	**4**	P280a
11	H318	Eye Dam. 1	**9**	P305+P351+ P338+P315
12	H314	Skin Corr. 1	**4**	P280a
12	H314	Skin Corr. 1	**10**	P303+P361+ P353+P315
12	H314	Skin Corr. 1	**9**	P305+P351+ P338+P315
12	H314	Skin Corr. 1	**2**	P304+P340+ P315
13	H370	STOT SE1	**1**	P260-EIGA
13	H370	STOT SE1	**11**	P308+P313
14	H371	STOT SE2	**1**	P260-EIGA
14	H371	STOT SE2	**11**	P308+P313
15	H360	Repr. 1	**7**	P202
15	H360	Repr. 1	**11**	P308+P313
16	H350	Carc. 1	**7**	P202
16	H350	Carc. 1	**11**	P308+P313
17	H340	Muta. 1	**7**	P202
17	H340	Muta. 1	**11**	P308+P313
18	EUH380	ED HH 1	**7**	P202
18	EUH380	ED HH 1	**12**	P263
18	EUH380	ED HH 1	**11**	P308+P313
19	H361	Repr. 2	**7**	P202
19	H361	Repr. 2	**11**	P308+P313
20	H351	Carc. 2	**7**	P202
20	H351	Carc. 2	**11**	P308+P313
21	H341	Muta. 2	**7**	P202
21	H341	Muta. 2	**11**	P308+P313
22	EUH381	ED HH 2	**7**	P202
22	EUH381	ED HH 2	**12**	P263
22	EUH381	ED HH 2	**11**	P308+P313
23	H319	Eye Irrit. 2	**4**	P280a
23	H319	Eye Irrit. 2	**9**	P305 + P351+ P338 + P315
24	H315	Skin Irrit. 2	**4**	P280a
24	H315	Skin Irrit. 2	**13**	P332 + P313
25	H372	STOT RE1	**1**	P260-EIGA
25	H372	STOT RE1	**11**	P308 + P313
26	H373	STOT RE2	**1**	P260-EIGA
26	H373	STOT RE2	**11**	P308 + P313
27	H281	Ref.Gas	**14**	P282
27	H281	Ref.Gas	**15**	P336+P315
27	H281	Ref.Gas	**16**	P403
28	H280	Com.Gas	16	P403
29	H280	Liq.gas	16	P403
30	H335	STOT SE3	**1**	P260-EIGA
30	H335	STOT SE3	**2**	P304+P340+ P315

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
31	H336	STOT SE3	**1**	P260-EIGA
31	H336	STOT SE3	**2**	P304+P340+ P315
32	H400	Aquatic Acute 1	**17**	P273
33	EUH441	vPvB	**17**	P273
34	EUH451	vPvM	**17**	P273
35	EUH440	PBT	**17**	P273
36	EUH450	PMT	**17**	P273
37	H410	Aquatic Chronic 1	**17**	P273
38	EUH430	ED ENV 1	**17**	P273
39	H411	Aquatic Chronic 2	**17**	P273
40	EUH431	ED ENV 2	17	P273
41	H412	Aquatic Chronic 3	**17**	P273
5	H220	Flam.Gas 1A	**18**	P377
6	H230	Flam. Gas 1A , Chem. Unst 1A	**18**	P377
7	H231	Flam. Gas 1A , Chem. Unst 1B	**18**	P377
8	H221	Flam Gas 1B	18	P377
9	H221	Flam.Gas2	18	P377
10	H270	Ox.Gas 1	19	P220
5	H220	Flam.Gas 1A	**20**	P381
6	H230	Flam. Gas 1A , Chem. Unst 1A	**20**	P381
7	H231	Flam. Gas 1A , Chem. Unst 1B	**20**	P381
8	H221	Flam Gas 1B	20	P381
9	H221	Flam.Gas2	20	P381
10	H270	Ox. Gas 1	21	P370 + P376
15	H360	Repr. 1	22	P280b
20	H351	Carc. 2	22	P280b
17	H340	Muta. 1	22	P280b
18	EUH380	ED HH 1	22	P280b
16	H350	Carc. 1	22	P280b
21	H341	Muta. 2	22	P280b
19	H361	Repr. 2	22	P280b
22	EUH381	ED HH 2	22	P280b
24	H315	Skin Irrit. 2	5	P302 + P352
4	H310	Acute Tox. 1 derm.	23	P315
1	H330	Acute Tox. 1-2 inh.	24	P405
12	H314	Skin Corr. 1	1	P260-EIGA
2	H331	Acute Tox. 3 inh	24	P405
15	H360	Repr. 1	24	P405
20	H351	Carc. 2	24	P405
17	H340	Muta. 1	24	P405
18	EUH380	ED HH 1	24	P405
16	H350	Carc. 1	24	P405
21	H341	Muta. 2	24	P405
19	H361	Repr. 2	24	P405
22	EUH381	ED HH 2	24	P405
4	H310	Acute Tox. 1 derm.	24	P405
4	~~H310~~	~~Acute Tox. 1 derm.~~	25	~~P322~~
4	H310	Acute Tox. 1 derm.	~~256~~	P361
12	H314	Skin Corr. 1	24	P405
13	H370	STOT SE1	24	P405
14	H371	STOT SE2	24	P405
30	H335	STOT SE3	24	P405
31	H336	STOT SE3	24	P405
32	H400	Aquatic Acute 1	**24**	P405
37	H410	Aquatic Chronic 1	**24**	P405
38	EUH430	ED ENV 1	**24**	P405
39	H411	Aquatic Chronic 2	**24**	P405
40	EUH431	ED ENV 2	24	P405
41	H412	Aquatic Chronic 3	**24**	P405

