GUIDELINES FOR THE PREPARATION OF SAFETY DATA SHEETS

EIGA 919/14

Revision of EIGA 919/13

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

EIGA 919/14

GUIDELINES FOR THE PREPARATION OF SAFETY DATA SHEETS

PREPARED BY :

Joachim Barbe	Messer Group
Ewoud Beheydt	Praxair
Gianluigi Colombo	Sapio Produzione Idrogeno Ossigeno
Joachim Eiselt	Air Liquide
Natalie Kingswood	The Linde Group
Zbigniew Sokolowski	Air Products
Ben Valk	The Linde Group
Pierre Wolfs	EIGA

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

Table of Contents

1 Introduction

This document outlines the recommendations of EIGA to supply Safety Data Sheets (SDS) for gases and gas mixtures in accordance with the requirements of the EC Regulation 1907/2006 (REACH Regulation), in particular its Art 31 and its Annex II.
The recommendations of EIGA on the supply of SDS were summarised previously in EIGA document 906 (the old Labelling/SDS Guide according to DSD/DPD) and in EIGA document 918 (the New Labelling/SDS Guide according to CLP) .
With the new extensive requirements of REACH on "extended Safety Data Sheet (extSDS)", it became necessary to develop a more comprehensive set of guidelines on SDS, separate from the requirements on Classification and Labelling linked to the CLP, presently in EIGA Doc.169.
Both documents are nevertheless still closely connected because the content of an SDS is partially driven by the CLP classification of the substance or the mixture.
This revision of the 2013 version covers the new phrases added to the EIGA library (see Annex 2).

1.1 Scope and purpose

1.1.1 Scope

The document gives guidance for the issue of SDS for gases and gas mixtures that meet all of the following criteria:

a) the products are defined as "gases" according to the CLP Regulation
b) they are all allowed to be put on the market in the EU i.e. they have an EINECS number or they have been pre-registered in accordance with the REACH Regulation,
c) they are marketed by most EIGA members.

The list of "gases" considered by EIGA with their identification numbers and status according to the REACH Regulation can be found in Annex 1.

1.1.2 Purpose

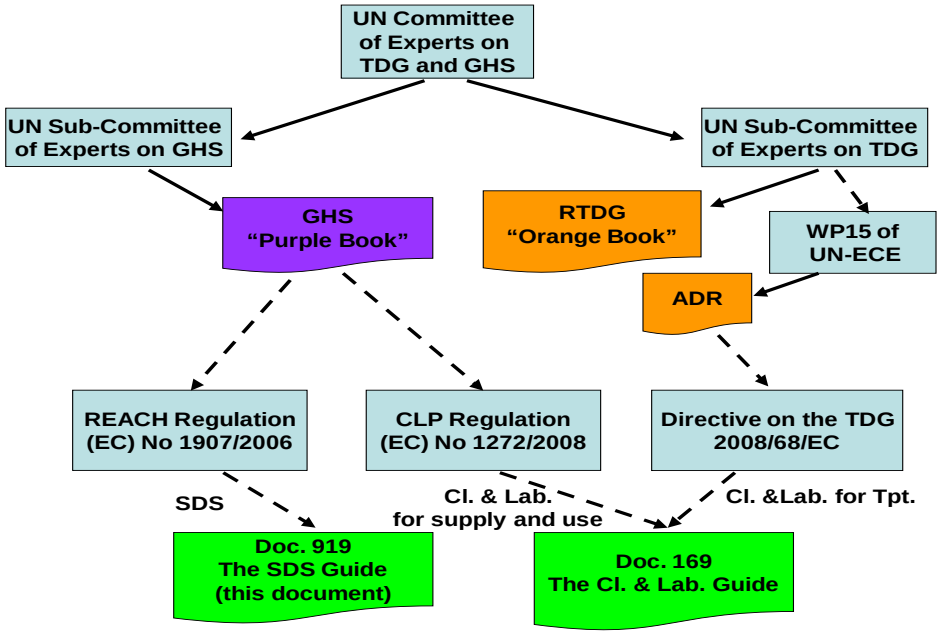
The new concept of extended Safety Data Sheet (extSDS) introduces new and extensive requirements on the content of a SDS. The content of the extSDS and in particular of the Exposure Scenario(s) (ESs) to be annexed are linked to the Chemical Safety Reports that may be required in the registration dossiers of the gases under REACH, starting from the end of 2010.

This document aims at:

1. Defining how to complete the new structure of the extSDS
2. Defining the new library of "safety phrases" that is necessary for the completion of the new extSDS.
3. Developing a systematic approach for the selection or the generation of the appropriate ESs to be appended to the SDSs for pure gases and for gas mixtures.
4. Explaining how the recommendations of EIGA have been implemented in the LISAM SDS authoring tool supported by EIGA.

1.2 Legal background of the document

The requirements on SDS are outlined in Art. 31 and in Annex II of REACH. Annex II has been revised with Regulation (EC) N° 453/2010 (OJ 133 of 31/05/2010) in order to align the structure of the SDS with the structure recommended in Annex IV of the UN-GHS (the Purple Book). Part of the content of the SDS is driven by the classification of the substance or mixture according to the provisions of the CLP Regulation 1272/2008 that are outlined in EIGA Doc. 169.
The links between this document and the regulations are illustrated below.



1.3 Responsibilities and traceability

1.3.1 Responsibilities (art.31)

As actors in the supply chain, EIGA Members may have different roles (manufacturer, importer, retailer, formulator, etc.) as defined in REACH and illustrated in the figure below

Possible roles of EIGA members in the supply chain

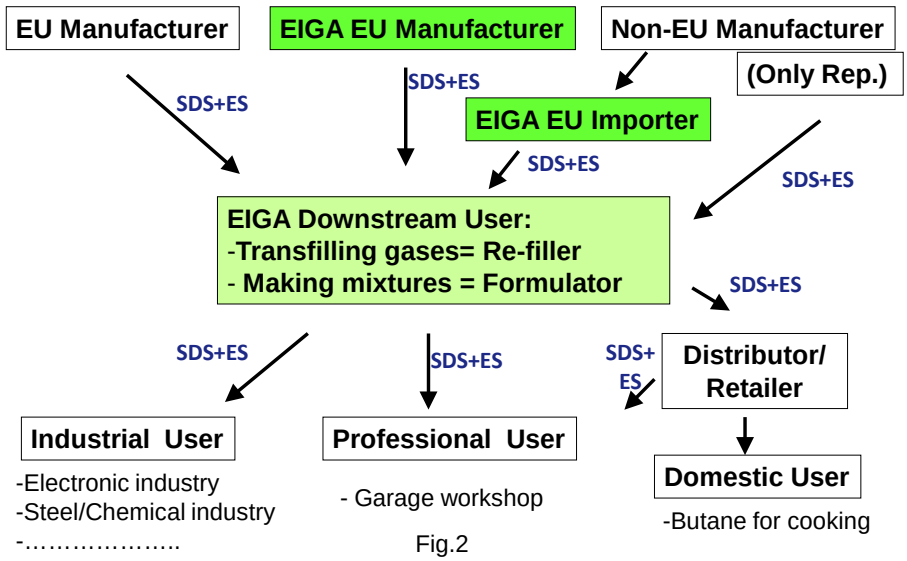


Fig.2

The responsibilities to supply SDS are different according to the roles.

- The manufacturers/importers (M/I) who are required to carry-out a Chemical Safety Report shall ensure that the information in the SDS is consistent with that CSR and shall place the relevant exposure scenarios in an annex to the SDS.

Note: Non-European manufacturers have no obligation to supply a SDS. This obligation from the REACH Regulation resides with the Importer or with the Only Representative (OR). SDS should be made available to the workers also for substances or mixtures imported for internal uses according to the Chemical Agents Directive 98/24/EEC (CAD)

- A distributor shall pass on the information received from his supplier either by simply forwarding the SDS received with the relevant ES attached to the SDS or by compiling his own SDS with the relevant information.
- A formulator shall prepare his own safety datasheet in any case.
- The final user has no responsibility other than complying to the relevant recommendations included in the extSDS and to inform his supplier when his use is not covered by the conditions of use described in the extSDS

The recommendations of EIGA to comply with these different responsibilities are further outlined in the following sections of this manual.

1.3.2 Traceability (art.36)

Each actor in the supply chain shall assemble and keep available all the information he needs to carry out his obligations under REACH for a period at least 10 years since he has last manufactured, imported, supplied or used the substance or the mixture. LISAM users should keep the databases of the previous versions.

1.4 Transitional periods

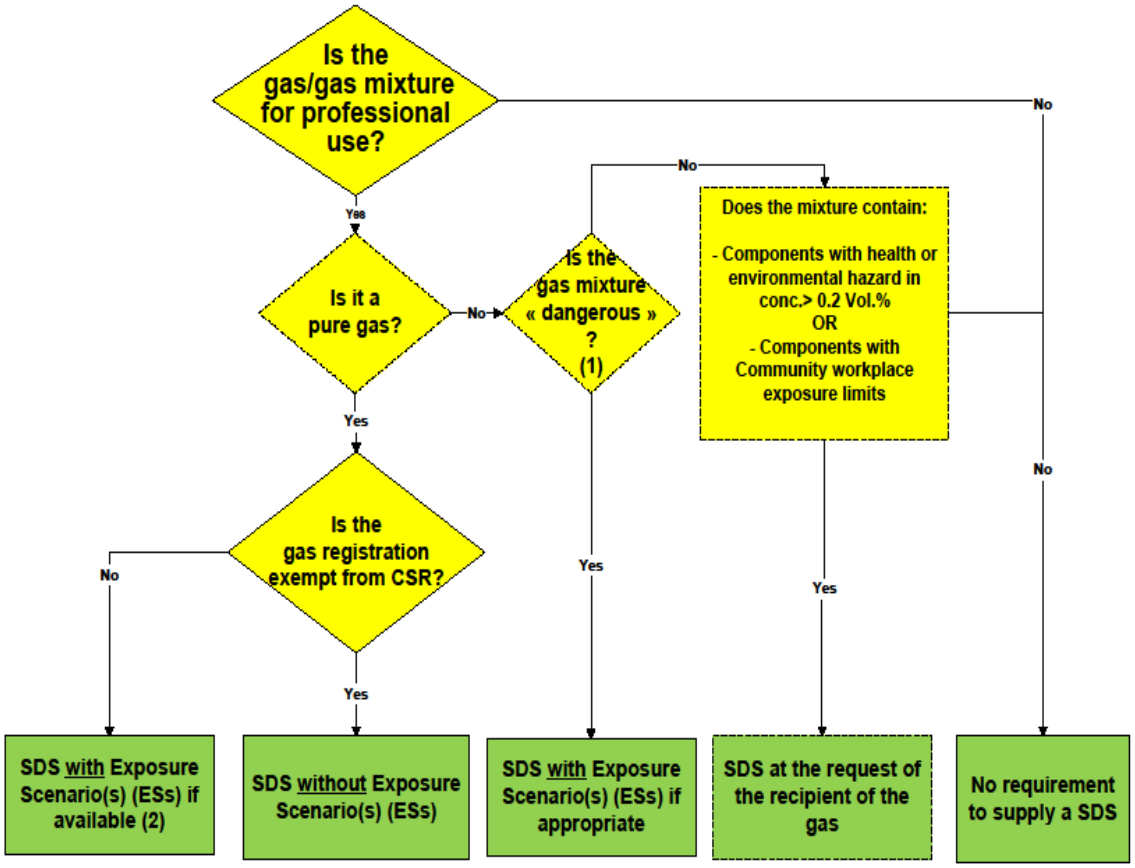
Until 1 June 2015, the SDSs for both substances and mixtures shall indicate both classifications, according to CLP and according to DSD/DPD in order to be in line with the transitional periods for the relabeling according to the CLP.
After 1 June 2015, the DSD and DPD are repealed and the mention of the DSD/DPD classifications on the SDS is not mandatory anymore. However, for mixtures which are placed on the market before 1 June 2015 the safety data sheet need not be replaced with a safety data sheet complying with Annex II to Regulation 453/2010 before 1 June 2017.

2 Preparation of an extSDS

2.1 General requirements

2.1.1 When is an extSDS needed?

The requirement to provide datasheets to the user is mentioned in Title IV of the REACH Regulation and in particular in articles 31 and 32. It can be illustrated with the following flow chart:



Note (1): *after 1/12/2010, « dangerous » according to the DSD/DPD applies only to gas mixtures until June 2015. For pure gases it is replaced by « hazardous » according to the CLP. In practice, all gases and gas mixtures are « hazardous » according to the CLP because of being "gases under pressure".*

Note (2:) *An ES may not be available because the substance has not been registered yet or has been registered for a tonnage lower than 10 T/y.*

Also exposure assessments is not required by REACH for gases that are only classified as "Gases under pressure" (Art.14.4)

For substances that have no health hazards (no DNEL to be determined) and no aquatic toxicity (no PNEC to be determined), there is no need to carry out a quantitative exposure assessment with scaling methods for defined exposure scenarios; a qualitative exposure assessment is sufficient. The chemical safety report will indicate generic conditions of use (operating conditions and risk management measures) that can be inserted in the SDS without separate ES.

2.1.2 Distribution of extSDS

REACH requires safety data sheets to be supplied free of charge at the latest when the substance or mixture is first supplied. SDS should also be supplied following any major revision due to any significant new information regarding safety and protection of health and the environment. For more information, see Art.31 of REACH and ECHA Guidance (see ref.4 in section 5 of this document).
The obligation to supply data sheets is however limited to industrial users. SDS need not be supplied for gases supplied to the general public when these gases are furnished with sufficient information to enable users to take the necessary measures with regard to the protection of their health and safety.

Every EIGA member has to set up its own rules on how to distribute datasheets, including the relevant exposure scenarios if any, to their customers in order to satisfy the requirements of the REACH regulation. The distribution of datasheets is not further discussed in this document.

2.1.3 Generation of a SDS

A SDS is made up of different kinds of information presented according to a structure (or format) of 16 sections, headings and subheadings outlined in the revised Annex II of REACH:

- **Company data**: data that are specific to the supplier of the SDS (e.g. company name, trade name of the product, etc.)
- **EIGA Data** for numerical information (e.g. boiling point, MW, etc.) or non-numerical information (e.g. “exempted from registration”…) that is specific to the gas or to the components of the gas mixture. For gas mixtures, the numerical data could be calculated data. The data needed to classify and label gases and gas mixtures are maintained in section 4 of EIGA Doc. 169.
- **Phrases** for non-numerical information (e.g. R-phrases, H-Statements, Risk management measures). A phrase can be “gas specific” or applicable to a group of gases that have the same characteristics (e.g. heavier than air) or the same CLP classification category (e.g. Acute toxic Cat.1).
- **Blocks** of phrases are sets of phrases that are common to gases with the same characteristics (e.g. block heavier than air) or the same hazard and category classification (e.g. block Acute Toxic Cat.1).
- The block “**General**” groups the phrases that are common to all gases.
- “**Default**” phrases are added at the end to subheadings that are still empty after insertion of the **Data**, **Phrases** and **Blocks**.

This building block approach is illustrated in Fig.4. The detailed structure of the SDS recommended by EIGA is detailed in Annex 2 with the assignments of the different blocks to each phrase of the EIGA library .

