

Impact of the Industrial Emissions Directive

1. Introduction

EIGA Working Group 5 has produced this Bulletin to provide information to plant managers, directors, technical directors and environmental specialists in EIGA member companies on the applicability of the Industrial Emissions Directive (IED) to industrial gases processes and on the changes introduced in the IED.

On 17th December 2010, the European Commission (EC) published the Industrial Emissions Directive 2010/75/EU (IED). This Directive is the basis of a common system of environmental operating permits and supervision by the competent authorities for industrial installations where environmental impacts are considered in an integrated, holistic manner.

The IED came into force on 6th January 2011 and must be implemented in Member States by 7th January 2013. This new directive replaces the Integrated Pollution Prevention and Control (IPPC) Directive 96/61/EC and tightens controls over emissions. It also creates one integrated regime for pollution control by consolidating and replacing the directives on large combustion plants, titanium dioxide, waste incineration and solvent emissions.

2. Main principles of the IED

All industrial installations, as defined in the chapters of the Directive, shall have a permit to operate issued by the relevant competent authorities.

These permits cover emissions to all media (air, land, water) of any polluting substances as well as soil pollution, energy efficiency, waste minimisation, use of raw materials, water use and transportation impacts.

Industry must use 'best available techniques' (BAT) to prevent or minimise pollution and ensure that any emissions are restricted to the environmental medium where they are least damaging. These BATs include economic considerations. The European IPPC bureau in Spain co-ordinates the production of BAT reference documents (BREFs) that provide a framework for the setting of emission limit values and permit conditions in permits by the member states' competent authorities.

Guidance emission limit values (ELVs) are to be set on the basis of the BATs, but these must also take into account 'environmental quality standards' in accordance with established European or international standards, depending on the environmental sensitivity of a region.

The first two chapters of the IED apply to all types of installation and therefore include common provisions in areas such as the application of BAT, the processes of permitting and inspections, the primacy and obligations of the regulators, applying general binding rules, monitoring, and links to other laws such as those for waste management and emissions trading schemes. For example, the application of the waste hierarchy prescribed in the Waste Framework Directive 2008/98/EC is now included within the IED.

3. Main changes from IPPC

All the relevant installations should already have in place a permit issued under the IPPC Directive. The main changes relevant to industrial gases are:

- Changes to the application of BAT:
 - New procedure to adopt binding 'BAT-conclusions' based on BREFs.
 - New procedure to set emission limit values (ELVs).

- Tightened provisions for granting derogations from BAT.

Regulators will now have less scope to allow deviations from BAT. Regulators allowing derogations from BAT would have to justify them in an annex to the permit conditions, notify the European Commission, and the public would also have to be consulted.

- New procedure to adopt 'sectoral minimum requirements' where appropriate.
- Soil issues become an essential part of permitting procedure:
 - baseline report to be prepared as part of application;
 - clean-up after site closure with regard to baseline.
- Extended requirements for reporting, inspections, access to information.

4. Impact of IED on EIGA Members

The IED applies to 'industrial activities giving rise to pollution' as referred to in Chapters II to VI. For the industrial gases industry this means that the relevant processes are the manufacture of:

- Hydrogen, Syngas and Carbon Monoxide;
- Acetylene;
- Speciality Gases and Organometallics;
- Nitrous Oxide;
- Carbon Dioxide.

The Directive does set thresholds for some processes, but there is no threshold in the Directive for any of the above processes. This means that even small plants (e.g. hydrogen electrolyzers, small steam methane reformers for fuelling applications) may be included depending on the interpretation of the local authorities.

During the review of the Directive, EIGA requested an additional threshold for hydrogen plants, based on the one that exists in the EU Emissions Trading Directive (Reference EIGA PP-16). However this was not included in the revised IED.

A listing of the industrial gases industry processes together with the relevant chapters of the IED, BREFs and EIGA documents can be found in Appendix 1 to this Bulletin.

Air separation units (ASUs) are not considered in the scope of the IED, even though inorganic chemicals production is mentioned in the Directive chapters, because this is a physical separation process rather than a chemical process.

The Directive defines an 'installation' rather than a process to be permitted. This may be misinterpreted in some member states to include on site utilities such as ASUs.

Cylinder filling and redistribution centres are also not manufacturing processes and are out of the scope of the IED, though in some cases they can lead to emissions and may handle gases that are hazardous to the environment.

These activities are regulated within the member states and subject to local planning and operating licence requirements from the standpoint of safety and community considerations.

The IED covers **cylinder painting or cleaning activities** with a consumption of more than 1kg/hr or 2 tonnes per year of high volatile organic compound (VOC) paints or solvents. Some larger facilities e.g. tank painting shops and vapour degreasing, may be affected. This is a result of the inclusion of the VOC Directive (13/99) in the IED. In many cases control regimes already exist in member states, e.g. via local authority control.

5. EIGA activities

EIGA is involved in the amendments of the best available techniques reference documents (BREFs) via ad hoc group AHG-I.17 IPPC. These include the BREF on Mineral Oil and Gas Refineries (EIGA Doc.155), and for HYCO plants the BREF on Large Volume Inorganic Chemicals (EIGA document in development).

