



ENVIRONMENTAL ASPECTS OF STANDARDISATION

Doc 178/20

Revision of Doc 178/13

EUROPEAN INDUSTRIAL GASES ASSOCIATION AISBL



AVENUE DES ARTS 3-5 • B-1210 BRUSSELS
Tel: +32 2 217 70 98 • Fax: +32 2 219 85 14
E-mail: info@eiga.eu • Internet: www.eiga.eu



ENVIRONMENTAL ASPECTS OF STANDARDISATION

Prepared by WG-5 Environment

Disclaimer

All technical publications of EIGA or under EIGA's name, including Codes of practice, Safety procedures and any other technical information contained in such publications were obtained from sources believed to be reliable and are based on technical information and experience currently available from members of EIGA and others at the date of their issuance.

While EIGA recommends reference to or use of its publications by its members, such reference to or use of EIGA's publications by its members or third parties are purely voluntary and not binding.

Therefore, EIGA or its members make no guarantee of the results and assume no liability or responsibility in connection with the reference to or use of information or suggestions contained in EIGA's publications.

EIGA has no control whatsoever as regards, performance or non performance, misinterpretation, proper or improper use of any information or suggestions contained in EIGA's publications by any person or entity (including EIGA members) and EIGA expressly disclaims any liability in connection thereto.

EIGA's publications are subject to periodic review and users are cautioned to obtain the latest edition.



Table of Contents

1	Introduction	1
2	Scope and purpose	1
2.1	Scope	1
2.2	Purpose	1
3	Definitions	1
3.1	Publication terminology	1
3.1.1	<u>Shall</u>	1
3.1.2	<u>Should</u>	1
3.1.3	<u>May</u>	1
3.1.4	<u>Will</u>	1
3.1.5	<u>Can</u>	1
3.2	Technical definitions	1
3.2.1	<u>Environmental aspect</u>	1
3.2.2	<u>Environmental impact</u>	2
4	Inclusion of environmental aspects in product standardisation	2
4.1	Background	2
4.2	Reasons for considering environmental issues in product standardisation	2
4.3	Principles for inclusion of environmental issues in product standardisation	2
4.4	Environmental checklists and guides	3
4.5	EIGA guidelines for experts on the inclusion of environmental aspects in product standardisation	3
Appendix A: Examples of gas industry products assessed using CEN Guide 4 [10]		5
Tables		
Table 1: Matrix for valve and pack design		6
Table 2: Matrix for testing and retesting of cylinders		7
Table 3: Matrix for Cylinders		8

Amendments to DOC 178/13

Section	Change
	Editorial to align style with IHC associations
3	Addition of definitions
4.4	Addition of DIN reference

NOTE Technical changes from the previous edition are underlined.

1 Introduction

This publication provides guidance on inclusion of environmental aspects in standardisation for EIGA members that participate in standardisation activities.

2 Scope and purpose

2.1 Scope

This publication is intended for use by those working group (WG) experts involved in the preparation of international (CEN and ISO) standards and provides guidelines for inclusion and consideration of environmental aspects.

2.2 Purpose

EIGA members participate extensively in standardisation activities at CEN, ISO and other organisations. This guidance indicates when to do an environmental assessment, what sort of assessments, how detailed it should be and what practical tools are available for undertaking the assessment.

Using these tools, WG members can decide in a transparent way whether all the environmental issues have been taken into account, if they are relevant or not and how these are weighted against other issues.

3 Definitions

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

3.1.3 May

Indicates that the procedure is optional.

3.1.4 Will

Is used only to indicate the future, not a degree of requirement.

3.1.5 Can

Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 Environmental aspect

The organisation's activities, products or services that interact or can interact with the environment, for example, use of energy for transportation of products.

3.2.2 Environmental impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects (source: ISO 14001, *Environmental Management Systems – Requirements with Guidance for Use*) [1].¹ For example, the contamination of water with hazardous substances or the reduction of air emissions limits in environmental legislation relevant to the industrial gases industry.

4 Inclusion of environmental aspects in product standardisation

4.1 Background

The EU Commission communication COM/2004/130, *Integration of Environmental Aspects into European Standardisation*, issued on 25th February 2004, highlighted the need to improve consideration of environmental issues in standardisation work [2].

The communication states that “*standardisation stakeholders should take the further steps needed to systematically integrate the relevant environmental aspects into European standards making. Therefore, those conditions needed for European standardisation to make a positive contribution to the protection of the environment merit closer attention*”.

4.2 Reasons for considering environmental issues in product standardisation

Significant environmental aspects should be considered in standardisation activities because of the significant contribution they can make to minimising environmental and lifecycle impacts of products, for example, using less energy and resources.

Conversely products designed without environmental considerations in mind may be difficult to recycle or dispose of at the end of their economic lives, which may lead to product liability issues.

In addition, the European legislation is in place addressing the design and ‘end of life’ issues for:

- Directive 94/62/EC on packaging and packaging waste [3];
- Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) [4];
- Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) [5];
- Directive 2000/53/EC on end-of life vehicles [6];
- Directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators [7]; and
- Directive 2005/32/EC establishing a framework for the setting of eco-design requirements for energy-using products [8].