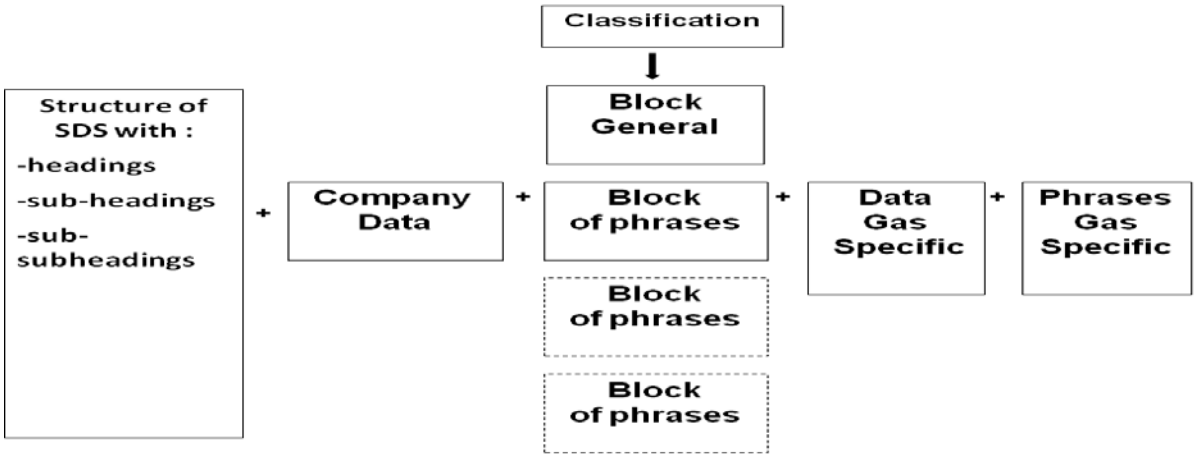


Fig.4

2.2 Exposure Scenarios

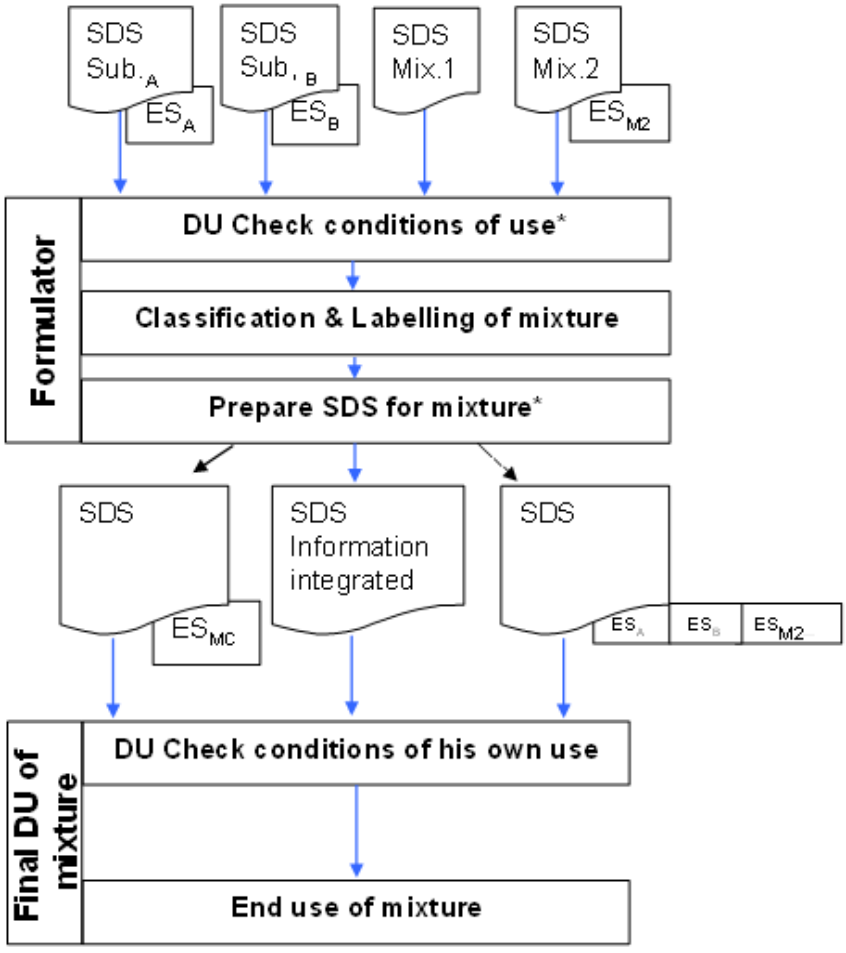
2.2.1 General

As indicated in section 1.3.1 above, the responsibilities of EIGA members with regard to the requirements of REACH differ according to the roles the members have in the supply chain. The requirement to supply Exposure Scenarios (ESs) attached to the SDS is also dependant on the schedule of registration (up to 2018) and if a CSR is required at registration (see also section 2.1.1 above). See also EIGA Technical Bulletin TB 09/13 *"Safety Data Sheets without Exposure Scenarios"*.

2.2.2 Exposure scenarios for gas mixtures

A formulator has several possibilities to include information on substances into the extended safety data sheets of mixtures as outlined in the following schematic extracted from the Cefic Guidance document on SDS for mixtures - see section 4 –[Ref.3].

a) The formulator selects the ESs relevant to the use of the mixtures that were attached to the SDS of the ingredients of the mixture and append those ESs to the SDS he has generated for the mixture. This solution will not be helpful for the final users of many mixtures where the classification is very different to the classification of the components e.g. calibration mixtures with components in the ppm range. The conditions of use (operating conditions and risk management measure) of the pure ingredients could be very different to those recommended for the mixtures.
b) The formulator builds an exposure scenario that is appropriate to the final mixture.
c) The formulator integrates the information of the conditions of use in the SDS itself.



Abbreviations:
SDS = safety data sheet
Sub. = substance
Mix. = mixture
DU = downstream user
ES = exposure scenario
ES_A = ES substance A
ES_{M2} = ES mixture 2
ES_{MC} = consolidated ES of final mixture

*: own uses and uses of his customers

Due to their physical state, gases and gas mixtures can only be used in closed conditions in order to remain "under pressure". The "operating conditions" of any (or of most of) gas mixture are mainly

related to a “use in an enclosed system with no or very limited exposure” and the risk management measures are those linked to the classification of the gas mixture. In addition it is not necessary to describe scaling possibilities for the exposure because the conditions of use are more or less fixed and the exposure is independent from the quantities of gas in use .
For binary mixtures, where the classification is the same as the main active component, the relevant ES(s) of the active substance can be attached to the SDS.
If there is no ES available and in the case of multi-components mixtures, EIGA recommends to integrate the recommended conditions of use within the core of the SDS and to have no ES attached.

3 LISAM

3.1 Introduction

In order to help EIGA members to implement the EU legislation on classification, labelling and SDS according to the EIGA recommendations, EIGA has collaborated for many years with a software supplier “LISAM SYSTEMS SA, Ecaussinnes (Belgium)” to produce a SDS authoring tool that is compliant with the EIGA guidelines.

The LISAM tool includes:

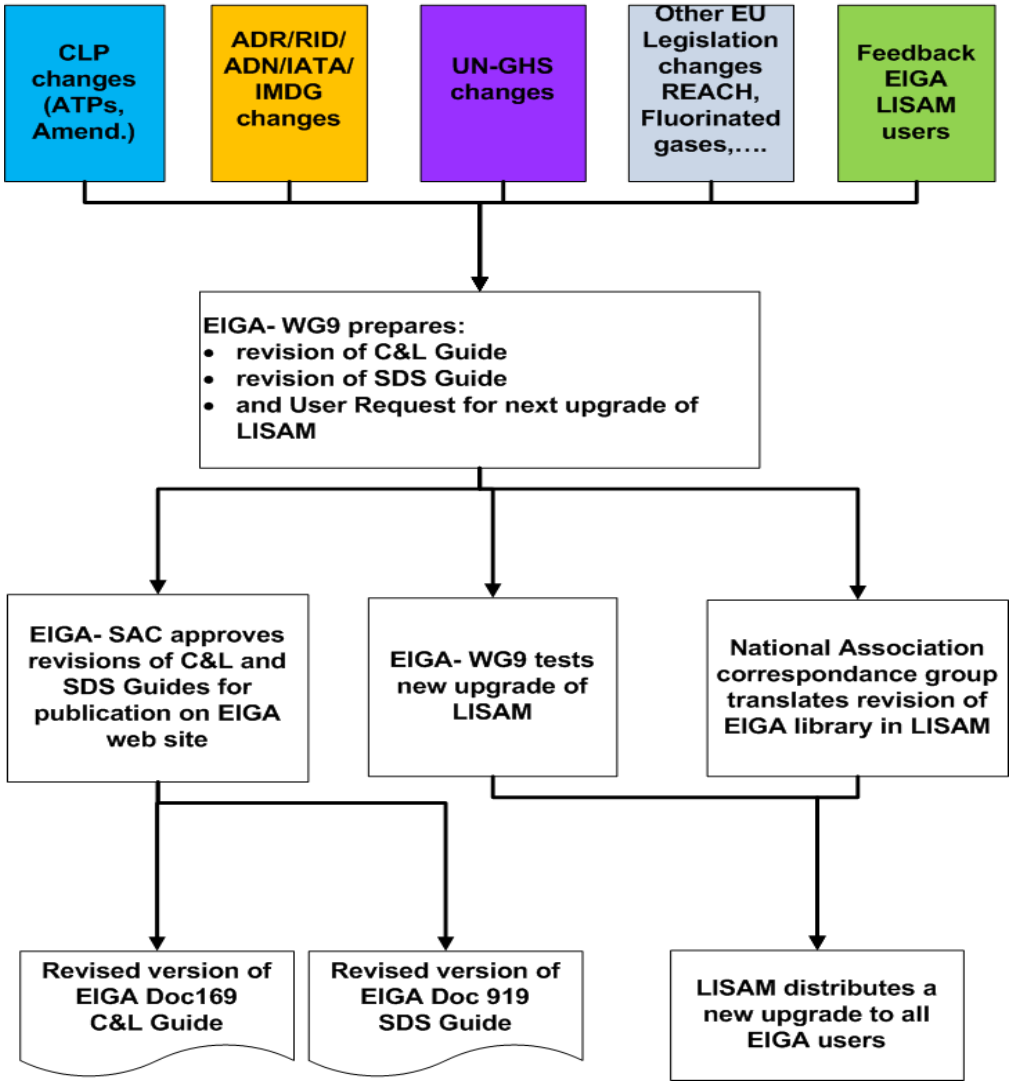
- A Gas Classification Module (GCM) that satisfies the recommendations of EIGA outlined in Doc. 169 “Classification and Labelling Guide” for the classification of gas mixtures and the generation of the SDS according to the “blocks” approach as described in 2.1.4.
- A database with all the data for the gases that are in the scope of the “Classification and Labelling Guide” (approx. 130 gases) required to populate the 16 sections of the SDS for those gases and their mixtures according to the GCM.
- A library of phrases to populate the 16 sections of the SDS in terms of headings, subheadings, safety phrases, risk management measures, etc. The library of phrases has been translated by EIGA in nearly all EU languages.

3.2 Maintenance of the LISAM tool

The LISAM tool is modified periodically to take into account:

- relevant modification in the EC legislation
- relevant modification of the international transport regulations
- modification of the GCM
- correction of mistakes found in the library,
- addition of new phrases (both mandatory and EIGA recommended)
- addition of a new language

The process to generate a new version and to transmit the new version to all EIGA LISAM users is illustrated in the following flowchart.



3.3 Use of the LISAM tool

EIGA has over the years continuously improved and added algorithms to the Gas Classification Module in order to facilitate as much as possible the work of the competent person in charge of issuing a validated SDS for a mixture.

Although the Gas Classification Module in the LISAM software is highly automatized, it is impossible to foresee all possible outcome issues, especially when one or more reactive gases are present in the mixture. It is therefore necessary for the competent person to complete all missing information and to scrutinize the Safety Data Sheet before issuing it.

3.4 Example of a Safety Data Sheet

Annex 3 shows an example of a Safety Data Sheet (without the exposure scenarios) generated with the LISAM tool for the same gas mixture used as an example in section 3 of Doc.169 Classification and Labelling Guide.

The LISAM tool is only available to EIGA members. For more information on the software, EIGA members should consult LISAM SYSTEMS directly at www.lisam.com

4 Glossary

ADN	International Agreement concerning the carriage of Dangerous goods by inland waterways.
ADR	International Agreement concerning the carriage of Dangerous goods by Road.
ATP	Adaptation to Technical Progress
C&L	Classification and Labelling
CA	Competent Authority
CAS	Chemical Abstract Service.
CEFIC	European Chemical Industry Council.
CLP	EC Regulation 1272/2008 on **c**lassification, **l**abelling and **p**ackaging of substances and mixtures
CMR	Carcinogenic, Mutagenic and Reprotoxic (toxic for the reproduction)
CSR	Chemical Safety Report (part of the Registration dossier for registrations above 10T/y)
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 Number	Other name for the chemical substances inventory number (EINECS number or ELINCS number).
EINECS	European inventory of existing commercial chemical substances.
GCM	Gas Classification module
GHS	Globally Harmonised System for the Classification and Labelling of Chemicals (developed within the United Nations structure). Also known as the “Purple Book”.
ICAO	International Civil Aviation Organization
ILV	Indicative Limit Value (occupational exposure limit value set out by the EC in Directive 91/322)
IMDG code	International Maritime Dangerous Goods code
IMO	International Maritime Organization
ISO	International Organization for Standardization
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.
OJEU	Official Journal of the European Union.
Orange Book	Common name for UN publication “Recommendations on the Transport of Dangerous Goods”.
Purple Book	Common name for UN publication “Globally Harmonised System for the Classification and Labelling of Chemicals (GHS) .
REACH	Regulation (EC)1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulation concerning the International Carriage of Dangerous Goods by Rail.
STOT	Specific Target Organ Toxicity
TDG	Transport of Dangerous Goods
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

5 References

[1] ECHA “Guidance on the compilation of safety data sheets” available at http://echa.europa.eu/guidance-documents/guidance-on-reach

[2] ECHA “Guidance for downstream users”, in particular chapter 7 “Communication in the supply chain related to mixtures” available at http://echa.europa.eu/guidance-documents/guidance-on-reach

[3] Cefic “REACH Practical Guide on exposure assessment and communication in the supply chains”, in particular “Part III: Mixtures under REACH” available at http://www.cefic.org/Industry-support/Implementing-reach/Guidances-and-Tools1/

[4] ECHA “ Chesar 2 User manual Part 5 - Generating exposure scenarios for communication (for extended Safety Data Sheets) : April 2013” for the format of the ES available at http://chesar.echa.europa.eu/web/chesar/support/manuals-tutorials

6 List of Annexes

Annex 1: List of “gases”
Annex 2: Detailed structure and content of a SDS for gases
Annex 3: Example of a SDS generated with the LISAM tool

