THE LINDE GROUP

# About Safety Data Sheets (SDS)



## Purpose

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This document describes how Safety Data Sheets are created, managed and controlled within The Linde Group.

## Scope

### Scope

This document applies globally to all Linde Gas business.

### Audience

This document applies to:

- Local General Managers and local Business Managers
- Customer Service Centre (CSC) personnel
- Marketing and Sales personnel
- Product Managers
- Technical personnel
- Corporate Communications and publicity functions
- SHEQ/HSE Managers

### Review period

The review period for this document is 3 years from the date of last issue.

## Implementation

### Implementation timeframe

The implementation timeframe for this standard is 1 year from the date of issue, unless local legal requirements determine a shorter deadline.

# Definitions and Abbreviations

| Term | Definition |
|---|---|
| GHS | Globally Harmonized System for classification and labelling of chemicals issued by the UN. |
| Safety Data Sheet (SDS) | The SDS provides comprehensive information about a substance or mixture for use in workplace chemical control regulatory frame. Both employers and workers use it as a source of information about hazards, including environmental hazards, and to obtain advice in safety precautions. In addition the SDS provides an important source of information for other target audiences such as personnel involved with the transport of dangerous goods, emergency responders.<br>General rules for SDS are described by the GHS and by specific local/regional requirements. |
| Group SDS | A group SDS is a SDS valid for a range of mixtures with similar composition that have exactly the same hazard classification. |
| Substance | Substance means a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition. |
| Mixture | Mixture means a mixture or a solution composed of two or more substances. |
| Hazardous substance or mixture | A substance or a mixture which meet the harmonised criteria for physical, health or environment hazards under the GHS. Details on the hazard classification criteria are provided by *IMS-34-20 : About Classification and Labelling of Chemicals*. |
| Competent person(s) | A person (or combination of persons) – or a coordinator of a group of people – who has or have, as a result of their training, experience and continued education, sufficient knowledge for the compilation of the respective sections of the SDS or of the entire SDS. |
| Initiator | Anyone within the organisation who identifies the need of a new SDS. |
| Professional user | Customers who use Linde products for professional purposes, i.e. other than consumers. |
| EH&S | Environment, Health & Safety SAP module to manage transport and product information in term of dangerous goods. This system includes the management of all the SDS related process. EH&S has been selected as harmonised solution within Linde Template R.2 – Leap project. |
| EH&S Core Team | Team of experts who centrally manage the EH&S system. |
| Chemical Safety Report (CSR) | The Chemical Safety Report assesses and documents how the risks arising from a substance are adequately controlled during manufacture and use(s) and how anyone further down the supply chain can adequately control the risks.<br>CSR is a local requirement only (e.g. in the EU) and it is a duty of the manufacturer or the importer. |
| Exposure scenario | The exposure scenario is the set of conditions, including operational conditions and risk management measures, that describe how the substance is manufactured or used during its life-cycle and how the manufacturer or importer controls, or recommends downstream users to control, exposures of humans and the environment. These exposure scenarios may cover one specific process or use or several processes or uses as appropriate.<br>Whenever a CSR is required the relevant exposure scenarios are attached as an annex to the SDS. |
| Extended SDS (eSDS) | SDS including the relevant exposure scenarios. |

# Roles and Responsibilities

## Local General Manager/Local Business Manager

Local general managers **must** ensure (in accordance with the requirements of this document) that:

- All substances and mixtures sold in their businesses have a SDS available
- Adequate resources are made available for the supply of SDS at the/before the first delivery of a new substance/mixture and whenever there is a major update
- Competent person(s) are nominated and trained to manage SDS

## Competent person(s)

Competent person(s) **must** ensure that:

- The content of a SDS is in compliance with the requirements of this document

## SHEQ/HSE

Local SHEQ/HSE **must** facilitate and support the business as required. This may include:

- Monitoring compliance
- Checking and tracking local legislative requirements

## Customer service

Customer service agents **must** supply customers with a SDS:

- At (or before) the first delivery of a new substance/mixture and whenever there is a major update
- On their request

## EH&S Core Team

With reference to the SAP EH&S module, the EH&S Core Team **must** ensure that nominated local competent person(s):

- Get access to the system
- Receive proper training on how to use the system

# Minimum Requirements

## Minimum requirements

- The SDS **must** be prepared, reviewed, approved, supplied and made available in accordance with any global, regional and local regulatory requirements
- The content and format of a SDS **must** be as described in this standard where no local regulatory requirement exists
- The SDS **must** follow a 16 sections format which is internationally agreed (see *Appendix 1 - Safety Data Sheet (SDS) Format (page 8)*)
- Consistency between SDS and the relevant label information **must** be ensured
- In case of traded products, consistency between Linde's SDS and supplier's SDS **must** be ensured
- Data and information used as sources to prepare a SDS **must** be validated, properly maintained and kept up to date
- A single SDS **must** be made available for each mixture reflecting the overall classification and properties of that mixture
- Group SDS is permitted provided that:
  - It is in compliance with the applicable legal requirements
  - The range of mixtures the SDS refers to have exactly the same hazard classification
- Where required by local regulations a SDS **must** include Exposure Scenarios (eSDS) as an outcome of the relevant Chemical Safety Report
- The SDS **must** be supplied in an official language of the country where the substance or mixture is placed on the market, unless the country concerned provides otherwise
- The SDS and any required updates to it **must** be provided free of charge to customers
- The information that is required to appear in a SDS **must not** be claimed as confidential
- The SDS **must** be supplied to customers who are professional users:
  - For any hazardous substance or mixture
  - On paper or electronically no later than the date on which the substance or mixture is first supplied
- The SDS **must** be supplied on request to any customer for any supplied substance or mixture
- A record of all customers who are professional users and have been supplied a specific version of a SDS **must** be retained for at least 12 months after the expiring of the contract
- The SDS **must** be updated without delay as soon as:
  - New information which may affect the risk management measures, or new information on hazards becomes available, or
  - New regulatory changes are in force (e.g. an authorisation has been granted or refused and a restriction has been imposed)
- The new SDS revision **must** be provided to all former recipients to whom they have supplied the substance or mixture within the preceding 12 months.

## Note

The Linde Group's product stewardship requirements for welding consumables, including the content and format of SDSs are described in *IMS-34-22 : About Welding Consumables*. Refer to this document for further details.

# Managing SDS

## Managing SDS related processes

The local organisation in each country can use one of the three following methods to manage the SDS related processes. In all cases the minimum requirements as previously described remain applicable.

### 1. SDS managed via the EH&S system

The EH&S module is centrally managed by the EH&S Core Team. Nevertheless the following activities remain under the responsibility of the local business:

- To create and maintain local relevant data, i.e. with reference to:
  - Sections 1, Identification of the substance/mixture and of the supplier
  - Section 15, Regulatory information
  - Section 16, Other information
- To ensure the consistency of a SDS, including the translation into local languages

*Note 1:* The EH&S Core Team provide the local competent person(s) with the necessary support in using the EH&S system, including the relevant training.

*Note 2:* EH&S does not manage group SDS.