Table B: Sorted per H-Statement Code Number

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
5	H220	Flam. Gas 1A	**6**	P210
5	H220	Flam.Gas 1A	**18**	P377
5	H220	Flam.Gas 1A	**20**	P381
8	H221	Flam. Gas 1B	**6**	P210
9	H221	Flam. Gas2	**6**	P210
8	H221	Flam Gas 1B	18	P377
9	H221	Flam.Gas2	18	P377
8	H221	Flam Gas 1B	20	P381
9	H221	Flam.Gas2	20	P381
6	H230	Flam. Gas 1A , Chem. Unst 1A	**7**	P202
6	H230	Flam. Gas 1A , Chem. Unst 1A	**18**	P377
6	H230	Flam. Gas 1A , Chem. Unst 1A	**20**	P381
7	H231	Flam. Gas 1A , Chem. Unst 1B	**7**	P202
7	H231	Flam. Gas 1A , Chem. Unst 1B	**18**	P377
7	H231	Flam. Gas 1A , Chem. Unst 1B	**20**	P381
10	H270	Ox. Gas 1	**8**	P244
10	H270	Ox.Gas 1	19	P220
10	H270	Ox. Gas 1	21	P370 + P376
28	H280	Com.Gas	16	P403
29	H280	Liq.gas	16	P403
27	H281	Ref.Gas	**14**	P282
27	H281	Ref.Gas	**15**	P336+P315
27	H281	Ref.Gas	**16**	P403
4	H310	Acute Tox. 1 derm.	**3**	P262
4	H310	Acute Tox. 1 derm.	**4**	P280a
4	H310	Acute Tox. 1 derm.	**5**	P302 + P352
4	H310	Acute Tox. 1 derm.	23	P315
4	H310	Acute Tox. 1 derm.	24	P405
~~4~~	~~H310~~	~~Acute Tox. 1 derm.~~	~~25~~	~~P322~~
4	H310	Acute Tox. 1 derm.	~~26~~25	P361
12	H314	Skin Corr. 1	**4**	P280a
12	H314	Skin Corr. 1	**10**	P303+P361+ P353+P315
12	H314	Skin Corr. 1	**9**	P305+P351+ P338+P315
12	H314	Skin Corr. 1	**2**	P304+P340+ P315
12	H314	Skin Corr. 1	1	P260-EIGA
12	H314	Skin Corr. 1	24	P405
24	H315	Skin Irrit. 2	**4**	P280a

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
24	H315	Skin Irrit. 2	**13**	P332 + P313
24	H315	Skin Irrit. 2	5	P302 + P352
11	H318	Eye Dam. 1	**4**	P280a
11	H318	Eye Dam. 1	**9**	P305+P351+ P338+P315
23	H319	Eye Irrit. 2	**4**	P280a
23	H319	Eye Irrit. 2	**9**	P305 + P351+ P338 + P315
1	H330	Acute Tox. 1-2 inh.	**1**	P260-EIGA
1	H330	Acute Tox. 1-2 inh	**2**	P304+P340+ P315
1	H330	Acute Tox. 1-2 inh.	24	P405
2	H331	Acute Tox. 3 inh	**1**	P260-EIGA
2	H331	Acute Tox. 3 inh	**2**	P304+P340+ P315
2	H331	Acute Tox. 3 inh	24	P405
3	H332	Acute Tox. 4 inh	**1**	P260-EIGA
3	H332	Acute Tox. 4 inh	**2**	P304+P340+ P315
30	H335	STOT SE3	**1**	P260-EIGA
30	H335	STOT SE3	**2**	P304+P340+ P315
30	H335	STOT SE3	24	P405
31	H336	STOT SE3	**1**	P260-EIGA
31	H336	STOT SE3	**2**	P304+P340+ P315
31	H336	STOT SE3	24	P405
17	H340	Muta. 1	**7**	P202
17	H340	Muta. 1	**11**	P308+P313
17	H340	Muta. 1	22	P280b
17	H340	Muta. 1	24	P405
21	H341	Muta. 2	**7**	P202
21	H341	Muta. 2	**11**	P308+P313
21	H341	Muta. 2	22	P280b
21	H341	Muta. 2	24	P405
16	H350	Carc. 1	**7**	P202
16	H350	Carc. 1	**11**	P308+P313
16	H350	Carc. 1	22	P280b
16	H350	Carc. 1	24	P405
20	H351	Carc. 2	**7**	P202
20	H351	Carc. 2	**11**	P308+P313
20	H351	Carc. 2	22	P280b
20	H351	Carc. 2	24	P405
15	H360	Repr. 1	**7**	P202
15	H360	Repr. 1	**11**	P308+P313
15	H360	Repr. 1	22	P280b