6.1 Annex 1: List of “gases”

EIGA SDS No	USUAL NAME	FORMULA	CAS No	EC No	REACH status or number (see Note)
001	Acetylene (dissolved)	C2H2	74-86-2	200-816-9	01-2119457406-36-
002	Ammonia	NH3	7664-41-7	231-635-3	01-2119488876-14-
003A	Argon	Ar	7440-37-1	231-147-0	exempted
003B	Argon (refrigerated)	Ar	7440-37-1	231-147-0	exempted
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	01-2119962197-29-
007	Boron trifluoride	BF3	7637-07-2	231-569-5	01-2119534579-27-
008	Bromochlorodifluoromethane (R12 B1)	CBrClF2	353-59-3	206-537-9	
009	Bromomethane	CH3Br	74-83-9	200-813-2	(*) 01-2119919335-38-
010	Bromotrifluoroethylene (R113 B1)	C2BrF3	598-73-2	209-948-1	
011	Bromotrifluoromethane (R13 B1)	CBrF3	75-63-8	200-887-6	(*) 01-2119952611-41-
012	Butadiene 1,2-	1,2-C4H6	590-19-2	209-674-2	01-2119458051-48-
013	Butadiene 1,3-	1,3-C4H6	106-99-0	203-450-8	01-2119471988-16-
014	Butane n-	n-C4H10	106-97-8	203-448-7	01-2119474691-32-
128	Butane n- (Containing ≥ 0.1% Butadiene-1,3)	n-C4H10 (1,3-C4H6)	106-97-8	203-448-7	
017	Butene 1-	1-C4H8	106-98-9	203-449-2	01-2119456615-34-
015	Butene cis-	cis-C4H8	590-18-1	209-673-7	
016	Butene trans-	trans-C4H8	624-64-6	210-855-3	
018A	Carbon dioxide	CO2	124-38-9	204-696-9	exempted
018B	Carbon dioxide (refrigerated)	CO2	124-38-9	204-696-9	exempted
018C	Carbon dioxide (solid)	CO2	124-38-9	204-696-9	exempted
019	Carbon monoxide	CO	630-08-0	211-128-3	01-2119480165-39-
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	01-2119486560-35-
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	(*) 01-2119457434-37-
026	Chlorodifluoroethylene (R1122)	C2HClF2	359-10-4	206-622-0	

EIGA SDS No	USUAL NAME	FORMULA	CAS No	EC No	REACH status or number (see Note)
027	Chlorodifluoromethane (R22)	CHClF2	75-45-6	200-871-9	01-2119517587-31-
028	Chloroethane	C2H5Cl	75-00-3	200-830-5	01-2119487479-17-
029	Chloromethane	CH3Cl	74-87-3	200-817-4	01-2119493708-22-
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	01-2119965182-37-
034	Chlorotrifluoromethane (R13)	CClF3	75-72-9	200-894-4	
035	Cyanogen	C2N2	460-19-5	207-306-5	01-2119965182-37-
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	exempted
040	Diborane	B2H6	19287-45-7	242-940-6	
041	Dichlorodifluoromethane (R12)	CCl2F2	75-71-8	200-893-9	01-2119966166-30-
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)	C2H4F2	75-37-6	200-866-1	01-2119474440-43-
046	Difluoroethylene 1,1- (R1132a)	C2H2F2	75-38-7	200-867-7	01-2119474211-48-
130	Difluoromethane (R32)	CH2F2	75-10-5	200-839-4	01-2119471312-47-
047	Dimethylamine	C2H7N	124-40-3	204-697-4	01-2119475495-27-
048	Dimethylether	C2H6O	115-10-6	204-065-8	01-2119472128-37-
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	01-2119486765-21-
051B	Ethane (refrigerated)	C2H6	74-84-0	200-814-8	01-2119486765-21-
052	Ethyl acetylene	C4H6	107-00-6	203-451-3	
054	Ethyl amine	C2H7N	75-04-7	200-834-7	01-2119485800-36-
053	Ethyl methyl ether	C3H8O	540-67-0		
055A	Ethylene	C2H4	74-85-1	200-815-3	01-2119462827-27-

EIGA SDS No	USUAL NAME	FORMULA	CAS No	EC No	REACH status or number (see Note)
055B	Ethylene (refrigerated)	C2H4	74-85-1	200-815-3	01-2119462827-27-
056	Ethylene oxide	C2H4O	75-21-8	200-849-9	01-2119432402-53-
057	Fluorine	F2	7782-41-4	231-954-8	
058	Fluoroethane (R161)	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	exempted
061B	Helium (refrigerated)	He	7440-59-7	231-168-5	exempted
062	Heptafluoropropane (R227)	C3HF7	431-89-0	207-079-2	01-2119485489-18-
131	Hexafluoro-1,3-Butadiene	C4F6	685-63-2	211-681-0	
063	Hexafluoroacetone	C3F6O	684-16-2	211-676-3	
064	Hexafluoroethane (R116)	C2F6	76-16-4	200-939-8	01-2119974606-26-
065	Hexafluoroisobutene	C4H2F6	382-10-5	206-840-6	
066	Hexafluoropropene (R1216)	C3F6	116-15-4	204-127-4	01-2119471981-30-
067A	Hydrogen	H2	1333-74-0	215-605-7	exempted
067B	Hydrogen (refrigerated)	H2	1333-74-0	215-605-7	exempted
068	Hydrogen bromide	HBr	10035-10-6	233-113-0	01-2119479072-39-
069	Hydrogen chloride	HCl	7647-01-0	231-595-7	01-2119484862-27-
070	Hydrogen fluoride	HF	7664-39-3	231-634-8	01-2119458860-33-
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	01-2119445737-29-
074	Hydrogen telluride	H2Te	7783-09-7	231-981-5	
075	Isobutane	C4H10	75-28-5	200-857-2	01-2119485395-27-
129	Isobutane (Containing ≥ 0.1% Butadiene-1,3)	iso-C4H10 (1,3-C4H6)	75-28-5	200-857-2	registered
076	Isobutene	C4H8	115-11-7	204-066-3	01-2119456616-32-
077A	Krypton	Kr	7439-90-9	231-098-5	exempted
077B	Krypton (refrigerated)	Kr	7439-90-9	231-098-5	exempted
078A	Methane	CH4	74-82-8	200-812-7	01-2119474442-39-
078B	Methane (refrigerated)	CH4	74-82-8	200-812-7	01-2119474442-39-
079	Methyl 3- butene 1	C5H10	563-45-1	209-249-1	
081	Methyl acetylene	C3H4	74-99-7	200-828-4	
082	Methyl amine	CH5N	74-89-5	200-820-0	01-2119475496-25-
083	Methyl mercaptan	CH4S	74-93-1	200-822-1	(*) 01-2119429663-36-
084	Methyl silane	CH6Si	992-94-9	213-598-5	

EIGA SDS No	USUAL NAME	FORMULA	CAS No	EC No	REACH status or number (see Note)
080	Methyl vinyl ether	C3H6O	107-25-5	203-475-4	01-2119480424-39-
086A	Neon	Ne	7440-01-9	231-110-9	exempted
086B	Neon (refrigerated)	Ne	7440-01-9	231-110-9	exempted
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	exempted
089B	Nitrogen (refrigerated)	N2	7727-37-9	231-783-9	exempted
090 (1)	(1)Nitrogen dioxide	(1)NO2	(1)10102-44-0	(1)233-272-6	
090 (2)	(2)Dinitrogen tetroxide	(2)N2O4	(2)10544-72-6	(2)234-126-4	
091	Nitrogen trifluoride	NF3	7783-54-2	232-007-1	01-2119962459-23-
092	Nitrosyl chloride	ClNO	2696-92-6	220-273-1	
093A	Nitrous oxide	N2O	10024-97-2	233-032-0	01-2119970538-25-
093B	Nitrous oxide (refrigerated)	N2O	10024-97-2	233-032-0	01-2119970538-25-
094	Octafluorobutene (R1318)	C4F8	360-89-4	206-640-9	
095	Octafluorocyclobutane (RC318)	C4F8	115-25-3	204-075-2	
096	Octafluoropropane (R218)	C3F8	76-19-7	200-941-9	01-2119948589-16-
132	Octafluorotetrahydrofuran	C4F8O	773-14-8		
097A	Oxygen	O2	7782-44-7	231-956-9	exempted
097B	Oxygen (refrigerated)	O2	7782-44-7	231-956-9	exempted
137	Pentafluoroethane		354-33-6	206-557-8	01-2119485636-25-
099	Phosgene	CCl2O	75-44-5	200-870-3	(*) 01-2119946799-13-
100	Phosphine	PH3	7803-51-2	232-260-8	(*) 01-2119462840-39-
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	C3H8	74-98-6	200-827-9	01-2119486944-21-
105	Propylene	C3H6	115-07-1	204-062-1	01-2119447103-50-
106	Selenium hexafluoride	SeF6	7783-79-1		
107	Silane	SiH4	7803-62-5	232-263-4	01-2119436667-29-
108	Silicon tetrafluoride	SiF4	7783-61-1	232-015-5	
109	Stibine	SbH3	7803-52-3		
113	Sulphur dioxide	SO2	7446-09-5	231-195-2	01-2119485028-34-

EIGA SDS No	USUAL NAME	FORMULA	CAS No	EC No	REACH status or number (see Note)
110	Sulphur hexafluoride	SF6	2551-62-4	219-854-2	01-2119458769-17-
111	Sulphur tetrafluoride	SF4	7783-60-0	232-013-4	
112	Sulphuryl difluoride	F2O2S	2699-79-8	220-281-5	
133	Tetrafluoroethane (R134a)	C2H2F4	811-97-2	212-377-0	01-2119459374-33-
114	Tetrafluoroethylene (R1114)	C2F4	116-14-3	204-126-9	01-2119487991-21-
116	Tetrafluoromethane (R14)	CF4	75-73-0	200-896-5	
118	Trifluoroethane (R143a)	C2H3F3	420-46-2	206-996-5	01-2119492869-13-
119	Trifluoromethane (R23)	CHF3	75-46-7	200-872-4	01-2119971823-29-
122	Trimethylamine	C3H9N	75-50-3	200-875-0	01-2119492296-28-
121	Trimethylsilane	C3H10Si	993-07-7	213-603-0	
123	Tungsten hexafluoride	WF6	7783-82-6	232-029-1	
124	Vinyl bromide	C2H3Br	593-60-2	209-800-6	01-2119703170-58-
125	Vinyl chloride	C2H3Cl	75-01-4	200-831-0	01-2119458772-30-
126	Vinyl fluoride	C2H3F	75-02-5	200-832-6	01-2119457431-43-
127	Xenon	Xe	7440-63-3	231-172-7	exempted

Note: Downstream Users may omit the last 4 digits that identify the Manufacturer or Importer in the supply chain.
(*) Registered only as an Intermediate

6.2 Annex 2: Detailed content of a SDS for gases

Cy Data =Data to be filled by the supplier of the SDS
EIGA Data= Data that are maintained by EIGA either in LISAM or in a separate database
Applicability= defines if the phrase is inserted with the block of phrases "General" or with blocks of phrases determined by the classification or is inserted as "default" phrase in the absence of phrases from the "General" block and from the classification blocks.

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Identification of the substance:
Name Cy Data (name in Annex VI, Inventory or IUPAC)
Other means of identification Cy Data (synonyms)
ID number EIGA Data (Index Nr in AnnexVI, Inventory Nr or CAS Nr, but must include ID Nr used on the label)

OR

Identification of the mixture: Trade Name Cy Data
Other means of identification Cy Data

REACH Registration No): Cy Data
Note (Only for substances): The part of the registration number identifying the registrant (the four last digits) may be omitted, except for SDS issued by M/Is

LISAM N°	Description	Applicability
EIGA0830	Registration deadline not expired.	Default for substances to be registered in 2013 or 2018
EIGA0829	Listed in Annex IV/V REACH, exempted from registration.	Default for gases listed in Annexes IV or V
EIGA0834	Registration not required. Substance manufactured or imported < 1T/y	Default

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant identified uses: Cy Data

LISAM N°	Description	Applicability
EIGA0805	Industrial and professional. Perform risk assessment prior to use.	Default
EIGA0807	Test gas/Calibration gas.	Gas Specific
EIGA0808	Chemical reaction/Synthesis.	Gas Specific
EIGA0835	Medical applications.	Gas Specific
EIGA0836	Food applications.	Gas Specific
EIGA0838	Consumer uses.	Gas Specific
EIGA0924	Polymer production.	Gas Specific
EIGA0928	Transported isolated intermediate.	Gas Specific
EIGA0929	Aerosol propellant.	Gas Specific
EIGA0944	Fuel gases for welding, cutting, heating, brazing and soldering applications.	Gas Specific (C2H2, C3H8)
EIGA0945	Laboratory use.	Gas Specific
EIGA0946	Contact supplier for more uses information.	Gas Specific
EIGA0962	Use as refrigerant.	Gas Specific
EIGA0963	Use for metal treatment.	Gas Specific
EIGA0977	See the list of identified uses and the exposure scenarios in the Annex of the safety data sheet.	SDS with ES
EIGA0978	Use as a fuel.	Gas Specific
EIGA0979	Shield gas for welding processes.	Gas Specific
EIGA0982	Laser gas.	Gas Specific
EIGA0980	Use for manufacture of electronic/photovoltaic components.	Gas Specific
EIGA0981	Water treatment.	Gas Specific
EIGA0994	Cooling (Food additive E290).	CO2
EIGA0995	Blast cleaning.	CO2
EIGA0996	Metal cooling.	Gas specific
EIGA0993	Purge gas, diluting gas, inerting gas	Nitrogen, argon helium
EIGA1077	Welding, cutting, heating and brazing	Oxygen
EIGA1078	Use as a biocide	Ethylene oxide, CO2, Nitrogen

1.2.2 Uses advised against: (sub-heading not shown if content empty)

LISAM N°	Description	Applicability
EIGA0837 (mod)	Do not inflate in party balloons because of the risk of explosion	Hydrogen
EIGA0838	Consumer uses.	All health hazards
EIGA0983 (mod)	Do not inhale product on purpose because of the risk of asphyxiation.	Gas specific (He, SF6, N2O)

1.3 Details of the supplier of the safety data sheet
Company identification (Supplier name, Address and Tel.N°)**:** Cy Data
E-Mail address of company contact person: Cy Data
National contact (optional**,** delete if no data)**:** Cy Data

1.4 Emergency telephone number (Supplier Nr and Nr of Official Poison Centre if any open to the public)**:** Cy Data Indicate "24/7" or **"**Only available during office hours" as part of the Cy Data

---

Section 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:
a) According to Regulation (EC) N° 1272/2008 (CLP)
- Hazard classes/Hazard categories: EIGA Data
- Signal word: EIGA Data
- Hazard statements codes: EIGA Data
- SCL and M-Factor: EIGA Data

b) According to Directive 67/548/EEC (DSD) or Directive 1999/45/EC (DPD)
- Indication of danger: EIGA Data
- Symbol letter(s): EIGA Data
- R-phrases Nr: EIGA Data

LISAM N°	Description	Applicability
EIGA0463	Not classified as dangerous mixture/substance.	for mixtures "not dangerous" according to the DPD

2.2 Label elements
a) According to CLP Regulation EC 1272/2008
- Hazard pictogram(s): EIGA Data
- Signal word: EIGA Data
- Hazard statements: list of H-statements in full (incl.EUH) EIGA Data
- Precautionary statements: list of P-statements in full EIGA Data

Note or "*":

LISAM N°	Description	Applicability
EIGA1095	EUH071 supersedes H335 when assigned in the classification	

OR

b) According to Directive 1999/45/EC (DPD) (for receptacles of gas mixtures labelled according to the DPD until 1 June 2015
- Indication of danger: EIGA Data
- Symbol(s): EIGA Data
- R-phrases: list of phrases in full EIGA Data
- S-phrases: list of phrases in full EIGA Data

c) Supplemental information

LISAM N°	Description	Applicability
EIGA0787	Contains fluorinated greenhouse gases covered by the Kyoto protocol.	Gases listed in Reg. 842/2006
EIGA0919	Contains a substance authorised only for essential laboratory use in accordance with Regulation 1005/2009	Gases listed in Reg 1005/2009

2.3 Other hazards

LISAM N°	Description	Applicability
EIGA0351	Contact with liquid may cause cold burns/frostbite.	Gas specific (Liquefied gases with BP<0°C and no hazard for chemical burns)
EIGA0357	Asphyxiant in high concentrations.	Asphyxiant
EIGA0409	Refrigerated solidified gas. Contact with product may cause cold burns or frostbite.	Dry ice
EIGA0448	May ignite spontaneously in contact with air.	Pyrophoric
EIGA1079	Chemical under pressure (see information on gas receptacle)	ADR entries 3500 to 3505
EIGA0758	None	Default

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Identification Name Cy Data and Nr EIGA Data (from 1.1):

LISAM N°	Description	Applicability
EIGA0400	Contains no other components or impurities which will influence the classification of the product	General
EIGA0839	For safety reasons, the acetylene is dissolved in acetone ***(Flam. Liq. 2, Eye Irrit. 2, STOT SE 3)*** or dimethylformamide ***(Flam. Liq. 3, Repr. 1B, Acute Tox. 4, Eye Irrit. 2)*** in the gas receptacle. Vapour of the solvent is carried away as impurity when the acetylene is extracted from the gas receptacle. The concentration of the solvent vapour in the gas is lower than the concentration limits to change the classification of the acetylene.	Acetylene
EIGA0992	Dimethylformamide is on the Candidate List of Substances of Very High Concern (SVHC) that might be subject to authorization for future placing on the market and uses.	Acetylene
EIGA1062	The cylinder contains a porous material which in some cases contains asbestos fibres. The asbestos fibres are encapsulated in the solid porous material and are not released under normal conditions of use. See section 13 for the disposal of those cylinders.	Acetylene

3.2 Mixtures: EIGA Data

Chemical name	ID-No. EC or CAS	REACH-No. Note (1) Note (2)	Concentration (%)	CLP Classification		DSD Classification
				Hazard classes/ categories	Hazards Statements	Danger class and R-Phrases Note 3

LISAM N°	Description	Applicability
EIGA0400	Contains no other components or impurities which will influence the classification of the product	Default

Note (1) or (2)

Note: The EIGA database maintains registration numbers without the part identifying the registrant.