Whilst not aimed at the gas industry specifically, there are products that we use, buy, sell or manufacture that are within the scope of some of this legislation.

4.3 Principles for inclusion of environmental issues in product standardisation

WG experts:

- need to consider and balance environmental issues as part of the overall decision, with no compromise to safety;

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.

- shall be aware of relevant environmental legislation that needs to be complied with (see EIGA Doc106 *Environmental issues guide* [9]; and
- shall balance environmental issues against operational considerations, operability, ease of replacement, ease of use, overall full life cost etc.

4.4 Environmental checklists and guides

Various standardisation organisations have already produced the following checklists and guides:

- CEN Guide 4, *Guide for the inclusion of environmental aspects in product standards* [10].
- ISO Guide 64, *Guide for addressing environmental issues in product standards* [11].
- ISO/TR 14062, *Environmental management — Integrating environmental aspects into product design and development* [12].
- IEC Guide 109, *Environmental aspects – Inclusion in electrotechnical product standards* [13].
- IEC Guide 113, *Materials declaration questionnaires – Basic guidelines* [14].
- DIN Guide 108, *Guide for the inclusion of environmental aspects in product standardization and development* [15].

Examples of gas industry products assessed using CEN Guide 4 are given in Appendix A [10].

4.5 EIGA guidelines for experts on the inclusion of environmental aspects in product standardisation

EIGA recommends the following for WG experts involved in standardisation activities:

- use the Environment checklist (Table 1 CEN Guide 4) to identify relevant environmental issues to be considered [10];

NOTE A full life cycle analysis or using more complex or sophisticated techniques are not generally required for gas industry related products

- apply the principles given in 4.3;
- review the product requirements against applicable legislation; and
- develop guidelines for end-of-life products.

NOTE This is usually the step that is missed. Whilst this may not be a formal part of the standard, it is critical to consider this in terms of environmental and liability issues.

5 References

Unless otherwise stated the latest edition shall apply.

[1] ISO 14001, *Environmental Management Systems – Requirements with Guidance for Use*, www.iso.org.

[2] EU Commission communication COM/2004/130, *Integration of Environmental Aspects into European Standardisation*, www.europa.eu.

[3] Directive 94/62/EC on packaging and packaging waste, www.europa.eu.

[4] Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), www.europa.eu.

-
- [5] Directive 2011/65/EU *on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)*, www.europa.eu.
 - [6] Directive 2000/53/EC *on end-of life vehicles*, www.europa.eu.
 - [7] Directive 2006/66/EC *on batteries and accumulators and waste batteries and accumulators*, www.europa.eu.
 - [8] Directive 2005/32/EC *establishing a framework for the setting of eco-design requirements for energy-using products*, www.europa.eu.
 - [9] EIGA Doc106, *Environmental issues guide*, www.eiga.eu.
 - [10] CEN Guide 4, *Guide for the inclusion of environmental aspects in product standards*, www.cen.eu.
 - [11] ISO Guide 64, *Guide for addressing environmental issues in product standards*, www.iso.org.
 - [12] ISO/TR 14062, *Environmental management — Integrating environmental aspects into product design and development*, www.iso.org.
 - [13] IEC Guide 109, *Environmental aspects – Inclusion in electrotechnical product standards*, www.iec.ch.
 - [14] IEC Guide 113, *Materials declaration questionnaires – Basic guidelines*, www.iec.ch.
 - [15] DIN Guide 108, *Guide for the inclusion of environmental aspects in product standardization and development*, www.din.de.

Appendix A: Examples of gas industry products assessed using CEN Guide 4 [10]

Instructions for completing CEN checklist

NOTE The matrix provided in this Environmental Checklist particularly suits product standards. For standards other than product standards, it may be difficult or even not possible to use it. In such cases, the Environmental Checklist will contain just an explanation of the situation.

Complete the matrix in the following way:

1. Identify each environmental aspect relevant to the product without assessing its relationship to the draft standard. Fill each box with "yes" (if there is an environmental aspect) or "no" (if there is no significant environmental aspect or if the box is not relevant).
2. For each box with a "yes", identify whether this environmental aspect can be addressed in the standard. Mark these boxes with three asterisks (***)
3. Write the number of the clauses of the standard where the environmental aspects are addressed, in the appropriate boxes.
4. Use the box "Comments" for providing any additional information. A short description of each environmental aspect (boxes filled with "yes") and how they are addressed (or why they are not) may be given here.
5. When assessing various environmental aspects during the life cycle of a product, it is essential to avoid shifting of the environmental burden from one life cycle phase to another, or from one medium to another.