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
15	H360	Repr. 1	24	P405
19	H361	Repr. 2	**7**	P202
19	H361	Repr. 2	**11**	P308+P313
19	H361	Repr. 2	22	P280b
19	H361	Repr. 2	24	P405
13	H370	STOT SE1	**1**	P260-EIGA
13	H370	STOT SE1	**11**	P308+P313
13	H370	STOT SE1	24	P405
14	H371	STOT SE2	**1**	P260-EIGA
14	H371	STOT SE2	**11**	P308+P313
14	H371	STOT SE2	24	P405
25	H372	STOT RE1	**1**	P260-EIGA
25	H372	STOT RE1	**11**	P308 + P313
26	H373	STOT RE2	**1**	P260-EIGA
26	H373	STOT RE2	**11**	P308 + P313
32	H400	Aquatic Acute 1	**17**	P273
32	H400	Aquatic Acute 1	**24**	P405
37	H410	Aquatic Chronic 1	**17**	P273
37	H410	Aquatic Chronic 1	**24**	P405
39	H411	Aquatic Chronic 2	**17**	P273
39	H411	Aquatic Chronic 2	**24**	P405
41	H412	Aquatic Chronic 3	**17**	P273
41	H412	Aquatic Chronic 3	**24**	P405
18	EUH380	ED HH 1	**7**	P202
18	EUH380	ED HH 1	**12**	P263
18	EUH380	ED HH 1	**11**	P308+P313
18	EUH380	ED HH 1	22	P280b
18	EUH380	ED HH 1	24	P405
22	EUH381	ED HH 2	**7**	P202
22	EUH381	ED HH 2	**12**	P263
22	EUH381	ED HH 2	**11**	P308+P313
22	EUH381	ED HH 2	22	P280b
22	EUH381	ED HH 2	24	P405
38	EUH430	ED ENV 1	**17**	P273
38	EUH430	ED ENV 1	**24**	P405
40	EUH431	ED ENV 2	17	P273
40	EUH431	ED ENV 2	24	P405
35	EUH440	PBT	**17**	P273
33	EUH441	vPvB	**17**	P273

NEW H-Stat. Rank	H-Stat. Code	Classification Categories	NEW P-Stat. Ranking Number	P- Stat. Code
36	EUH450	PMT	**17**	P273
34	EUH451	vPvM	**17**	P273

6.3.2 Selection of the P-Statements

6.3.2.1 Process:

The P-statements assigned to the H-statements resulting from classification are sorted according to their ranking numbers. The six statements are first selected according to their ranking order after having eliminated the duplicates.

6.3.2.2 Example

The mixture taken as example in 3.4.2 is classified as:

Press. Gas (Comp), H280; Acute Tox.4, H332; Skin Irrit.2, H315; Eye Dam.1, H318;
STOT SE 3, H335.

The P-Statements with their ranking corresponding to H280, H332, H315, H318 and H335 are:

H-Stat. Ranking Number	H-Stat. Code	Classification Categories	P-Stat. Ranking Number	P- Stat. Code	P-Stat. Description
28	H280	Com.Gas	16	P403	Store in a well-ventilated place.
3	H332	Acute Tox. 4 inh	1	P260-EIGA	Do not breathe gas, vapours.
3	H332	Acute Tox. 4 inh	2	P304+P340 + P315	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice.
24	H315	Skin Irrit. 2	4	P280a	Wear protective gloves, protective clothing, eye protection, face protection.
24	H315	Skin Irrit. 2	13	P332+P313	If skin irritation occurs: Get medical advice.
24	H315	Skin Irrit. 2	5	P302+P352	IF ON SKIN: Wash with plenty of water.
11	H318	Eye Dam. 1	4	P280a	Wear protective gloves, protective clothing, eye protection, face protection.
11	H318	Eye Dam. 1	9	P305+P351 + P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice.
30	H335	STOT SE 3	1	P260-EIGA	Do not breathe gas, vapours.
30	H335	STOT SE 3	2	P304+P340 + P315	IF INHALED : Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice.