LISAM N°	Description	Applicability
EIGA0829	Listed in Annex IV/V REACH, exempted from registration.	Listed as “exempted”
EIGA0830	Registration deadline not expired.	Listed as pre-registered without registration nr
EIGA0834	Registration not required. Substance manufactured or imported < 1T/y	Default

Note 3

LISAM N°	Description	Applicability
EIGA0823	Full text of R-phrases, see Section16	General
EIGA0824	Full text of H-statements, see Section 16	General

Section 4: FIRST AID MEASURES

4.1 Description of first aid measures:

4.1.1 In case of inhalation:

LISAM N°	Description	Applicability
EIGA0196	Remove victim to uncontaminated area.	Gas specific (GOX; LOX)
EIGA0206	Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.	Flam.Gas Cat.1&2; Oxid.Gas1 Acute.Tox.Cat.1, 2, 3, 4; EUH71; STOT SE3; CMR ; Asphyxiant
EIGA0984	Provide oxygen.	CO
EIGA0840	Adverse effects not expected from this product.	Default;

4.1.2 In case of skin contact:

LISAM N°	Description	Applicability
EIGA0107	For liquid spillage - flush with water for at least 15 minutes.	Liquefied gases
EIGA0109	In case of skin contact, wearing rubber gloves rub 2.5% calcium gluconate gel continuously into the affected area for 1.5 hours or until further medical care is available.	Gas Specific (Fluorinated gases: BF3, ClF3, ClF5, SF4, PF3,WF6)
EIGA0116	In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.	Refr.Liq.Gas; Liq.gases with low BP
EIGA0117	Remove contaminated clothing. Drench affected area with water for at least 15 minutes.	Skin Corr.1; Skin Irrit.2
EIGA0120	Remove contaminated clothing.	Gas specific
EIGA0840	Adverse effects not expected from this product.	Default;

4.1.3 In case of eye contact:

LISAM N°	Description	Applicability
EIGA0114	Immediately flush eyes thoroughly with water for at least 15 minutes.	Refr.Liq.Gas; Liquefied gases; Skin Corr.1 Eye Dam.1; Eye Irrit.2
EIGA0840	Adverse effects not expected from this product.	Default;

4.1.4 In case of ingestion:

LISAM N°	Description	Applicability
EIGA0121	Ingestion is not considered a potential route of exposure.	General
EIGA0841	Get immediate medical attention.	Gas specific (Dry ice, HF)

4.2 Most important symptoms and effects, both acute and delayed

LISAM N°	Description	Applicability
EIGA0108	May cause severe chemical burns to skin and cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product.	Skin Corr.1;
EIGA0110	No effect on living tissue.	Air; Similar to Air, Default
EIGA0186	In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.	Simple Asphyxiant; Flammables
EIGA0187	May act principally on the central nervous system, with death resulting from respiratory paralysis.	Gas specific
EIGA0188	May cause damaging effects to central nervous system, metabolism and gastrointestinal tract.	Gas specific
EIGA0189	Prolonged exposure to small concentrations may result in pulmonary oedema.	Gas specific (very corrosive gases)
EIGA0192	Delayed adverse effects possible.	Gas specific (corrosive gases)
EIGA0193	Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion.	Oxygen
EIGA0194	Fast acting irreversible poison. Suitable antidote should be immediately available. Seek medical guidance before using gas.	Cyanogen chloride
EIGA0195	Symptoms may include dizziness, headache, nausea and loss of co-ordination.	CO
EIGA0197	In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.	Gas specific (hydrocarbons) +STOT SE3 H336
EIGA0202	May cause headache, nausea and irritation of respiratory tract.	Gas specific (disilane, silane, methylsilane...)
EIGA0203	May cause stomach cramps and vomiting.	Gas specific

EIGA0204	May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.	Gas specific + STOT SE3 H335
EIGA0205	Low concentrations of CO2 cause increased respiration and headache.	Gas specific (CO2)
EIGA0842	May cause irritation to skin.	Skin Irrit.2;
EIGA0843	May cause irritation to cornea (with temporary disturbance to vision).	Eye Irrit.2
EIGA0844	May cause severe chemical burns to cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product.	Eye Dam.1;
EIGA1080	Material is destructive to tissue of the mucuous membranes and upper respiratory tract. Cough, shortness of breath, headache, nausea.	EUH071
EIGA1082	Prolonged or repeated exposure may affect the red blood cells and haemoglobin.	NF3

4.3 Indication of any immediate medical attention and special treatment needed

LISAM N°	Description	Applicability
EIGA0119	Obtain medical assistance.	Acute.Tox.Cat.1, 2, 3, 4 ; Skin Corr.1; Skin Irrit.2; Eye Dam.1 ; Eye Irrit 2 ; STOT SE3 H335 ;
EIGA0758	None.	Default
EIGA0810	Treat with corticosteroid spray as soon as possible after inhalation.	Gas specific (gases assigned with EUH071)

Section 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media:

LISAM N°	Description	Applicability
~~EIGA0150~~	~~All known extinguishants can be used.~~	Not used anymore; replaced by EIGA0998
EIGA0763	Water.	Gas specific
EIGA0764	Foam.	Gas specific
EIGA0765	Carbon dioxide.	Gas specific
EIGA0773	Dry powder.	Gas specific
EIGA0998	Water spray or fog	Default
EIGA1096	Shutting off the source of the gas is the preferred method of control.	Silane and other pyrophoric gases

5.1.2 Extinguishing media which must not be used for safety reasons (not shown for mixtures)

LISAM N°	Description	Applicability
EIGA0148	Halons.	Gas specific
EIGA0758	None	Default
EIGA0763	Water.	Gas specific
EIGA0764	Foam.	Gas specific
EIGA0765	Carbon dioxide.	Flammable Gases (build up of static electricity)

5.2 Special hazards arising from the substance or mixture:

5.2.1 Special hazards

LISAM N°	Description	Applicability
EIGA0103	Exposure to fire may cause containers to rupture/explode.	General
EIGA0104	Escaping gas cannot be extinguished.	Pyrophoric gases and gas mixtures
EIGA0105	Supports combustion.	Oxid.Gas. Similar to air

5.2.2 Hazardous combustion products

LISAM N°	Description	Applicability
EIGA0154	Arsenic and its oxides.	Gas specific
EIGA0155	Germanium and its oxides.	Gas specific
EIGA0156	Selenium and its oxides.	Gas specific
EIGA0157	Incomplete combustion may form carbon monoxide.	Gas specific
EIGA0158	Tellurium and its oxides.	Gas specific
EIGA0159	Antimony and its oxides.	Gas specific
EIGA0160	None that is more toxic than the product itself.	Gas specific
EIGA0161	Phosphorus oxides/acids.	Gas specific
EIGA0162	Tungsten and its oxides.	Gas specific
EIGA0163	Silica dust (inert – but may irritate respiratory tract and eyes).	Gas specific
EIGA0164	If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:	Gas specific
EIGA0168	Carbonyl fluoride.	Gas specific
EIGA0169	Carbon monoxide.	Gas specific

EIGA0170	Nitric oxide/nitrogen dioxide.	Gas specific
EIGA0751	Hydrogen fluoride.	Gas specific
EIGA0752	Carbonyl bromide.	Gas specific
EIGA0758	None	Default
EIGA0761	Phosgene.	Gas specific
EIGA0766	Hydrogen chloride.	Gas specific
EIGA0767	Hydrogen bromide.	Gas specific
EIGA0768	Sulphur dioxide.	Gas specific

5.3 Advice for fire-fighters

5.3.1 Specific methods

LISAM N°	Description	Applicability
EIGA0099	Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.	Flam.Gas Cat.1&2
EIGA0101	If possible, stop flow of product.	General
EIGA0102	If leaking, do not spray water onto container. Water surrounding area (from protected position) to contain fire.	Gas specific
EIGA0180	Continue water spray from protected position until container stays cool.	Acetylene
EIGA0811 (not used anymore, replaced with 845)	Coordinate fire measure to the surrounding fire. Cool endangered containers with water spray jet from a protected position. Exposure to fire and heat radiation may cause cylinders / drums / containers to rupture. Do not empty contaminated fire water into drains.	
EIGA0845	Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.	General
EIGA0997	Use water spray or fog to knock down fire fumes if possible	General
EIGA1010	Do not use water jet to extinguish	General
EIGA1081	Move containers away from the fire area if this can be done without risk	General

5.3.2 Special protective equipment for fire-fighters

LISAM N°	Description	Applicability
EIGA0131	Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.	Acute.Tox.Cat.1, 2, 3, 4 ; CMR ; Skin Corr.1 ; Skin Irrit.2 ; Eye Dam.1 ; Eye Irrit.2 ; EUH071 ; STOT SE3 H335
EIGA0171	In confined space use self-contained breathing apparatus.	~~Asphyxiant~~ Flammable
EIGA0173	Use self-contained breathing apparatus.	Acute.Tox.Cat.1, 2, 3, 4; CMR; default
EIGA0174	Use chemically protective clothing.	Skin Corr.1 ; Skin Irrit.2; Eye Dam.1; Eye Irrit.2 ; EUH071 ; STOT SE3 H335
EIGA1052	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.	General
EIGA1053	EN 469: Protective clothing for firefighters. EN 659: Protective gloves for firefighters.	General
EIGA1054	EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.	Acute.Tox.Cat.1, 2, 3, 4; CMR; Skin Corr.1 ; Skin Irrit.2; Eye Dam.1; Eye Irrit.2 ; EUH071 ; STOT SE3 H335

5.4 Additional information (sub-heading not shown if empty)

LISAM N°	Description	Applicability
EIGA0181	Specialist clean-up methods may be required.	Gas specific
EIGA0182	Use of water may result in the formation of very toxic aqueous solutions.	Gas specific

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

LISAM N°	Description	Applicability
EIGA0123	Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.	Flam.Gas Cat.1&2; Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1/Irrit.2; Eye Dam.1/Irrit.2; STOT SE3 CMR ; Asphyxiant
EIGA0127	Use protective clothing.	Refrigerated liq.
EIGA0128	Ensure adequate air ventilation.	Flam.Gas Cat.1&2; Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1/Irrit.2; Eye Dam.1/Irrit.2; STOT SE3 CMR ; Asphyxiant
EIGA0129	Eliminate ignition sources.	Flam.Gas Cat.1&2 Oxid.Gas
EIGA0130	Evacuate area.	Flam.Gas Cat.1&2 Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1/Irrit.2; Eye Dam.1/Irrit.2; ; STOT SE3 CMR ; Asphyxiant
EIGA0131	Use self-contained breathing apparatus and chemically protective clothing.	Gas specific
EIGA0133	Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.	Heavier than air
EIGA0141	Try to stop release.	Flam.Gas Cat.1&2 Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1 ; Aquatic ; Ozone; Asphyxiant
EIGA0174	Use chemically protective clothing.	Skin Corr.1;Eye Dam.1
EIGA0241	Ensure adequate ventilation.	Liquid air only
EIGA0251	None necessary.	Similar to air
EIGA0758	None.	Default
EIGA0780	Consider the risk of potentially explosive atmospheres.	Flam.Gas Cat.1 and 2
EIGA0846	Monitor concentration of released product	Oxid.Gas 1; Acute.Tox.Cat.1, 2,
EIGA1093	Stay upwind	All gases except air and oxygen
EIGA1094	Act in accordance with local emergency plan	General

6.2 Environmental precautions:

LISAM N°	Description	Applicability
EIGA0096	Liquid spillages can cause embrittlement of structural materials	Refr.Liq. Gas
EIGA0142	Reduce vapour with fog or fine water spray.	Skin Corr.1; Skin Irrit.2; Eye Dam.1 ; Eye Irrit 2
EIGA0758	None.	Air + Default

6.3 Methods and materials for containment and cleaning up:

LISAM N°	Description	Applicability
EIGA0134	Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).	Gas specific
EIGA0135	Dust deposited may be vacuum cleaned or the area hosed down with water.	Gas specific
EIGA0137	Wash contaminated equipment or sites of leaks with copious quantities of water.	Skin Corr.1; Skin Irrit.2; Eye Dam.1
EIGA0138	Hose down area with water.	Skin Corr.1; Skin Irrit.2; Eye Dam.1
EIGA0758	None.	Default
EIGA0760	Ventilate area.	Flam.Gas Cat.1&2; Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1 ; Asphyxiant

6.4 Reference to other sections:

LISAM N°	Description	Applicability
EIGA0847	See also sections 8 and 13	General

Section 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Safe use of the product