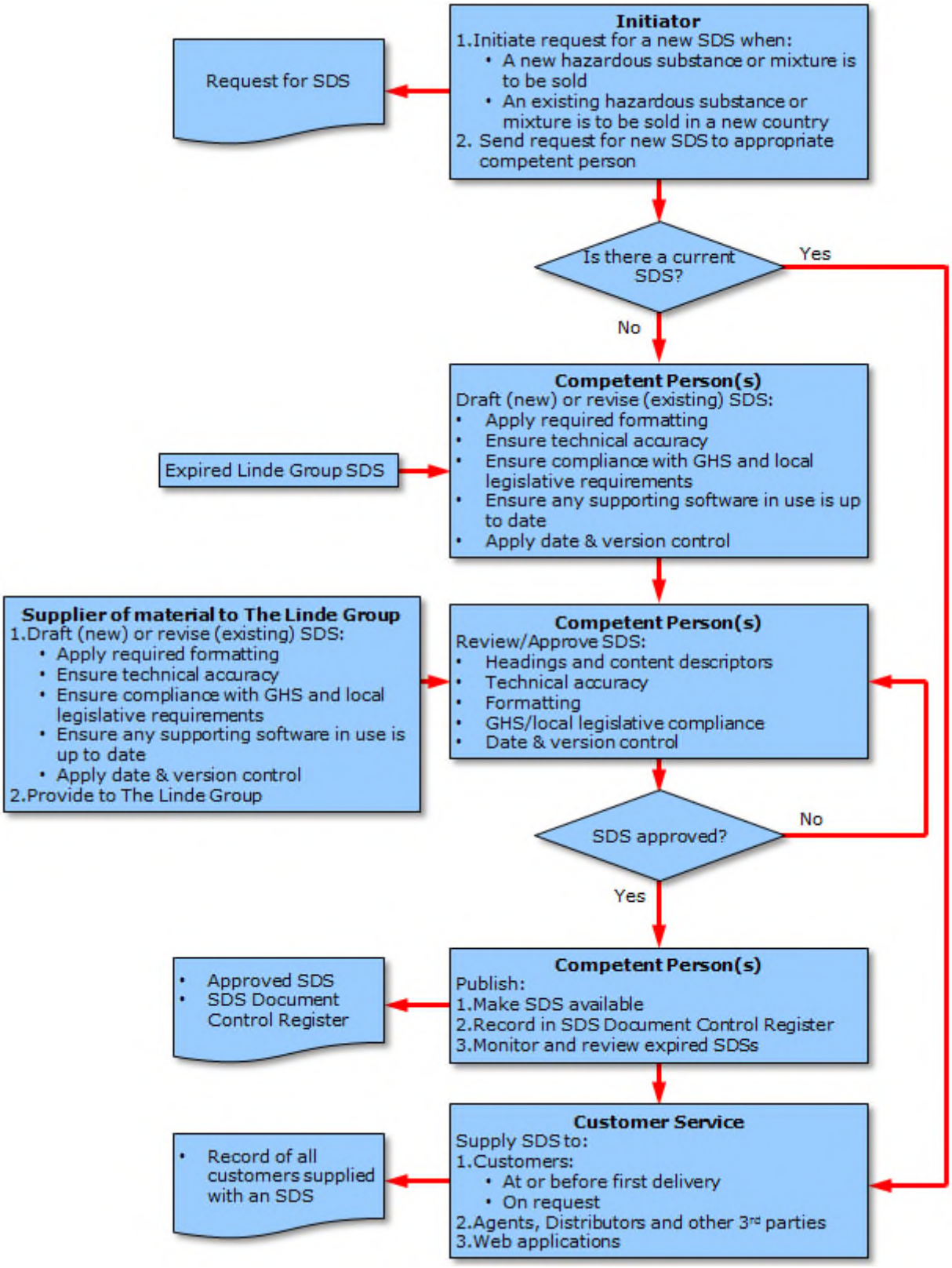
### 2. SDS managed by an external provider

In case the SDS generating service is outsourced to an external contractor, the following recommendations should be considered:

- The provider should be qualified considering its capability to comply with the applicable legal requirements and/or the minimum requirements as per this document
- Legal responsibilities should be clearly identified in a contract - advice from the legal department is strongly recommended
- The reaction time for the provider to supply a SDS for a new substance/mixture should be formally agreed, considering the delivery time of the product to the customer

### 3. SDS manually managed internally

In case the SDS processes are manually managed internally, the following process is recommended:



## Agents, distributors and other 3rd parties

Where SDS is provided to customers via 3rd parties (i.e. distributors, agents and other channel to market partners), the following provisions should be in place:

- An agreement to ensure that 3rd parties comply with the minimum requirements as per this document
- Appropriate legal/contract provisions with 3rd parties which indemnify The Linde Group when this does not happen

Advice from the legal department is strongly recommended.