The retained P-Statements are according to their ranking order: 1, 2, 4, 5, 9, 13 and 16. The number of P-statements on the label should be restricted down to 6 according to their ranking order unless more are necessary to reflect the severity of the hazard (see 3.2.7). Consequently, P403 is omitted.

The same process has been used to determine the P-Statements in Table 4.6 with the labelling elements for pure gases. In several cases, it was felt necessary not to reduce the number to not more than 6 P-statements.

6.4 Rules for the naming of the constituents on the transport label for NOS positions

A) All NOS positions of Class 2 except for Aerosols and Chemicals under pressure

NOTE

- toxicity index= Vi%/LC50
- flammability index= Vi%/Tci
- oxy-potential index= = Vi%*Ci

where Vi is the percentage component equal or greater than 0.02% (200 ppm) [Note 1]

Classif. Code	Hazard Inducer 1	Hazard Inducer 2 Note 3	Examples:
A	Component with highest concentration	Component with highest Toxicity index; if none available, component with second highest concentration	1) 90%N_2 / 4%Ar / 6% O2 = **Nitrogen**, **Oxygen** 2) 1,000 ppm Propane in Nitrogen = **Nitrogen, Propane** 3) 200 ppm H_2S, 1 % CO in N_2= **Nitrogen, Carbon monoxide** 4) 190 ppm Propane in Nitrogen = **Nitrogen** Notes
F	Component with highest flammability index	Component with highest Toxicity index; if none available, component with second highest flammability index; if none available, component with highest concentration other than HI1	1) 20%Hydrogen / 15%Methane / 65% Nitrogen = **Hydrogen, Methane** 2) 200 ppm H2S , 6% Hydrogen balance N2 = **Hydrogen, Hydrogen sulphide** 3) 20%Hydrogen in Nitrogen = **Hydrogen, Nitrogen**
O	Component with highest oxy-potential index	Component with highest Toxicity index; if none available, component with second highest oxy-potential index; if none available, component with highest concentration other than HI1	1) 25% Oxygen / 75% Nitrogen = **Oxygen**, **Nitrogen** 2) 15% O2 / 20% Nitrous Oxide / bal N_2 = **Oxygen, Nitrous oxide** 3) 4) 25% Oxygen, 100 ppm CO in N_2 = **Oxygen, Nitrogen**
T	Component with highest Toxicity index	Component with second highest Toxicity index; if none available, component with highest concentration other than HI1	1) 2%Arsine / 98% Nitrogen = **Arsine, Nitrogen** 2) 2500 ppm Arsine and 2500 ppm Phophine in Nitrogen = **Arsine, Phosphine**
TF	Component with highest Toxicity index	Flammable component with highest flammability index other than HI1; if none available, component with second highest Toxicity index; if none available then component with highest concentration other than HI1	1) 6% Arsine / 6% hydrogen in Nitrogen = **Arsine, Hydrogen** 2) 4% Arsine / 6% hydrogen / 6% H_2S in Nitrogen = **Arsine , Hydrogen sulphide**
TO	Component with highest Toxicity index	Oxidizing component with highest oxypotential index other than HI1; if none available, component with second highest Toxicity index; if none available then component with highest concentration other than HI1	No Meaningful Example
TC	Component with highest Toxicity index	Corrosive component with highest Toxicity index in mixture other than HI1; if none available, component with second highest Toxicity index; if none available then component with highest concentration other than HI1	1) 6% Chlorine in N_2 = **Chlorine, Nitrogen** 2) 5% Chlorine / 3% Boron Trifluoride in N_2 = **Chlorine;Boron trifluoride**
TFC	Component with highest Toxicity index	Corrosive component with highest Toxicity index in mixture other than HI1; if none available then component with highest flammability index other than HI1; if none available, component with second highest Toxicity index; if none available then component with highest concentration other than HI1	1) 7% Dichlorosilane in Nitrogen = **Dichlorosilane, Nitrogen** 2) 7% Dichlorosilane, 7% Hydrogen in N_2 = **Dichlorosilane, Hydrogen**

Classif. Code	Hazard Inducer 1	Hazard Inducer 2 Note 3	Examples:
TOC	Component with highest Toxicity index	Corrosive component with highest Toxicity index in mixture other than HI1; if none available then component with highest oxy-potential index other than HI1; if none available, component with second highest Toxicity index; if none available then component with highest concentration other than HI1	1) 5% Fluorine, 5% Chlorine in Nitrogen = **Fluorine, Chlorine** 2) 1% Fluorine, 5% Chlorine in Nitrogen = **Chlorine**, **Fluorine** 3) 5% Fluorine, 25% Argon in Nitrogen = **Fluorine, Nitrogen**

B) Chemicals under pressure (UN Nos. 3500 to 3505)

NOTE Only chemicals under pressure transported under UN 3500 and UN 3501 are supplied by EIGA members and are given as examples