LISAM N°	Description	Applicability
EIGA0209	Take precautionary measures against static discharge.	Flam.Gas Cat.1&2
EIGA0210	Avoid contact with aluminium.	Gas Specific
EIGA0213	Use no oil or grease.	Oxid.Gas1
EIGA0215	Passivate all equipment and pipework before introducing gas. Contact supplier for passivation procedure.	Fluorine and mixtures
EIGA0221	Containers, which contain or have contained flammable or explosive substances, must not be inerted with liquid carbon dioxide. Potential production of solid CO2 particles must be ruled out. In order to rule out potential electrostatic discharge production, the system must be adequately grounded.	CO2
EIGA0233	Keep away from ignition sources (including static discharges).	Flam.Gas Cat.1&2
EIGA0234	Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper.	Gas specific (Acetylene, ...)
EIGA0236	Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.	General
EIGA0237	Do not allow backfeed into the container.	Gas specific
EIGA0238	Purge air from system before introducing gas.	Flam.Gas Cat.1&2
EIGA0239	Avoid exposure, obtain special instructions before use.	Acute.Tox.Cat.1, 2, 3, 4; CMR
EIGA0245	Do not smoke while handling product.	General
EIGA0796	Keep equipment free from oil and grease.	Gas Oxid.1
EIGA0797	Use only oxygen approved lubricants and oxygen approved sealings.	Oxygen+ oxygen mixtures
EIGA0854	Avoid suckback of water, acid or alkalis.	General +Gas specific
EIGA0855	Only experienced and properly instructed persons should handle gases under pressure.	General
EIGA0860	Ensure the complete gas system has been (or is regularly) checked for leaks before use	General
EIGA0868	Installation of a cross purge assembly between the cylinder and the regulator is recommended.	Acute Tox.1, 2, 3; Skin Corr.1; Eye Dam.1 ; EUH071
EIGA0870	Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service.	Skin Corr.1; EUH071
EIGA0872	Use only with equipment cleaned for oxygen service and rated for cylinder pressure.	Oxygen
EIGA0873	Assess the risk of a potentially explosive atmospheres and the need for explosion proof equipment.	Flam. Gas Cat.1&2
EIGA0874 (modified)	Solvent may accumulate in piping systems. For maintenance **activities** use appropriate resistant **gloves, assess the necessity to use a respiratory filter device** (specify **gloves and filters** for DMF or acetone use) and **wear safety** goggles. Avoid breathing the vapour of the solvent. Provide adequate ventilation.	Acetylene
EIGA0875	Consider the use of non-sparking tools	Flam.Gas 1&2
EIGA0906	The substance must be handled in accordance with good industrial hygiene and safety procedures.	General
EIGA0985	Consider safety relief device(s) in gas installations	General
EIGA1083	For more guidance on safe use, refer to the EIGA Doc.92 “Code of practice Nitrogen trifluoride”, downloadable at http://www.eiga.org. and consult your supplier.	NF3
EIGA1084	For more guidance on safe use, refer to the EIGA Doc.176 “Safe practices for storage and handling of Nitrous oxide", downloadable at http://www.eiga.org.” and consult your supplier.	N2O
EIGA1085	Do not breathe gas	All gases except medical air and medical oxygen
EIGA1086	Avoid release of product into atmosphere.	All gases except air and oxygen
EIGA1089	Temperatures above 150°C (300°F) shall be avoided by all practical means, to reduce the likelihood of an explosive decomposition of the nitrous oxide	
EIGA1090	Clean all surfaces in direct contact with nitrous oxide as for oxygen service.	Nitrous oxide

EIGA1091	Nitrous oxide transfer pumps shall be provided with an interlock to prevent dry running.	Nitrous oxide
EIGA1092	Use self-limiting heating devices. Direct contact electric immersion heaters are not allowed.	Nitrous oxide
EIGA1097	For more guidance on safe use, refer to the EIGA Doc.160 “Storage and handling of silane and silane mixtures", downloadable at http://www.eiga.org.” and consult your supplier.	Silane
EIGA1098	Gas cabinets, rooms or indoor areas where product is stored or used shall be protected by an automatic sprinkler system	Silane and other pyrophorics
EIGA1099	A manually activated deluge water spray fire protection system shall be provided to protect bulk product delivery systems	Gas specific
EIGAxxxx	Chemical under pressure.	Chemicals under pressure

7.1.2 Safe handling of the gas receptacle

LISAM N°	Description	Applicability
EIGA0208	Suck back of water into the container must be prevented.	Gas specific (see list of BR)
EIGA0214	Open valve slowly to avoid pressure shock.	Oxid.Gas.1
EIGA0216	Refer to supplier's container handling instructions.	General
EIGA0237	Do not allow backfeed into the container.	General (covers backfeed of gases)
EIGA0856	Protect cylinders from physical damage; do not drag, roll, slide or drop.	General
EIGA0857	Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.	General
EIGA0858	When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.	General
EIGA0859	Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.	General
EIGA0861	If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.	General
EIGA0862	Close container valve after each use and when empty, even if still connected to equipment.	General
EIGA0863	Never attempt to repair or modify container valves or safety relief devices.	General
EIGA0864	Damaged valves should be reported immediately to the supplier.	General
EIGA0865	Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.	General
EIGA0866	Keep container valve outlets clean and free from contaminants particularly oil and water.	General
EIGA0867	Never attempt to transfer gases from one cylinder/container to another.	General
EIGA0869	Never use direct flame or electrical heating devices to raise the pressure of a container.	General
EIGA0936	Operating pressure in piping should be limited to 1.5 bar (gauge) or less due to more stringent national regulations (with maximum diameter DN25)	Acetylene
EIGA0937	Consider the use of flash back arrestors	Acetylene
EIGA0938	For further information on safe use refer to EIGA code of practise acetylene (IGC Doc 123)	Acetylene

7.2 Conditions for safe storage, including any incompabilities

LISAM N°	Description	Applicability
EIGA0207	Keep container below 50°C in a well ventilated place.	General
EIGA0212	Segregate from flammable gases and other flammable materials in store.	Oxid.Gas
EIGA0219	Liquid air should only be stored in closed cryogenic receptacles.	Liquid air
EIGA0232	Segregate from oxidant gases and other oxidants in store.	Flam.Gas 1&2
EIGA0781	EIGA recommends a pressure check be conducted every two years for continued storage of unused product. Excess pressure must be vented through an appropriate scrubber system. If user wishes to return cylinder after two years, please contact your supplier for return.	HF
EIGA0871	Stored containers should be periodically checked for general condition and leakage.	General
EIGA0876	Observe all regulations and local requirements regarding storage of containers.	General
EIGA0877	Containers should not be stored in conditions likely to encourage corrosion.	General
EIGA0878	Containers should be stored in the vertical position and properly secured to prevent them from falling over.	General
EIGA0879	Container valve guards or caps should be in place.	General
EIGA0880	Store containers in location free from fire risk and away from sources of heat and ignition.	General
EIGA0881	Keep away from combustible materials.	General

EIGA0883	All electrical equipment in the storage areas should be compatible with the risk of potentially explosive atmospheres.	Flam. Gas 1&2

7.3 Specific end uses: Cy Data

LISAM N°	Description	Applicability
EIGA0758	None	Default

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

8.1.1 Community and National Occupational Exposure limits:

Name of gas

Limit value type (country of origin)	Occupational exposure limit value			
	Long term		Short term	
	ppm	mg/m³	ppm	mg/m³
AGW (DE), VLE(FR)...				
IOELV (EU) when no national OEL available				

LISAM N°	Description	Applicability
EIGA0894	None available	Default

8.1.2 DNEL: Derived no effect level (Workers) (from REACH Registration) Cy Data

LISAM N°	Description	Applicability
EIGA0894	None available	Default

8.1.3 PNEC: Predicted no effect concentration (from REACH Registration) Cy Data

LISAM N°	Description	Applicability
EIGA0894	None available	Default for non registered substances
EIGA0930	The product ~~Substance~~ is a gas and is extremely unlikely to reside in the aquatic compartment	Non water soluble gases + Default
EIGA1069	None established.	Default for registered substances

8.2 Exposure controls

LISAM N°	Description	Applicability
EIGA0904	Substance registered as transported isolated intermediate according to REACH article 18(4). Strictly controlled conditions to be applied.	Gas Specific
EIGA0905	The substance is not classified for human health hazards or for environmental effects, and is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.	Acetylene and registered gases with no ES for identified uses

8.2.1 Appropriate engineering controls:

LISAM N°	Description	Applicability
EIGA0250	Avoid oxygen rich (>23.5%) atmospheres.	Oxygen
EIGA0251	None necessary.	Default Similar to air
EIGA0815	Provide adequate general and local ventilation	Flam.Gas Cat.1&2; Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1 Asphyxiant
EIGA0895	Product to be handled in closed system and under strictly controlled conditions	Acute.Tox.Cat.1, 2 ; CMR
EIGA0896	Product to be handled in a closed system	Acute.Tox.Cat., 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1; Eye Irrit.2 ;

		EUH071 ; STOT SE3 ; Ozone ;
EIGA0897	Preferably use permanent leaktight connections (e.g. welded pipes)	Acute.Tox.Cat.1, 2 ; CMR
EIGA0898	Systems under pressure should be regularly checked for leakages	General
EIGA0899	Ensure exposure is below occupational exposure limits (when available).	All gases and mixtures with OEL
EIGA0900	Keep concentrations well below lower explosion limits.	Not to be used for the time being.
EIGA0907	Consider the use of a work permit system, e.g. for maintenance activities.	Flam.Gas Cat.1&2; Oxid.Gas Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1; Eye Irrit.2
EIGA0818	Gas detectors should be used when toxic gases may be released.	Acute.Tox.Cat.1, 2, 3
EIGA0901	Gas detectors should be used when flammable gases/vapours may be released.	Flam.Gas 1&2 unless EIGA 0818 is used.
EIGA0902	Gas detectors should be used when oxidising gases may be released.	Oxygen + oxygen mixtures
EIGA0903	Oxygen detectors should be used when asphyxiating gases may be released.	Asphyxiant
EIGA0986	Provide readily accessible eye wash stations and safety showers.	Skin Corr.1; Skin Irrit.2; Eye Dam.1 ; Eye Irrit.2
EIGA1100	Optical flame detection systems shall be provided to detect a fire at potential leak points.	Silane

8.2.2 Personal protective equipment

LISAM N°	Description	Applicability
EIGA0950	A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:	General

8.2.2.1 Eye and face protection

LISAM N°	Description	Applicability
EIGA0247	Protect eyes, face and skin from liquid splashes.	Refr.Liq.Gas
EIGA0251	None necessary.	Not used; use 949 as default.
EIGA0947	Wear goggles and a face shield when transfilling or breaking transfer connections	Refrigerated Liquefied gases; Liquefied gases + Eye Dam.1 ; Eye Irrit.2
EIGA0948	Wear safety glasses with side shields or goggles when transfilling or breaking transfer connections	Compressed gases + Eye Dam.1 ; Eye Irrit.2
EIGA0949	Wear safety glasses with side shields.	Default
EIGA1051	Standard EN 166 – Personal eye-protection.	Default

8.2.2.2 Skin protection

a) Hand protection

LISAM N°	Description	Applicability
EIGA0251	None necessary.	Default Similar to air
EIGA0908	Wear cold insulating gloves	Refr.Liq.Gas
EIGA0933	Wear cold insulating gloves when transfilling or breaking transfer connections	Refrigerated Liquefied gases;
EIGA1000	Wear leather safety gloves.	Gas specific (dry ice)
EIGA1001	PPE compliant to the recommended EN/ISO standards should be selected.	Skin Corr.1; Skin Irrit.2; when no data available from suppliers
EIGA1002	Wear working gloves when handling gas containers	General (replaces EIGA 814
EIGA1004	Wear chemical resistant protective gloves	Skin Corr.1; Skin Irrit.2;
EIGA1003	Standard EN 388 - Protective gloves against mechanical risk.	General
EIGA1005	Standard EN 374 - Protective gloves against chemicals.	Skin Corr.1; Skin Irrit.2
EIGA1006	Permeation time: minimum >30min short term exposure; material / thickness [mm]:	Skin Corr.1; Skin Irrit.2; when data available from suppliers
EIGA1007	Permeation time: minimum >480min long term exposure; material / thickness [mm]:	Skin Corr.1; Skin Irrit.2; when data available from suppliers
EIGA1008	Consult glove manufacturer´s product information on material suitability and material thickness.	Skin Corr.1; Skin Irrit.2; when no data available from suppliers
EIGA1009	The breakthrough time of the selected gloves must be greater than the intended use period.	Skin Corr.1; Skin Irrit.2; when no data available from suppliers
EIGA1012	Chloroprene rubber (CR)/	Skin Corr.1; Skin Irrit.2; when data available from suppliers
EIGA1013	Neoprene rubber (HNBR)/	
EIGA1014	Butyl rubber (IIR)/	

EIGA1015	Fluoroelastomer (FKM) /	
EIGA1016	Nitrile rubber (NBR)/	
EIGA1017	Polyvinylchloride rubber (PVC)/	
EIGA1018	Polytetrafluorethylene (PTFE)/	
EIGA1019	Natural rubber (NR)/	
EIGA1020	Perfluoro rubber (FFKM)/	
EIGA1021	Styrene-Butadiene-rubber (SBR) /	
EIGA1022	Chloro-sulfonorised Polyethylene (CSM)/	
EIGA1023	Ethylene-Propylene rubber (EPDM)/	
EIGA1024	Polyacrylat rubber (ACM)/	
EIGA1025	Viton® /	
EIGA1026	Polyethylene PE /	
EIGA1050	Standard EN 511 – Cold insulating gloves.	Refrigerated Liquefied gases;

b) Other skin protection

LISAM N°	Description	Applicability
EIGA0249	Keep suitable chemically resistant protective clothing readily available for emergency use.	Skin Corr.1; Skin Irrit.2;
EIGA0251	None necessary.	Default Similar to air
EIGA1047	Wear safety shoes while handling gas containers.	General
EIGA1048	Standard EN ISO 20345 Personal protective equipment - Safety footwear.	General
EIGA1049	Standard EN 943-1 - Full protective suits against liquid, solid and gaseous chemicals.	Skin Corr.1; Skin Irrit.2;
EIGA1101	Depending on operations that e.g. involve opening of valves or opening of process silane systems the following additional PPE shall be considered: Hard hat, fire resistant hood, face shield, leather gauntlet.	Silane

8.2.2.3 Respiratory protection

LISAM N°	Description	Applicability
EIGA0248	Keep self contained breathing apparatus readily available for emergency use.	All classifications for health hazards
EIGA0251	None necessary.	Default Similar to air
EIGA1027	Never use any kind of filtering respiratory protection equipment when working with this substance due to it having poor or no warning properties.	Gas specific (CO)
EIGA1028	Use gas filters with full face masks where occupational exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting gas containers.	All classifications for health hazards
EIGA1029	Gas filters do not protect against oxygen deficiency.	All classifications for health hazards
EIGA1030	Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.	All classifications for health hazards
EIGA1031	Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres	Asphyxiant gases without other hazards
EIGA1032	Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.	All classifications for health hazards
EIGA1033	Consult respiratory device supplier´s product information for the selection of the appropriate device.	Acute.Tox.Cat.1, 2, 3, 4 when no filter data determined by suppliers
EIGA1034	Standard EN 137 – Self-contained open-circuit compressed air breathing apparatus with full face mask.	Used with EIGA 1035
EIGA1035	Self contained breathing apparatus is recommended where unknown exposure may be expected, e.g. during maintenance activities on installation systems.	All classifications for health hazards
EIGA1036	Recommended: Filter K (green)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1037	Recommended: Filter B (grey)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1038	Recommended: Filter E (yellow)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1039	Recommended: Filter E-P2 (yellow-white)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1040	Recommended: Filter AX (brown)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1041	Recommended: Filter NO (blue)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers

EIGA1042	Recommended: Filter CO (black)	Gas specific
EIGA1043	Recommended: Filter A (brown)	Acute.Tox.Cat.1, 2, 3, 4 when data available from suppliers
EIGA1044	Recommended: Combined filter ABEK or AXBEK	Gas specific