EIGA has applied to the IPPC bureau to take part in the revision of the BREF on Large Volume Organic Chemicals plants for acetylene.

With the strengthening of the BREFs it is critical that the relevant EIGA documents are referenced in the BREFs which will be directly referenced to by the competent authorities.

As mentioned above EIGA responded to the commission consultation on the amended directive suggesting that a threshold should be introduced for hydrogen production which was not included in the revised directive. EIGA is now preparing a document on these smaller hydrogen plants proposing using a simplified permitting approach (using 'generally binding rules').

6. Suggested actions by EIGA Members

Monitor the implementation in each country via national gases associations and ensure relevant EIGA documents are also referenced in local legislation.

Ensure relevant site operations have the correct permits in place and are complying consistently with BAT.

For cleaning and painting operations it is advisable to undertake a review to see whether the VOC producing compounds can be eliminated or substituted (e.g. water based paints) without compromising safety or health. It is also best practice to control inventories of these compounds to a minimum and have written handling and control procedures. Advice on Good Practices for these operations can be found in EIGA Doc. 88.

7. References

- European IPPC bureau website at <http://eippcb.jrc.es/reference/>
- EU Commissions web page on IED at <http://ec.europa.eu/environment/air/pollutants/stationary/index.htm>

8. Glossary – Key definitions

IED - Industrial Emissions Directive

Pollution - the direct or indirect introduction, as a result of human activity, of substances, vibrations, heat or noise into air, water or land which may be harmful to human health or the quality of the environment, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment;

Polluting substances – substances which could cause harm to human health or the environment or 'nuisance', including noise and heat.

BAT (best available techniques) - the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:

- a) 'techniques' includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;
- b) 'available techniques' means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the member state in question, as long as they are reasonably accessible to the operator;
- c) 'best' means most effective in achieving a high general level of protection of the environment as a whole.

BREF (BAT reference document) - a document (resulting from the exchange of information organised pursuant to Article 13) drawn up for defined activities and describing, in particular, applied techniques, present emissions and consumption levels, techniques considered for the determination of best available techniques as well as BAT conclusions and any emerging techniques, giving special consideration to the criteria listed in Annex III.

Installation - a stationary technical unit within which one or more activities listed in Annex I or in Part 1 of Annex VII are carried out, and any other directly associated activities on the same site which have a technical

connection with the activities listed in those Annexes and which could have an effect on emissions and pollution.

9. Comments

The members of EIGA WG-5 welcome any feedback on this and other publications. If you need any more information, or if you would like to make any comments please contact your WG-5 representative, the WG-5 Chairman or the EIGA office.

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Appendix 1

Process	IED Reference chapter	BREF	EIGA Documents
Hydrogen	4.2. (a) Production of inorganic chemicals	Mineral Oil and Gas Refineries Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers Industries Cross media BREFS CWW treatment of waste water Energy efficiency General principles for monitoring Cooling systems,	Doc.155 <i>Best available techniques for hydrogen production by Steam methane Reforming</i>
Carbon Monoxide , Syngas	4.2. (a) Production of inorganic chemicals	Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers Industries Mineral Oil and Gas Refineries Cross media BREFS CWW treatment of waste water Energy efficiency General principles for monitoring Cooling systems	Doc.155 <i>Best available techniques for hydrogen production by Steam methane Reforming</i> Document in Development - <i>Best available techniques for the co-production of hydrogen, carbon monoxide & their mixtures by Steam Reforming</i>
Acetylene	4.1. (b) Production of organic chemicals	Large Volume Organic Chemical Industry	Doc.109 <i>Environmental impacts of acetylene plants</i>
Nitrous Oxide	4.1. (d) Production of organic chemicals	Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers Industries, or Speciality Inorganic chemicals However neither document has a specific reference to N2O production	Doc.112 <i>Environmental impacts of nitrous oxide plants</i>
Carbon dioxide	4.2 (a) Production of organic chemicals	Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers Industries	Doc.111 <i>Environmental impacts of carbon dioxide plants</i>
Speciality Gases and Organometallics production	4.2. (a) Production of inorganic chemicals 4.1. (g) Production of organic chemicals	Speciality Inorganic Chemicals	Doc.110 <i>Environmental impacts of cylinder filling plants</i>

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Process	IED Reference chapter	BREF	EIGA Documents
Air Separation plants	Not applicable	Physical not chemical processes, so notproduction within the meaning of the categories of activities contained in this section means the production on an industrial scale by <u>chemical or biological processing</u> of substances or groups of substances listed in points 4.1 to 4.6	Doc.94 <i>Environmental impacts Air Separation Plants</i>
Cylinder filling and redistribution of gases	Not applicable	No chemical reactions	Doc.109 <i>Environmental impacts of carbon dioxide plants</i>
Cylinder painting or cleaning activities	Not applicable	Unless >1kg/hr or 2 tonnes per year of high volatile organic compound (VOC) paints or solvents	Doc.110 <i>Environmental impacts of cylinder filling plants</i>

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