- toxicity index= Mi%/LD50 or ATE

where Mi is the weight percentage component equal or greater than 0.02% (200 ppm) Note 1

Classif. Code	Hazard Inducer 1	Hazard Inducer 2	Examples:
A UN3500	Component with highest concentration	Component with second highest concentration; if none available name of propellant	1) 300 ppm acetone in water, under pressure of helium= **water, acetone**
F UN3501	Flammable component with highest concentration	Flammable component with second highest concentration; if none available name of propellant	1) Propylene oxide under Nitrogen pressure = **Propylene oxide, Nitrogen** 2) 45%Benzene, 45%hexane; 10% toluene mixture under helium pressure = **Benzene, Hexane**
T UN3502	Component with highest Toxicity index	Component with second highest Toxicity index; if none available name of propellant	No Meaningful Example
C UN3503	Corrosive component with highest Concentration	Corrosive component with second highest concentration; if none available name of propellant	No Meaningful Example
TF UN3504	Component with highest Toxicity index	Toxic component with second highest concentration, if none available, the flammable component with the highest concentration different from the first component	74%methanol, 25%terbutyl ether 1% secbutylether = **Methanol, TBME**
FC UN3505	Flammable component with highest concentration	Corrosive component with highest concentration other than HI1; if none available name of propellant	No Meaningful Example

NOTES

1: The 200 ppm limit is a historical value which was recommended by EIGA before the CLP Regulation was published. It corresponds to the limit of 0.02% for a 'very toxic' gas to be classified as 'harmful' according to the DPD. The classification thresholds are higher in the CLP and the limit of 200 ppm has therefore continued to be accepted as the lowest quantity of a toxic gas to be considered for the selection of the hazard inducers.

2: Because the second component is present in trace amounts, section 3.1.3.2 of ADR/RID would entitle the use of the UN number and name of the main component but EIGA recommends the use of the relevant N.O.S. entry with the indication of the main component as the technical name

3: Other rules for naming hazard inducer 2 can be applied.

4: Alphabetical order (English component name) is used to chose hazard inducer if components have the same concentration, toxicity index, flammability index or oxy-potential index.

6.5 Rules for the naming of the constituents on the CLP labels for mixtures (Art.18(3)b)

The following is based on Q&A pair 1050 on the ECHA website at http://echa.europa.eu/support/qas-support/qas

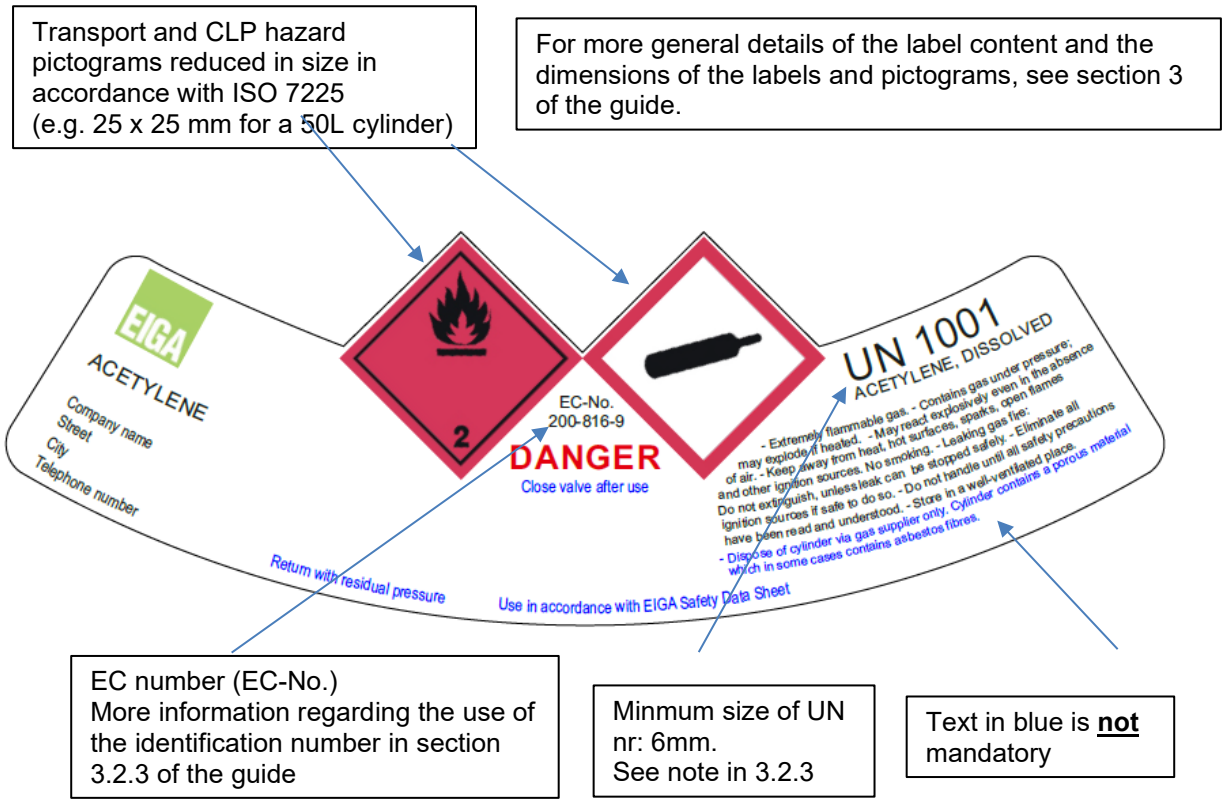
For non-additive health hazards (e.g. germ cell mutagenicity, carcinogenicity, reproductive toxicity, respiratory or skin sensitisation and specific target organ toxicity categories 1 and 2), all ingredients which are present in the mixture above the generic or specific concentration limit should be considered as 'primarily responsible for the major health hazards' and included on the label.