8.2.2.4 Thermal hazards

LISAM N°	Description	Applicability
EIGA0246	Wear suitable hand, body and head protection. Wear goggles with suitable filter lenses when use is cutting/welding.	Not used anymore ...
EIGA0976	Wear goggles with suitable filter lenses when use is cutting/welding.	Acetylene
EIGA0251	None necessary.	Default; Similar to air
EIGA0935	Consider the use of flame resistant anti-static safety clothing.	Flam. Gas 1
EIGA1045	Standard EN ISO 14116 - Limited flame spread materials.	Flam. Gas 1
EIGA1046	Standard EN ISO 1149-5 - Protective clothing: Electrostatic properties.	Flam. Gas 1
EIGA0991	Consider the use of flame resistant safety clothing.	Gas specific (O2, N2O)

8.2.3 Environmental exposure controls:

LISAM N°	Description	Applicability
EIGA0251	None necessary.	Similar to air; Asphyxiants
EIGA0910	Refer to local regulations for restrictions of emissions to the atmosphere. See section 13 for specific methods for waste gas treatments.	All blocks except “Asphxiants” and “Similar to air”

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance

- **Physical state (@ 20°C, 1013 mbar):**

LISAM N°	Description	Applicability
EIGA0967	Gas.	Default
MS-GAS0409	Refrigerated solidified gas.	Dry ice
EIGA0969	Solid	Dry ice

- **Colour:**

LISAM N°	Description	Applicability
EIGA0005	Colourless liquid.	Gas specific
EIGA0007	Bluish liquid.	Gas specific
EIGA0008	Greenish gas.	Gas specific
EIGA0009	Brownish gas.	Gas specific
EIGA0010	Gives off white fumes in moist air.	Gas specific
EIGA0755	Colourless.	Default
EIGA1055	$$S_ITEM1_NE$$Mixture contains one or more component(s) which have the following colour(s) :	Mixtures
EIGA1059	$$S_ITEM1_E$$Colourless.	Default

b) Odour:

LISAM N°	Description	Applicability
EIGA0014	Rotten eggs.	Gas specific
EIGA0015	Ammoniacal.	Gas specific
EIGA0016	Bitter almonds.	Gas specific
EIGA0017	Musty hay.	Gas specific
EIGA0018	Mildly aromatic.	Gas specific
EIGA0019	Extremely disagreeable.	Gas specific
EIGA0022	Mouldy.	Gas specific
EIGA0027	Stenchant often added.	Gas specific
EIGA0028	Sweetish.	Gas specific
EIGA0031	Rotten fish.	Gas specific
EIGA0082	Poor warning properties at low concentrations.	Gas specific
EIGA0083	Poor warning properties at high concentrations.	Gas specific
EIGA0084	No odour warning properties.	Gas specific
EIGA0092	Odour can persist.	Gas specific
EIGA0438	Not known.	Gas specific
EIGA0750	Garlic like.	Gas specific
EIGA0756	Pungent.	Gas specific
EIGA0757	Ethereal.	Gas specific
EIGA0943	Odourless.	Default

EIGA0934	The mixture contains one or more components that have the following odour:	Mixtures
EIGA1056	$$S_ITEM2_NE$$Mixture contains one or more component(s) which have the following odour(s) :	Mixtures with components with odour.
EIGA1060	$$S_ITEM2_E$$Odourless. No odour warning properties.	Default for mixtures with odourless components

c) Odour treshold:

LISAM N°	Description	Applicability
EIGA0911	Odour treshold is subjective and inadequate to warn of overexposure	All pure gases; For mixtures, only if a component has an odour in previous sub-section
EIGA1057	$$S_ITEM2_NE$$There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure.	Mixtures

d) pH (20 °C):

LISAM N°	Description	Applicability
EIGA0914	Not applicable for gases and gas mixtures.	General

e) Molar mass: data (not selected for mixtures)

f) Melting point (°C): data

LISAM N°	Description	Applicability
EIGA0438	Not known.	Default for pure gases
EIGA0913	Not applicable for gas mixtures	General
EIGA1071	At atmospheric pressure dry ice sublimes into gaseous carbon dioxide	CO2

g) Boiling point/range (°C): data

LISAM N°	Description	Applicability
EIGA0438	Not known.	Default for pure gases
EIGA0913	Not applicable for gas mixtures	General

h) Critical temperature (°C): data (not selected for mixtures)

i) Flash point (°C):

LISAM N°	Description	Applicability
EIGA0914	Not applicable for gases and gas mixtures.	General

j) Upper/lower flammability limits (vol.% in air): data

LISAM N°	Description	Applicability
EIGA0097	Non flammable.	Default
EIGA0428	Pyrophoric.	Pyrophoric
EIGA0438	Not known.	Pure Flam. Gas
EIGA0078	Although this substance has flammability data, it is difficult to ignite in air and is classified as non-flammable.	Not assigned.
EIGA0965	No data available	Default for flammable mixtures
EIGA0987	Flammability range not available	New default for flammable mixtures

k) Vapour density: data (not selected for mixtures)

l) Vapour pressure (°C): data

LISAM N°	Description	Applicability
EIGA0759	Not applicable	Compressed gases and mixtures
EIGA0417	No reliable data available.	Default 1 (for pure gases)
EIGA0438	Not known.	Default 2 (for mixtures

m) Relative density-gas (air=1): data

LISAM N°	Description	Applicability
EIGA0440	Lighter or similar to air.	Default
EIGA0441	Heavier than air.	heavier than air

n) Relative density-liquid (water=1): data (not selected for mixtures)

LISAM N°	Description	Applicability
EIGA0417	No reliable data available.	Default (for pure gases)
EIGA0759	Not applicable	Compressed gases

o) Water solubility (20°C in g/l): data

LISAM N°	Description	Applicability
EIGA0417	No reliable data available.	Default
EIGA0418	Hydrolyses.	Gas specific
EIGA0419	Not known, but considered to have low solubility.	Gas specific
EIGA1058	$$S_ITEM3_NE$$Solubility in water of component(s) of the mixture :	Mixtures

p) pH value: (not shown if no phrase assigned)

LISAM N°	Description	Applicability
EIGA0912	If dissolved in water pH-value will be affected.	Gas specific
EIGA0759	Not applicable.	Default

q) Partition coefficient, n-Octanol/Water (log Ko/w) : data

LISAM N°	Description	Applicability
EIGA0915	Not applicable for inorganic gases.	Gas specific
EIGA0438	Not known.	Default

r) Decomposition temperature:

LISAM N°	Description	Applicability
EIGA0759	Not applicable.	General

s) Auto-ignition temperature: data

LISAM N°	Description	Applicability
EIGA0097	Non flammable.	Default
EIGA0438	Not known.	Default for Flam.Gas

t) Viscosity, dynamic (mPa s):

LISAM N°	Description	Applicability
EIGA0759	Not applicable.	General

u) Explosive properties:

LISAM N°	Description	Applicability
EIGA0759	Not applicable.	General

v) Oxidising properties: data: - Coefficient of oxygen equivalency (Ci)

LISAM N°	Description	Applicability
EIGA0427	Oxidiser.	Oxid.Gas 1
EIGA0759	Not applicable.	Default

9.2 Other informations:

LISAM N°	Description	Applicability
EIGA0080	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.	heavier than air(note)
EIGA0086	Normally supplied only as a gaseous mixture component.	Diborane
EIGA0088	Burns with an invisible flame.	Hydrogen, deuterium
EIGA0758	None.	Default
EIGA1087	Considered heavier than air because of hydrogen bonding between molecules.	HF

Note: the phrase is selected if the MW is higher than 32, i.e. 10% higher than air density (criteria from International Chemical Safety Cards-Compiler's guide at http://www.who.int/ipcs/publications/icsc/comp_guide.pdf).

Section 10: STABILITY AND REACTIVITY

10.1 Reactivity

LISAM N°	Description	Applicability
EIGA0932	No reactivity hazard other than the effects described in sub-sections below	General

10.2 Chemical stability

LISAM N°	Description	Applicability
EIGA0042	Decomposes above 500°C into sulphur oxides and fluorides.	Gas specific (sulfuryl fluoride)
EIGA0044	Containers are commonly pressurised to 5-7 bars with nitrogen.	ETO
EIGA0047	Can form higher boranes.	Gas specific (Diborane)
EIGA0049	Decomposes at room temperature to other nitrogen oxides and nitrogen. Oxidises in air to form nitrogen dioxide which is extremely reactive.	Gas specific (Nitric oxide)
EIGA0050	Stable under normal conditions.	All gases except those identified as chemically unstable (acetylene, etc); Default for mixtures.
EIGA0059-1	At temperatures over 575°C and at atmospheric pressure, nitrous oxide decomposes into nitrogen and oxygen.	Gas specific (nitrous oxide)
EIGA0059-2 (deleted)	~~Pressurized nitrous oxide can also decompose at temperatures equal or greater than 300°C.~~	Nitrous oxide
EIGA0059-3	In the presence of catalysts (e.g. halogen products, mercury, nickel, platinum) the rate of decomposition increases and decomposition can occur at even lower temperatures.	Nitrous oxide
EIGA0059-4	Nitrous oxide dissociation is irreversible and exothermic, leading to a considerable rise in pressure.	Gas specific (N2O)
EIGA0090	Dissolved in a solvent supported in a porous mass.	Acetylene
EIGA0939	Stable under recommended storage and handling conditions (see section 7)	Acetylene
EIGA0940	May react explosively even in the absence of air	Unstable gases (acetylene....)

10.3 Possibilities of hazardous reactions

LISAM N°	Description	Applicability
EIGA0032	May decompose violently at high temperature and/or pressure or in the presence of a catalyst.	Gas specific (acetylene,...)
EIGA0037	May polymerise.	Gas specific (
EIGA0040	Violently oxidises organic material.	Oxid.Gas
EIGA0046	Can form explosive mixtures with air	Flam.Gas Cat.1&2
EIGA0056	May react violently with oxidants.	Flam.Gas Cat.1&2
EIGA0072	Can ignite spontaneously in air (fire cannot be put out). Can form spontaneous violently explosive mixture in air.	Pyrophoric
EIGA0081	Risk of explosion if spilt on organic structural materials (eg wood or asphalt)..	Gas specific (Liquid oxygen)
EIGA0758	None	Default
EUH014	Reacts violently with water.	Gas specific (BCl3...)

10.4 Conditions to avoid:

LISAM N°	Description	Applicability
EIGA0793	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.	Flam.Gas Cat.1&2
EIGA0795	Heat.	Not used anymore
EIGA0925	Avoid moisture in installation systems.	Gas specific (all corrosive....) SkinCorr.1
EIGA0926	High temperature	Gas specific
EIGA0927	High pressure	Gas specific
EIGA0941	None under recommended storage and handling conditions (see section 7)	Default

10.5 Incompatible materials:

LISAM N°	Description	Applicability
EIGA0033	May react violently with alkalis.	Gas specific
EIGA0034	May react violently with combustible materials.	Oxid.Gas
EIGA0035	May react violently with reducing agents.	Oxid.Gas
EIGA0036	Reacts with water to form corrosive alkalis.	Gas specific
EIGA0038	Reacts with most metals in the presence of moisture, liberating hydrogen, an extremely flammable gas.	Gas specific
EIGA0041	With water causes rapid corrosion of some metals.	Gas specific
EIGA0043	Forms explosive acetylides with copper, silver and mercury.	Gas specific
EIGA0073	May react with bases, copper, silver, mercury, magnesium, zinc and their alloys.	Gas specific
EIGA0074	May react violently with acids.	Gas specific
EIGA0075	Reacts with water to form corrosive acids.	Gas specific

EIGA0076	May react with aluminium.	Gas specific
EIGA0077	Do not use alloys containing more than 65% copper.	Acetylene
EIGA0758	None	Default
EIGA0782	Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (> 30 bar) oxygen lines in case of combustion	Oxygen
EIGA0794	Moisture.	Gas specific
EIGA0796	Keep equipment free from oil and grease.	Gas specific
EIGA0798	Air, Oxidiser.	Gas specific
EIGA0799	Air.	Gas specific
EIGA0916	For additional information on compatibility refer to ISO 11114.	General
EIGA0931	Organic materials.	Gas specific
EIGA0960	Do not use alloys containing more than 43% silver.	Acetylene
EIGA1102	Halogenated hydrocarbons	Gas specific

10.6 Hazardous decomposition products:

LISAM N°	Description	Applicability
EIGA0758	None	Default 1
EIGA0942	Under normal conditions of storage and use, hazardous decomposition products should not be produced.	Default 2

Section 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

a) Acute toxicity EIGA Data (LC50 (rat/4h) of the toxic components; Calculated ATE_{mix} for the mixture)

LISAM N°	Description	Applicability
EIGA0289	May produce irregular heart beat and nervous symptoms.	Gas specific
EIGA0291	In high concentrations cause rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and death.	CO2
EIGA0303	Delayed fatal pulmonary oedema possible.	Gas specific
EIGA0304	Fatal intoxication possible with low concentrations.	Gas specific
EIGA0308	Inhalation of large amounts leads to bronchospasm, laryngeal oedema and pseudomembrane formation.	Gas specific
EIGA0309	Pulmonary pathology after acute exposures showed bronchoconstriction, hyaline membrane formation, pulmonary oedema and emphysema.	Gas specific
EIGA0310	Absorption of excessive F- can result in acute systemic fluorosis with hypocalcemia, interference with various metabolic functions and organ damage (heart, liver, kidneys).	Gas specific
EIGA0317	No toxicological effects from this product.	Default for “similar to air” and for specifc gases (O2...) –no LC50 components
EIGA0951	Acetylene has low inhalation toxicity, the LOAEC for mild intoxication in humans with no residual effects is 100.000ppm(107,000 mg/m3).	Acetylene
EIGA0952	There are no data on oral and dermal toxicity (studies are not technically feasible as the substance is a gas at room temperature).	Acetylene
EIGA0953	Classification criteria are not met.	Default for gases and mixtures with toxic components
EIGA1105	Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO2 has been found to act synergistically to increase the toxicity of certain other gases (CO, NO2). CO2 has been shown to enhance the production of carboxy- or met-hemoglobin by these gases possibly due to carbon dioxide’s stimulatory effects on the respiratory and circulatory systems.	CO2 and mixtures containing more than 5% CO2
EIGA1103	Toxicological effects not expected from this product if occupational exposure limit values are not exceeded	OEL block
EIGA1128	Inhalation causes narcotic effects.	Gas Specific
EIGA1129	Hemotoxic effect.	Gas Specific
EIGA1130	Neurologic effect.	Gas Specific
EIGA1131	At high concentrations:	Gas Specific
EIGA1132	At low concentrations:	Gas Specific

b) skin corrosion/irritation

LISAM N°	Description	Applicability
R35	Causes severe burns	Gas specific;
EIGA0920	No known effects from this product.	Default
EIGA0292	May cause dermatitis by skin contact.	Gas specific
EIGA0294b	Irritation to skin.	Gas specific; Skin Irrit.2
EIGA0293b	May cause inflammation of the skin.	Gas specific
EIGA0297b	Severe corrosion to skin at high concentrations.	Skin Corr.1

c) Serious eye damage/irritation

LISAM N°	Description	Applicability
EIGA0294a	Irritation to eyes.	Eye Irit.2
EIGA0297a	Severe corrosion to eyes at high concentrations.	Eye Dam.1
EIGA0920	No known effects from this product.	Default
R35	Causes severe burns	Gas specific;

d) Respiratory or skin sensitisation

LISAM N°	Description	Applicability
EIGA0920	No known effects from this product.	Default 2

e) Germ cell mutagenicity

LISAM N°	Description	Applicability
EIGA0920	No known effects from this product.	Default 2
EIGA0311	Possible risk of irreversible effects.	Gas specific
EIGA0921	May have mutagenic effect.	Mutagenic 1A&B

f) Carcinogenicity

LISAM N°	Description	Applicability
EIGA0920	No known effects from this product.	Default 2
EIGA0307	May have carcinogenic effect.	Carcinogenic 1A&B

g) Reproductive toxicity

LISAM N°	Description	Applicability
EIGA0319	May impair fertility and cause harm to the unborn child.	Repr.1
EIGA0920	No known effects from this product.	Default 2

h) STOT-single exposure

LISAM N°	Description	Applicability
EIGA0293a	May cause inflammation of the respiratory system	Gas specific
EIGA0297c	Severe corrosion to respiratory tract at high concentrations.	EUH071
EIGA0298	Damage to kidneys and liver.	Gas specific
EIGA0301	Damage to red blood cells (haemolytic poison).	Gas specific
EIGA0302	Damage to central nervous system.	Gas specific
EIGA0312	May have damaging effect on respiratory system, central nervous system and liver.	Gas specific
EIGA0314	Causes irritation of mucous membranes and depression of the respiratory and nervous systems.	Gas specific
EIGA0322	May cause nausea and irritation of the respiratory tract. Hydrolysis of silanes in the body forms silicic acid or hydrated silica.	Gas specific (all silanes)
EIGA0332	Overexposure may cause stomach cramps, vomiting and cough and may also cause kidney and liver damage.	Gas specific (chloroethane)
EIGA0475	Irritation to the respiratory tract.	STOTSE3;H335
EIGA0753	May cause irritation to the respiratory tract.	Gas specific
EIGA0920	No known effects from this product.	Default for non-classified mixtures without componenets with target organs effects.
EIGA0923	Suppresses the oxygen uptake by red blood cells.	Gas specific
EIGA0953	Classification criteria are not met.	Default for non-classified mixtures containing components with target organs effects
EIGA1109	Blood.	Gas specific
EIGA1110	Cardiovascular system.	Gas specific
EIGA1111	Central nervous system.	Gas specific
EIGA1112	Erythrocytes.	Gas specific
EIGA1113	Eyes.	Gas specific
EIGA1114	Heart.	Gas specific