Table 1: Matrix for valve and pack design

Environmental aspects (Inputs and Outputs)		Product lifecycle			
		Production and Preproduction	Distribution (including packaging)	Use	End of life
		A	B	C	D
1	Resource use	Yes To be considered by manufacturer	Yes Recyclable materials for packaging	EIGA ^{1,2} No leaks (loss of product)	EIGA ^{1,2} Too many materials economically not recyclable
2	Energy consumption	Yes To be considered by Manufacturer	EIGA ¹ See row 1	No	No (indirect ³)
3	Emission to air	Yes To be considered by manufacturer (cleanliness)	No (indirect ³)	EIGA ^{1,2} No leaks (loss of product)	No (indirect ³)
4	Emission to water	To be considered by manufacturer (cleanliness)	No	No	No (indirect ³)
5	Waste	Yes To be considered by Manufacturer	EIGA ¹ Easy to package Plastic and cardboard packaging Reuse / recycling boxes Easy to reuse	No	EIGA ^{1,2} Too many materials economically not recyclable
6	Noise	Yes To be considered by manufacturer	No	No	No
7	Migration of hazardous substances (to the environment)	Legislation to cover use of hazardous materials (heavy metals) ²	No	EIGA ^{1,2} Migration to the gas (For example Food Directive)	No (indirect ³)
8	Impacts on soil	No	No	No	No
9	Risks to the environment from accidents or misuse	No	EIGA ^{1,2} No leaks (loss of product) Drop testing (design for reasonably foreseeable accident)	EIGA ^{1,2} No leaks (loss of product) Drop testing etc	No (indirect ³)
<p>NOTES</p> <p>1 This issue is within the scope of EIGA standardisation activities</p> <p>2 Normally or could be considered as part of standards development</p> <p>3 Indirect means there is an environmental impact (see ISO 14001 definition [1])</p>					

Table 2: Matrix for testing and retesting of cylinders

Environmental aspects (Inputs and Outputs)		Product lifecycle			
		Production and Preproduction	Distribution (including packaging)	Use	End of life
		A	B	C	D
1	Resource use	N/A	EIGA ^{1, 2}	EIGA ^{1, 2} Easy to repair Easy to reuse No leaks (loss of product) Use of water for retesting	EIGA ^{1, 2} Materials recyclable / easy to recycle
2	Energy consumption	Yes	EIGA ¹ See row 1	Yes	No
3	Emission to air	Yes Disassembling of valves	No (indirect ³)	Yes EIGA ^{1, 2} (loss of product)	No
4	Emission to water	No	No	Yes (if the cylinder is contaminated anything)	No (indirect ³)
5	Waste	Yes Valves	No	EIGA ^{1, 2} Easy to reuse	EIGA ^{1, 2} Not too many materials Easy to reuse Easily separated for recycling
6	Noise	Yes Cylinders with residual pressure	No	Yes Re-stamping cylinder	No
7	Migration of hazardous substances (to the environment)	Yes Cylinders with residual pressure	No	No	No (indirect ³)
8	Impacts on soil	No	No	No	No
9	Risks to the environment from accidents or misuse	Yes At improper valve removing	No	No	No (indirect ³)
NOTES					
1 This issue is within the scope of EIGA standardisation activities					
2 Normally or could be considered as part of standards development					
3 Indirect means there is an environmental impact (see ISO 14001 definition [1])					

Table 3: Matrix for Cylinders

Environmental aspects (Inputs and Outputs)		Product lifecycle			
		Production and Preproduction	Distribution (including packaging)	Use	End of life
		A	B	C	D
1	Resource use	Yes To be considered by manufacturer Time for retesting	EIGA ^{1,2} Lightweight materials – fuel savings Lifetime of materials	EIGA ^{1,2} Easy to reuse No leaks (loss of product)	EIGA ^{1,2} Materials recyclable / easy to recycle
2	Energy consumption	Yes To be considered by Manufacturer	EIGA ¹ See row 1	No	No (indirect ³)
3	Emission to air	Yes To be considered by manufacturer (cleanliness)	No (indirect ³)	EIGA ^{1,2} Refilling and disposal of gas Retesting Re-painting	No (indirect ³)
4	Emission to water	To be considered by manufacturer (cleanliness)	No (indirect ³)	EIGA ¹ Refilling Retesting Re-painting	No (indirect ³)
5	Waste	Yes To be considered by manufacturer	EIGA ¹ Reuse by design	EIGA ¹ Reuse by design	EIGA ^{1,2} Not too many materials Easy to reuse Easily separated for recycling
6	Noise	Yes To be considered by manufacturer	EIGA ¹ Cylinder movements	EIGA ¹ Cylinder movements	No
7	Migration of hazardous substances (to the environment)	Legislation to cover use of hazardous materials heavy metals) ²	No	EIGA ^{1,2} Migration to the gas	No (indirect ³)
8	Impacts on soil	No	No	No	No
9	Risks to the environment from accidents or misuse	No	EIGA ^{1,2} No leaks (loss of product) Testing (design for reasonably foreseeable accident)	EIGA ^{1,2} No leaks (loss of product) Testing etc	No (indirect ³)

NOTES

1 This issue is within the scope of EIGA standardisation activities

2 Normally or could be considered as part of standards development

3 Indirect means there is an environmental impact (see ISO 14001 definition [1])