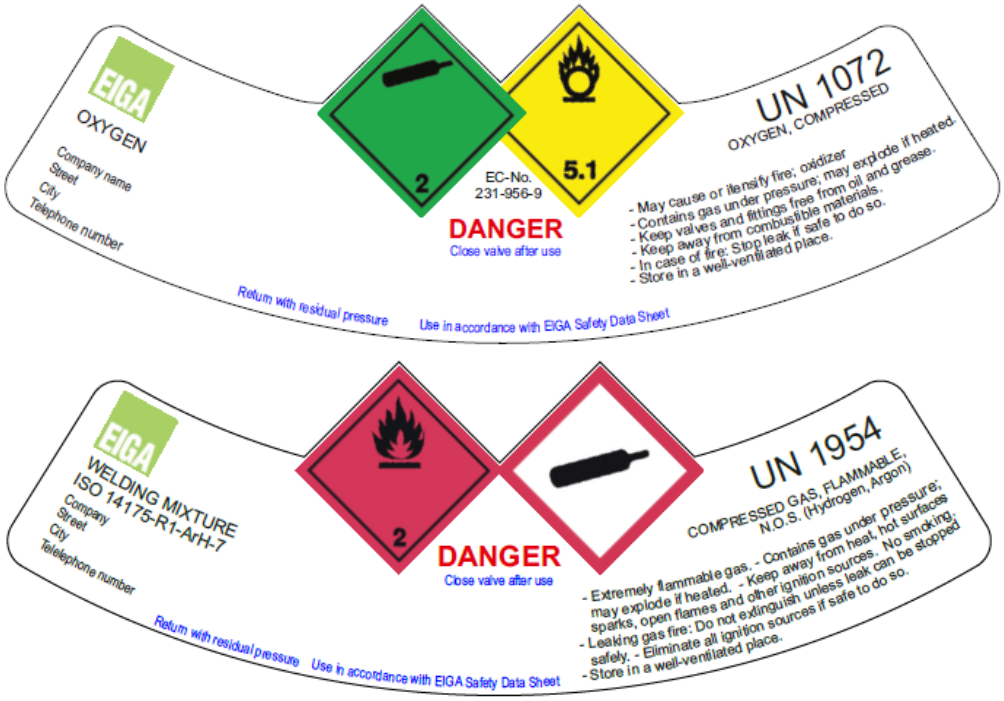
For the additive health hazards mentioned in Article 18 (3)(b) CLP (e.g. acute toxicity, skin corrosion, serious eye damage, specific target organ toxicity category 3 and aspiration hazard), all ingredients which are present in the mixture above the generic or specific concentration limits should be included on the label. However, where there are several ingredients contributing to classification for one hazard endpoint, only the ingredients primarily contributing to the classification, for example, those closest to the GCL or SCL, need to be included on the label, and thus the names of other ingredients with limited contribution to the classification are not required.

6.6 Examples of labelling lay-outs

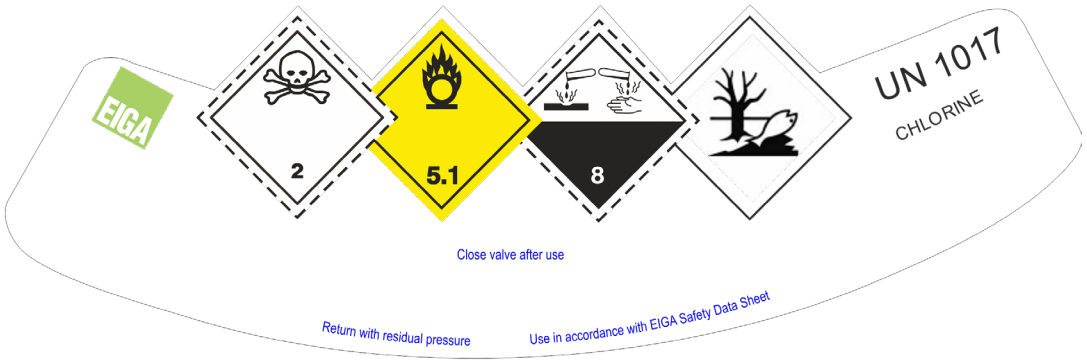
6.6.1 With a shoulder label

General comments for all labels:





6.6.2 With a shoulder label and a body label for a pure gas (where the CLP symbols identical to the transport symbols have been omitted on the body label



Chlorine
EC-NO. 231-959-5

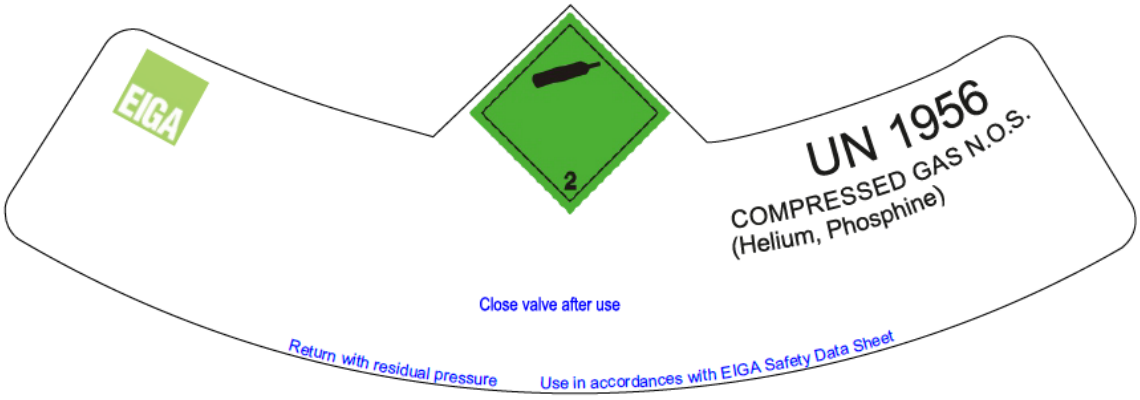
DANGER

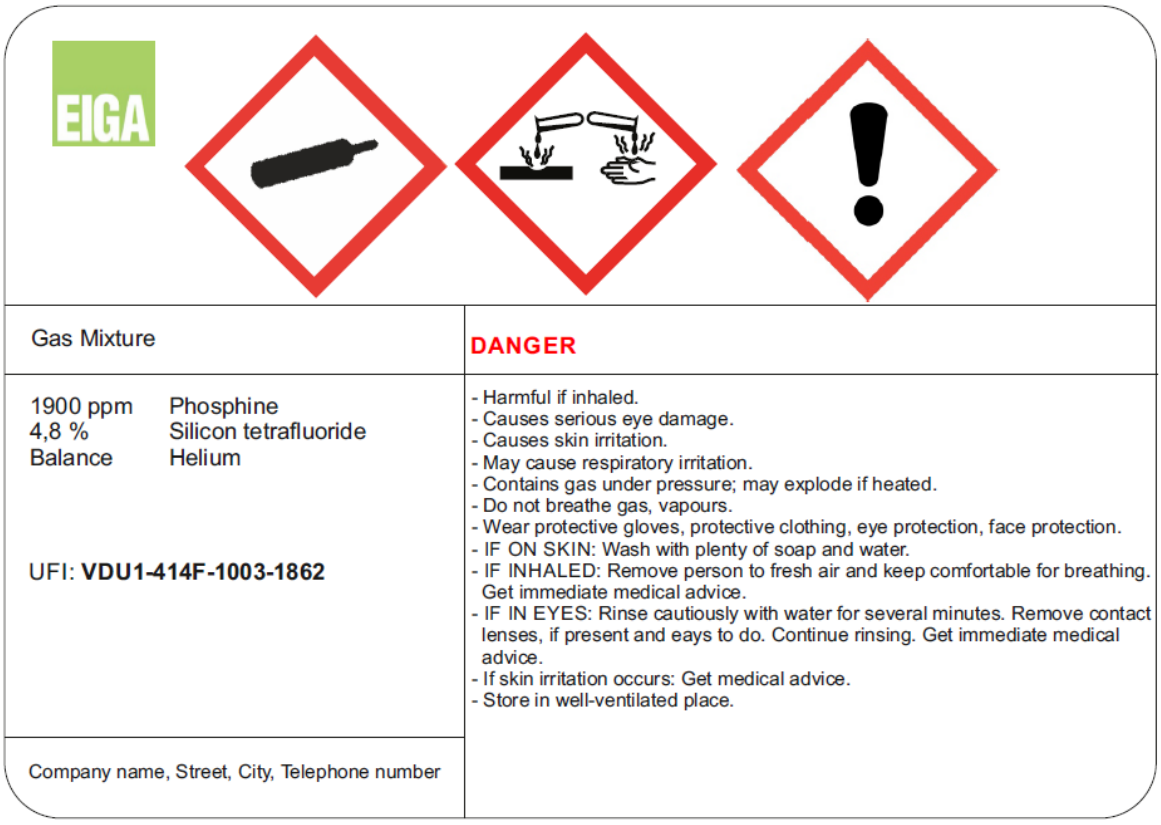
- Fatal if inhaled.
- Causes serious eye irritation.
- Causes skin irritation.
- Corrosive to the respiratory tract.
- Contains gas under pressure; may explode if heated.
- May cause or intensify fire; oxidizer.
- Very toxic to aquatic life.
- Keep away from clothing and other combustible materials.
- Keep valves and fittings free from oil and grease.
- Do not breathe gas, vapours.
- Avoid release to the environment.
- Wear protective gloves, protective clothing, eye protection, face protection.
- IF ON SKIN: Wash with plenty of water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice.
- IF IN EYES : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice.
- If skin irritation occurs: Get medical advice.
- In case of fire: Stope leak if safe to do so.
- Store in a well-ventilated place.
- Store locked up.