EIGA1115	Kidney.	Gas specific
EIGA1116	Liver.	Gas specific
EIGA1117	Lungs.	Gas specific
EIGA1118	Reproductive system.	Gas specific
EIGA1119	Respiratory system.	Gas specific
EIGA1120	Respiratory tract.	Gas specific
EIGA1121	Skin.	Gas specific
EIGA1122	Skeletal system.	Gas specific

i) STOT-repeated exposure

LISAM N°	Description	Applicability
EIGA0290	Repeated exposure may cause liver damage or failure.	Gas specific
EIGA0298	Damage to kidneys and liver.	Gas specific
EIGA0312	May have damaging effect on respiratory system, central nervous system and liver.	Gas specific
EIGA0920	No known effects from this product.	Default for non-classified mixtures without componenets with target organs effects.
EIGA0953	Classification criteria are not met.	Default for non-classified mixtures containing components with target organs effects
EIGA1082	Prolonged or repeated exposure may affect the red blood cells and haemoglobin	Gas specific
EIGA1124	Reduced fertility in occupationally exposed personnel (healthcare) has been reported in some epidemiological studies. The effect was related to repeated exposure to levels of nitrous oxide above the specified occupational exposure limits in inadequately ventilated rooms.	N2O

j) Aspiration hazard

LISAM N°	Description	Applicability
EIGA0914	Not applicable for gases and gas mixtures.	General

Section 12: Ecological information

12.1 Toxicity: EIGA Data (for registered substances)

LISAM N°	Description	Applicability
EIGA0343	No ecological damage caused by this product.	For substances exempted from registration
EIGA0341	Toxic to water organisms.	Not to be used
EIGA0342	Endangering to drinking water.	Not to be used
EIGA0953	Classification criteria are not met.	Default for gases and mixtures with eco-toxic components
EIGA1106	Slightly harmful to fish, algae, daphnia.	Gas specific
EIGA1125	Product / Substance is a gas.	Gas specific
EIGA1126	Partition into water is unlikely.	Gas specific

12.2 Persistence and degradability: EIGA Data (for registered substances)

LISAM N°	Description	Applicability
EIGA0343	No ecological damage caused by this product.	For substances exempted from registration
EIGA0801	No data available	Default (for not registered substances)
EIGA0915	Not applicable for inorganic substances	Gas specific
EIGA0954	Will rapidly degrade by indirect photolysis in air.	Gas specific
EIGA0955	Will not undergo hydrolysis.	Gas specific
EIGA0956	Not readily biodegradable.	Gas specific
EIGA1063	The substance is readily biodegradable. Unlikely to persist.	Gas specific
EIGA1064	Study scientifically unjustified.	Gas specific

12.3 Bioaccumulative potential: EIGA Data (for registered substances)

LISAM N°	Description	Applicability
EIGA0343	No ecological damage caused by this product.	For substances exempted from registration

EIGA0801	No data available	Default
EIGA0957	Not expected to bioaccumulate due to the low log Kow (<4)	Gas specific (log Kow less than 4) Default for mixtures
EIGA1070	Refer to Section 9	Gas specific (log Kow less than 4) Default for mixtures
EIGA1123	Product is an inorganic gas with a low potential to bioaccumulate in aquatic species.	Gas specific

12.4 Mobility in soil: EIGA Data (for registered substances)

LISAM N°	Description	Applicability
EIGA0343	No ecological damage caused by this product.	For substances exempted from registration
EIGA0801	No data available	Default
EIGA0958	Because of its high volatility, the product is unlikely to cause ground or water pollution.	New Default
EIGA1107	Low potential for absorption in soil.	Gas specific
EIGA1108	High mobility.	Gas specific
EIGA1127	Partition into soil is unlikely.	Default 2

12.5 Results of PBT and vPvB assessment:

LISAM N°	Description	Applicability
EIGA0801	No data available	Default
EIGA0959	Not classified as PBT or vPvB.	New Default

12.6 Other adverse effects:

LISAM N°	Description	Applicability
EIGA0339	Can cause frost damage to vegetation.	Refr.Liq.Gas
EIGA0340	May cause pH changes in aqueous ecological systems	Skin Corr.1; Skin Irrit.2
EIGA0920	No known effects from this product.	Default

a) **Effects on the ozone layer** EIGA Data:Ozone Depletion Potential (ODP)

LISAM N°	Description	Applicability
R59	Hazardous to the ozone layer	Substances “Ozone”
EIGA0336	May have damaging effect on ozone layer.	Mixtures “Ozone”
EIGA0337	Not covered by the 'Montreal Protocol'.	Not used anymore
EIGA0338	Covered by the 'Montreal Protocol'.	Not used anymore
EIGA0758	None	Default

b) **Effects on global warming** EIGA Data: Global warming Potential (GWP)

LISAM N°	Description	Applicability
EIGA0335	When discharged in large quantities may contribute to the greenhouse effect.	All gases and gas mixtures with a GWP value
EIGA0784	Contains fluorinated greenhouse gases covered by the Kyoto protocol. GWP of mixture below 150 according to Regulation (EC) 842/2006	GWP of mixtures >150
EIGA0786	Contains greenhouse gas(es) not covered by Regulation (EC) 842/2006	(e.g.mixtures with NF3)
EIGA0787	Contains fluorinated greenhouse gases covered by the Kyoto protocol.	GWP of mixtures >150
EIGA0788	Calculated GWP of mixture : $$GWPF$$.	to be used in conjunction with EIGA 787
EIGA0789	For quantities refer to cylinder label	GWP of mixtures >150
~~EIGA0790~~	~~For GWP value of mixture and quantities, refer to cylinder label.~~	Not used anymore
EIGA0920	No known effects from this product.	Default
EIGA0758	None	Reach exempted gases

Section 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

LISAM N°	Description	Applicability
EIGA0253	May be vented to atmosphere in a well ventilated place.	Asphyxiants
EIGA0254	Gas may be scrubbed in alkaline solution under controlled conditions to avoid violent reaction.	Gas specific (Acid gases)
EIGA0256	Contact supplier if guidance is required.	All blocks except “similar to air” and “asphyxiants
EIGA0257	Avoid discharge to atmosphere.	All hazards except asphyxiants
EIGA0258	Discharge to atmosphere in large quantities should be avoided.	Gas specific (CO2)
EIGA0259	May be vented to atmosphere.	Similar to air
EIGA0267	Must not be discharged to atmosphere.	Gas specific (ODS)
EIGA0268	Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.	Flam.Gas Cat.1&2
EIGA0272	Gases formed by combustion should be washed with water to remove silica.	Gas specific (silanes)
EIGA0273	Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere.	Gas specific
EIGA0274	Gas may be scrubbed in sulphuric acid solution.	Gas specific (amines, ammonia)
EIGA0275	Refer to supplier's waste gas recovery programme.	Gas specifc (refrigerants)
EIGA0276	Do not discharge into any place where its accumulation could be dangerous.	All blocks except “similar to air”
EIGA0277	Gas may be scrubbed in water.	Gas specific (ammonia)
EIGA0758	None.	Not used
EIGA0769	Consult supplier for specific recommendations.	Not used. Use 256 instead.
EIGA0922	Refer to the EIGA code of practice Doc.30 “Disposal of Gases” (downloadable at http://www.eiga.org) for more guidance on suitable disposal methods	All blocks except “similar to air” and asphyxiants
EIGA0961	Ensure that the emission levels from local regulations or operating permits are not exceeded.	All blocks except “similar to air” and “asphyxiants

13.1.1 List of hazardous waste codes (from Commission Decision 2001/118/EC)

LISAM N°	Description	Applicability
EIGA0988	14 06 01:Chlorofluorocarbons, HCFC, HFC	Gas specific
EIGA0989	16 05 04: Gases in pressure containers (including halons) containing dangerous substances.	Gases other than asphyxiants
EIGA0990	16 05 05: Gases in pressure containers other than those mentioned in 16 05 04	Asphyxiant gases

13.2 Additional information:

LISAM N°	Description	Applicability
EIGA0758	None.	Default
EIGA0779	Dispose of cylinder via gas supplier only. Cylinder contains a porous material which in some cases contains asbestos fibres and is saturated with a solvent (acetone or dimethylformamide).	Acetylene

Section 14: TRANSPORT INFORMATION (revised structure)

14.1 UN No: EIGA Data

14.2 UN Proper Shipping Name (for N.O.S. positions, includes technical name for substances and hazard inducers for mixtures)
ADR/RID: EIGA Data
IMDG: EIGA Data
ICAO-TI/IATA-DGR:

14.3 Transport hazard class(es)
ADR/RID:

- Class: EIGA Data
- Classification Code: EIGA Data
- Tunnel restriction EIGA Data
IMDG: EIGA Data
Emergency Schedule-Fire: EIGA Data
Emergency Schedule-Spillage: EIGA Data
ICAO-TI/IATA-DGR: EIGA Data

Labelling ADR/RID, IMDG, ICAO/IATA: EIGA Data **(transport labels with their model numbers)**

14.4 Packing group EIGA Data
ADR/RID: EIGA Data or "Not applicable" for Class 2
IMDG: EIGA Data or "Not applicable" for Class 2
ICAO-TI/IATA-DGR: EIGA Data or "Not applicable" for Class 2

14.5 Environmental hazards
ADR/RID: "Environmentally hazardous" or "None"
IMDG: EIGA Data "Marine pollutant" or "None"
ICAO-TI/IATA-DGR: EIGA Data "Environmentally hazardous" or "None"

14.6 Special precautions for user
Packing instruction
- **ADR/RID:** EIGA Data
- **IMDG:** EIGA Data
- **ICAO-TI/IATA-DGR:**
  Passenger and Cargo Aircraft: EIGA Data or "Forbidden
  Cargo Aircraft**:** EIGA Data or "Forbidden

Special transport precautions

LISAM N°	Description	Applicability
EIGA0278	- Ensure there is adequate ventilation.	General
EIGA0279	Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.	General
EIGA0280	- Compliance with applicable regulations.	General
EIGA0281	Before transporting product containers:	General
EIGA0281-1	- Ensure that containers are firmly secured.	General
EIGA0282	- Ensure cylinder valve is closed and not leaking.	General
EIGA0283	- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.	General
EIGA0284	- Ensure valve protection device (where provided) is correctly fitted.	General
EIGA0285	Avoid transport on vehicles where the load space is not separated from the driver's compartment.	General
EIGA0349	Krypton gained from the air, although slightly radioactive, is exempted from the requirements of Class7 ADR/RID, because of the small quantities involved.	Krypton

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

LISAM N°	Description	Applicability
EIGA0759	Not applicable.	General

Section 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

a) EU legislation

1. Restrictions on use

LISAM N°	Description	Applicability
EIGA0758	None	Default
EIGA0803	Restricted to professional users (REACH Annex XVII)	CMR
EIGA0804	Shall not be used as an aerosol propellant (REACH Annex XVII)	Gas specific
EIGA0884	Use of the substance may be subject to registration and authorisation (Regulation 1005/2009)	EUH 059 Gases and mixtures

EIGA0885	Not allowed for magnesium die casting in uses above 850 kg/y. (Regulation 842/2006)	SF6
EIGA0886	Not allowed for inflating tyres (Regulation 842/2006)	SF6
EIGA0887	Extinguishing agent is only use permitted and to the extend limited in Regulation 744/2010	SDS008 (R12B1= halon 1211) and SDS011 (R13B1= halon 1301).
EIGA0888	Authorised only to satisfy essential laboratory and analytical uses as per Commission Decision 2010/375/EU of 18 June 2010	SDS008 (R12B1), SDS011 (R13B1), SDS034 (R13) Bromomethane

2. Seveso Directive 2012/18/EU (Seveso III)

LISAM N°	Description	Applicability
EIGA0832	Listed	Gas specific (for gases listed in Annex I-Part 2)
EIGA0833	Not covered	Default
EIGA0918	Covered	Flam.Gas Cat.1&2; Oxid.Gas 1; Acute.Tox.Cat.1, 2, 3; STOT SE1; Aquatic Acute 1; Aquatic Chronic 1, 2; EUH014 hazard categories listed in Annex I-Part 1 for gases not listed in Annex I-Part 2 and for mixtures)

b) National legislation Cy Data

LISAM N°	Description	Applicability
EIGA0344	Ensure all national/local regulations are observed	Default

15.2 Chemical Safety Assessment:

LISAM N°	Description	Applicability
EIGA0889	A CSA does not need to be carried out for this product	General (mixtures); for exempted substances and substances registered <10T/y (Cy Data)
EIGA0890	A CSA has been carried out.	Gas specific (Cy Data)
EIGA0891	This product is either exempt from REACH, does not meet the minimum volume threshold for a CSA or the CSA has not yet been carried out.	Default for the substances
EIGA0892	Refer to section 8.2	Substances where only qualitative CSA have been included in the registration dossier
EIGA1088	An exposure assessment does not need to be carried out for this product	Substances that are not hazardous to health and the environment

Section 16: OTHER INFORMATION

a) Indication of changes

LISAM N°	Description	Applicability
EIGA0893	Revised SDS according to Commission Regulation (EU) N°453/2010.	Default
MS-SL 4490	Revision: see *	Default for future releases

b) Relevant R-phrases and H Statements (Number and full text):

LISAM N°	Description	Applicability
MS--Rxxxx	Text of R-phrases in full	According DSD classification of ingredients in Section 3
MS- Hxxxx	Text of H-statements in full	According CLP classification of ingredients in Section 3

c) Training advices:

LISAM N°	Description	Applicability
EIGA0346	The hazard of asphyxiation is often overlooked and must be stressed during operator training.	Asphyxiant
EIGA0350	Ensure operators understand the flammability hazard.	Flam.Gas Cat.1&2
EIGA0352	Users of breathing apparatus must be trained.	Acute.Tox.Cat.1, 2, 3, 4 Skin Corr.1; Skin Irrit.2; Eye Dam.1
EIGA0353	Ensure operators understand the toxicity hazard.	Acute.Tox.Cat.1, 2, 3, 4
EIGA0354	Ensure operators understand the hazard of oxygen enrichment.	Oxygen
EIGA0758	None	Default

d) Further information:

LISAM N°	Description	Applicability
EIGA0917	Classification in accordance with calculation methods of Regulation (EU) 1272/2008 (CLP)/ Directive 1999/45/EC (DPD).	General
EIGA0364	This Safety Data Sheet has been established in accordance with the applicable European Union legislation.	General

e) Disclaimer

LISAM N°	Description	Applicability
EIGA0361	Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.	General
EIGA0362	Details given in this document are believed to be correct at the time of going to press.	General
EIGA0363	Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.	General

6.3 Annex 3: Example of a SDS generated with the LISAM tool

EIGA	SAFETY DATA SHEET	Page : 1 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

***** DRAFT *****

2.3 : Toxic gases

Danger

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : Mix 1900ppm Phosphine, 4.8% SiF4 in Helium

SDS no : SDS 9.3

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
Test gas/Calibration gas. Laboratory use. Contact supplier for more information on uses.

Uses advised against : Consumer use.

1.3. Details of the supplier of the safety data sheet

Company identification : EIGA
Adresse line 1
Adresse line 2
B-1234 Brussels BELGIUM
Tel. : +12 34 567 890

E-Mail address (competent person) : infosds@eiga.org

1.4. Emergency telephone number

Emergency telephone number : +12 112 112 112

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)

• Health hazards : Acute toxicity, Inhalation - Category 3 - Danger - (CLP : Acute Tox. 3) - H331
Skin irritation - Category 2 - Warning - (CLP : Skin Irrit. 2) - H315
Serious eye damage - Category 1 - Danger - (CLP : Eye Dam. 1) - H318
Specific Target Organ Toxicity - Single exposure - Respiratory tract irritation - Category 3 - Warning - (CLP : STOT SE 3) - H335

• Physical hazards : Gases under pressure - Compressed gas - Warning - (CLP : Press. Gas (Comp.)) - H280

EIGA	SAFETY DATA SHEET	Page : 2 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 2. Hazards identification (continued)

Classification EC 67/548 or EC 1999/45

: T; R23
C; R35

2.2. Label elements

Labelling Regulation EC 1272/2008 (CLP)

- **Hazard pictograms**

- **Hazard pictograms code** : GHS06 - GHS05 - GHS04
- **Signal word** : Danger
- **Hazard statements** : H280 - Contains gas under pressure; may explode if heated.
  H318 - Causes serious eye damage.
  H331 - Toxic if inhaled.
  H315 - Causes skin irritation.
  H335 - May cause respiratory irritation.
- **Precautionary statements**
  - **Prevention** : P260 - Do not breathe gas, vapours.
    P280 - Wear protective gloves/protective clothing/eye protection/face protection.
  - **Response** : P304+P340+P315 - IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice / attention.
    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 / attention.
    P302+P352 - IF ON SKIN : Wash with plenty of soap and water.
  - **Storage** : P403 - Store in a well-ventilated place.

2.3. Other hazards

: None.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

Mixture.

Substance name		Contents	CAS No EC No Index No Registration No	Classification(DSD)	Classification(CLP)
Phosphine	:	0.19 %	7803-51-2 232-260-8 015-181-00-1 * 2	F+; R12 R17 T+; R26 C; R34 N; R50	Acute Tox. 1 (H330) Flam. Gas 1 (H220) Skin Corr. 1B (H314) Press. Gas (Lic.) (H280) Aquatic Acute 1 (H400) Eye Dam 1 (H318)
Silicon tetrafluoride	:	4.8 %	7783-61-1 232-015-5 ----- * 2	T; R23 C; R35	Acute Tox. 2 (H330) Skin Corr. 1A (H314) Press. Gas (Lic.) (H280) Eye Dam 1 (H318)
Helium	:	95.01 %	7440-59-7 231-168-5 ----- * 1	Not classified (DSD)	Press. Gas (Comp.) (H280)

EIGA	SAFETY DATA SHEET	Page : 3 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 3. Composition/information on ingredients (continued)

Contains no other components or impurities which will influence the classification of the product.
* 1: Listed in Annex IV / V REACH, exempted from registration.
* 2: Registration deadline not expired.
* 3: Registration not required: Substance manufactured or imported < 1t/y.
Full text of R-phrases see section 16. Full text of H-statements see section 16.

SECTION 4. First aid measures

4.1. Description of first aid measures

- **Inhalation** : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- **Skin contact** : Remove contaminated clothing. Drench affected area with water for at least 15 minutes.
- **Eye contact** : Immediately flush eyes thoroughly with water for at least 15 minutes.
- **Ingestion** : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

: May cause cause severe chemical burns to cornea. Suitable first-aid treatment should be immediately available. Seek medical advice before using product.
May cause irritation to skin.
Irritation to the respiratory tract.
Refer to section 11.

4.3. Indication of any immediate medical attention and special treatment needed

: Obtain medical assistance.
Treat with corticosteroid spray as soon as possible after inhalation.

SECTION 5. Firefighting measures

5.1. Extinguishing media

- **Suitable extinguishing media** : Water spray or fog.
- **Unsuitable extinguishing media** : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- **Specific hazards** : Exposure to fire may cause containers to rupture/explode.
- **Hazardous combustion products** : -------- to complete or amend (MBF=Must be filled in) -------

5.3. Advice for fire-fighters

- **Specific methods** : Move containers away from the fire area if this can be done without risk.
If possible, stop flow of product.
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
Use water spray or fog to knock down fire fumes if possible.
- **Special protective equipment for fire fighters** : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

EIGA	SAFETY DATA SHEET	Page : 4 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 5. Firefighting measures (continued)

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

: Evacuate area.
Try to stop release.
Ensure adequate air ventilation.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Monitor concentration of released product.
Act in accordance with local emergency plan.
Stay upwind.
Use chemically protective clothing.

6.2. Environmental precautions

: Try to stop release.
Reduce vapour with fog or fine water spray.

6.3. Methods and material for containment and cleaning up

: Ventilate area.
Hose down area with water.
Wash contaminated equipment or sites of leaks with copious quantities of water.

6.4. Reference to other sections

: See also sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe use of the product : Avoid exposure, obtain special instructions before use.
Installation of a cross purge assembly between the cylinder and the regulator is recommended.
Do not smoke while handling product.
Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Avoid release of product into atmosphere.
Do not breathe gas.
Only experienced and properly instructed persons should handle gases under pressure.
The substance must be handled in accordance with good industrial hygiene and safety procedures.
Ensure the complete gas system was (or is regularily) checked for leaks before use.
Consider pressure relief device(s) in gas installations.

Safe handling of the gas receptacle : Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect cylinders from physical damage; do not drag, roll, slide or drop.
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.
Never attempt to repair or modify container valves or safety relief devices.

EIGA	SAFETY DATA SHEET	Page : 6 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 8. Exposure controls/personal protection (continued)

: No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls : Provide adequate general and local exhaust ventilation.
Systems under pressure should be regularly checked for leakages.
Product to be handled in a closed system and under strictly controlled conditions.
Preferably use only permanent leak-tight installations (e.g. welded pipes).
Alarm detectors should be used when toxic gases may be released.
Ensure exposure is below occupational exposure limits (where available).
Consider work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards should be selected.

• Eye/face protection : Wear safety glasses with side shields.
Standard EN 166 - Personal eye-protection.
Provide readily accessible eye wash stations and safety showers.

• Skin protection

- Hand protection : Standard EN 374 - Protective gloves against chemicals.
Consult glove manufacturer´s product information on material suitability and material thickness.
Wear chemically resistant protective gloves.
The breakthrough time of the selected gloves must be greater than the intended use period.
Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risk.

- Other : Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
Keep suitable chemically resistant protective clothing readily available for emergency use.
Standard EN943-1 - Full protective suits against liquid, solid and gaseous chemicals.

• Respiratory protection : Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.
Use gas filters and full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.
Consult respiratory device supplier´s product information for the selection of the appropriate device.
Gas filters do not protect against oxygen deficiency.
Standard EN 14387 - Gas filter(s), combined filter(s) and full face mask - EN 136.
Keep self contained breathing apparatus readily available for emergency use.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

• Thermal hazards : None necessary.

8.2.3. Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

EIGA	SAFETY DATA SHEET	Page : 7 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state at 20°C / 101.3kPa	: Gas.
Colour	: Mixture contains one or more component(s) which have the following colour(s): Colourless. Gives off white fumes in moist air.
Odour	: There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): Odourless. Pungent. Rotten fish. Garlic like.
Odour threshold	: Odour threshold is subjective and inadequate to warn for overexposure.
pH value	: Not applicable for gas-mixtures.
Molar mass [g/mol]	: Not applicable for gas-mixtures.
Melting point [°C]	: Not applicable for gas-mixtures.
Boiling point [°C]	: Not applicable for gas-mixtures.
Flash point [°C]	: Not applicable for gas-mixtures.
Evaporation rate (ether=1)	: Not applicable for gas-mixtures.
Flammability range [vol% in air]	: Not applicable for gas-mixtures.
Vapour pressure [20°C]	: Not applicable.
Relative density, gas (air=1)	: Lighter or similar to air.
Solubility in water [mg/l]	: Solubility in water of component(s) of the mixture : • Helium : 1.5 • Silicon tetrafluoride : Completely soluble. • Phosphine : 300
Partition coefficient n-octanol/water [log Kow]	: Not applicable for gas-mixtures.
Viscosity at 20°C [mPa.s]	: Not applicable.
Explosive Properties	: Not applicable.
Oxidising Properties	: None.

9.2. Other information

Other data	: None.

SECTION 10. Stability and reactivity

10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

: Stable under normal conditions.

10.3. Possibility of hazardous reactions

: -------- to complete or amend (MBF=Must be filled in) --------

10.4. Conditions to avoid

: -------- to complete or amend (MBF=Must be filled in) --------

10.5. Incompatible materials

: -------- to complete or amend (MBF=Must be filled in) --------

10.6. Hazardous decomposition products

EIGA	SAFETY DATA SHEET	Page : 8 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 10. Stability and reactivity (continued)

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Toxic if inhaled.
Rat inhalation LC50 [ppm/4h]	: • Silicon tetrafluoride : 225 • Phosphine : 10
Skin corrosion/irritation	: Irritation to skin.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: No known effects from this product.
STOT-single exposure	: Irritation to the respiratory tract.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

SECTION 12. Ecological information

12.1. Toxicity

Assessment:	: Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l]	: No data available.
EC50 72h - Algae [mg/l]	: No data available.
LC50 96 h - fish [mg/l]	: No data available.

12.2. Persistence and degradability

Assessment: : No data available.

12.3. Bioaccumulative potential

Assessment: : No data available.

12.4. Mobility in soil

Assessment: : No data available.

12.5. Results of PBT and vPvB assessment

Assessment: : Not classified as PBT or vPvB.

12.6. Other adverse effects

: May cause pH changes in aqueous ecological systems.

Effect on ozone layer	: None.
Effect on the global warming	: No known ecological damage caused by this product.

EIGA	SAFETY DATA SHEET	Page : 9 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 13. Disposal considerations

13.1. Waste treatment methods

: Must not be discharged to atmosphere.
Refer to the EIGA code of practice Doc.30 "Disposal of Gases"", downloadable at http://www.eiga.org for more guidance on suitable disposal methods.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
Contact supplier if guidance is required.

List of hazardous wastes (Commission decision 2001/11/18) : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

13.2. Additional information

: None.

SECTION 14. Transport information

14.1. UN number

UN number : 1955

Labelling ADR, IMDG, IATA

: 2.3 : Toxic gases

14.2. UN proper shipping name

- **Transport by road/rail (ADR/RID)** : COMPRESSED GAS, TOXIC, N.O.S. (Silicon tetrafluoride, Phosphine)
- **Transport by air (IATA)** : COMPRESSED GAS, TOXIC, N.O.S. (Silicon tetrafluoride, Phosphine)
- **Transport by sea (IMDG)** : COMPRESSED GAS, TOXIC, N.O.S. (Silicon tetrafluoride, Phosphine)

14.3. Transport hazard class(es)

- **Transport by road/rail (ADR/RID)**
  - **Class** : 2
  - **Classification code** : 1 T
  - **H.I. nr** : 26
  - **Tunnel Restriction** : C/D : Passage forbidden through tunnels of category C when carried in tanks. Passage forbidden through tunnels of category D and E.
- **Transport by air (IATA)**
  - **Class / Div. (Sub. risk(s))** : 2.3
- **Transport by sea (IMDG)**
  - **Class / Div. (Sub. risk(s))** : 2.3
  - **Emergency Schedule (EmS) - Fire** : F-C
  - **Emergency Schedule (EmS) - Spillage** : S-U

14.4. Packing group

- **Transport by road/rail (ADR/RID)** : Not applicable.
- **Transport by air (IATA)** : Not applicable.
- **Transport by sea (IMDG)** : Not applicable.

EIGA	SAFETY DATA SHEET	Page : 10 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 14. Transport information (continued)

14.5. Environmental hazards

- **Transport by road/rail (ADR/RID)** : None.
- **Transport by air (IATA)** : None.
- **Transport by sea (IMDG)** : None.

14.6 Special precautions for user

Packing Instruction(s)

- **Transport by road/rail (ADR/RID)** : P200
- **Transport by air (IATA)**
  - **Passenger and Cargo Aircraft** : FORBIDDEN.
  - **Cargo Aircraft only** : FORBIDDEN.
- **Transport by sea (IMDG)** : P200

Further information : Avoid transport on vehicles where the load space is not separated from the driver's compartment.
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
Before transporting product containers:
- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Seveso directive 96/82/EC : Covered.

National legislation

National legislation : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

: A CSA does not need to be carried out for this product.

SECTION 16. Other information

Indication of changes : Revised safety data sheet in accordance with commisssion regulation (EU) No 453/2010.

Training advice : Users of breathing apparatus must be trained.
Ensure operators understand the toxicity hazard.
Receptacle under pressure.

List of full text of R-phrases in section 3. : R12 : Extremely flammable.
R17 : Spontaneously flammable in air.
R23 : Toxic by inhalation.
R26 : Very toxic by inhalation.
R34 : Causes burns.
R35 : Causes severe burns.

EIGA
Adresse line 1 Adresse line 2 B-1234 Brussels BELGIUM
Tel. : +12 34 567 890

In case of emergency : +12 112 112 112

EIGA	SAFETY DATA SHEET	Page : 11 Revised edition no : 0 Date : 0 / 0 / 0 Supersedes : 0 / 0 / 0
Mix 1900ppm Phosphine, 4.8% SiF4 in Helium		SDS 9.3

SECTION 16. Other information (continued)

R50 : Very toxic to aquatic organisms.

List of full text of H-statements in section 3. : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
H314 - Causes severe skin burns and eye damage.
H318 - Causes serious eye damage.
H330 - Fatal if inhaled.
H400 - Very toxic to aquatic life.

DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

End of document