Company name, Street, City, Telephone number

6.6.3 With a shoulder label and a body label for a gas mixture (where the CLP pictograms identical to the transport symbols are duplicated on the body label

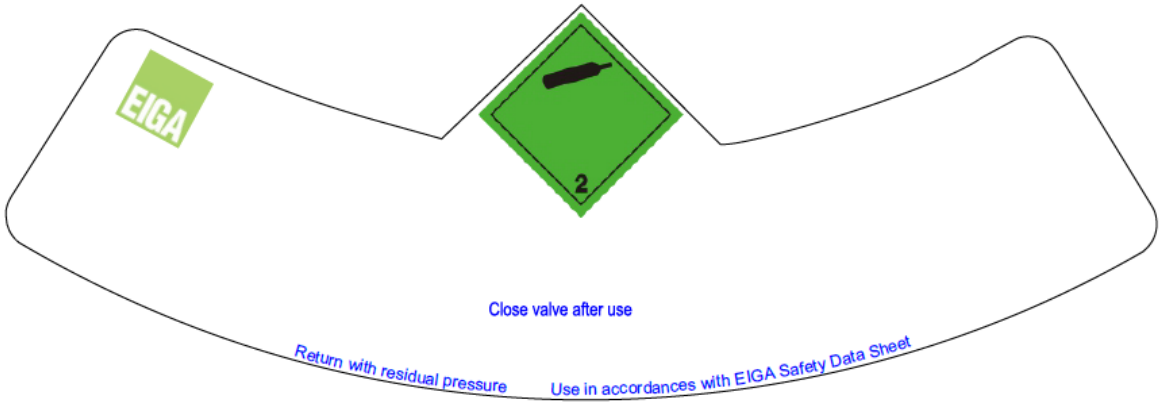
a) With the product identification for transport on the shoulder label





Mixture composition can be defined in full or only with the mandatory components (see 3.2.3)

b) With the product identification for transport on the body label



UN 1956 COMPRESSDED GAS N.O.S. (Helium, Phosphine)

EIGA

Gas Mixture	**DANGER**
1900 ppm Phosphine 4,8 % Silicon tetrafluoride Balance Helium UFI: **VDU1-414F-1003-1862**	- Harmful if inhaled. - Causes serious eye damage. - Causes skin irritation. - May cause respiratory irritation. - Contains gas under pressure; may explode if heated. - Do not breathe gas, vapours. - Wear protective gloves, protective clothing, eye protection, face protection. - IF ON SKIN: Wash with plenty of soap and water. - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice. - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and eays to do. Continue rinsing. Get immediate medical advice. - If skin irritation occurs: Get medical advice. - Store in well-ventilated place.
Company name, Street, City, Telephone number	

Mixture composition can be defined in full or only with the mandatory components (see 3.2.3)

7 Key literature references and sources of data

- Agency for Toxic Substances and Diseases Registry (ATSDR) (http://www.atsdr.cdc.gov/).
- European Chemical Agency: Guidance on the Compilation of Safety Data Sheets.
- European Chemical Agency: ECHACHEM (https://chem.echa.europa.eu/)
- ~~Information on Registered Substances~~ https://echa.europa.eu/information-on-chemicals/registered-substances
- International Programme on Chemical Safety (http://www.inchem.org/)
- ISO 10156 Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets.
- Matheson Gas Data Book, 7th Edition.
- National Institute for Standards and Technology (NIST) Standard Reference Database Number 69
- The European Chemical Industry Council (CEFIC) ERICards.
- Substance specific information from suppliers.
- Open chemistry database at the National Institutes of Health (NIH) - PubChem https://pubchem.ncbi.nlm.nih.gov/