## SDS available on web application

Released and up to date SDSs should be made available on company websites.

# Appendices

## Appendix 1 - Safety Data Sheet (SDS) Format

### SDS title page

The SDS heading/title page **must** include:

- The product name
- The SDS number
- The issue date
- The version number

| SDS Format<br>Minimum information for a SDS<br>Local regulations may require a more detailed structure of the SDS, including predefined sub-headings | |
|---|---|
| **Heading** | **Content descriptors to be considered** |
| Section 1 - Identification of the substance or mixture and of the supplier | • Product identifier<br>• Other means of identification<br>• Recommended use of the chemical and restrictions on use<br>• Supplier's details (including name, address, phone number, email etc.)<br>• Emergency phone number |
| Section 2 - Hazard identification | • Hazard classification of the substance/mixture and any national or regional information<br>• Label elements, including hazard and precautionary statements<br>• Other hazards which do not result in classification (e.g. asphyxiant in high concentrations) or are not covered by the GHS |
| Section 3 - Composition/data on ingredients | Substance:<br>• Chemical identity<br>• Common name, synonyms etc.<br>• CAS number and other unique identifiers (e.g. EC number)<br>• Impurities and stabilising additives which are themselves classified and which contribute to the classification of the substance<br>Mixture:<br>• The chemical identity and concentration or concentration ranges of all ingredients which are hazardous |
| Section 4 - First aid measures | • Description of necessary measures, subdivided according to the different routes of exposure, i.e. inhalation, skin and eye contact and ingestion<br>• Most important symptoms/effects, acute and delayed<br>• Indication of immediate medical attention and special treatment needed, if necessary |
| Section 5 - Fire fighting measures | • Suitable and unsuitable extinguishing media<br>• Specific hazards arising from the chemical (e.g. nature of any hazardous combustion products)<br>• Special protective equipment and precautions for fire-fighters |
| Section 6 - Accident release measures | • Personal precautions, protective equipment and emergency procedures<br>• Environmental precautions<br>• Methods and materials for containment and cleaning up |

| SDS Format<br>Minimum information for a SDS<br>Local regulations may require a more detailed structure of the SDS, including predefined sub-headings | |
|---|---|
| **Heading** | **Content descriptors to be considered** |
| Section 7 -<br>Handling and storage | • Precautions for safe handling<br>• Conditions for safe storage, including any incompatibility |
| Section 8 -<br>Exposure controls and personal protection | • Control parameters, e.g. occupational exposure limit values or biological limit values<br>• Appropriate engineering controls<br>• Individual protection measures, such as personal protective equipment |
| Section 9 -<br>Physical and chemical property | • Appearance (physical state, colour etc.)<br>• Odour<br>• Odour threshold<br>• pH<br>• Melting point/freezing point<br>• Initial boiling point and boiling range<br>• Flash point<br>• Evaporation rate<br>• Flammability<br>• Upper/lower flammability or explosive limits<br>• Vapour pressure<br>• Vapour density<br>• Relative density<br>• Solubility<br>• Partition coefficient: n-octanol/water<br>• Auto-ignition temperature<br>• Decomposition temperature<br>• Viscosity<br>*Note:* Appropriate units of measure and/or reference conditions **must** be specified where appropriate |
| Section 10 -<br>Stability and reactivity | • Reactivity<br>• Chemical solubility<br>• Possibility of hazardous reactions<br>• Conditions to avoid (e.g. static discharge, shock or vibration)<br>• Incompatible materials<br>• Hazardous decomposition products |
| Section 11 -<br>Toxicological information | Concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects, including:<br>• Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)<br>• Symptoms related to the physical, chemicals and toxicological characteristics<br>• Delayed and immediate effects and also chronic effects from short and long term exposure<br>• Numerical measures of toxicity (such as acute toxicity estimates) |

| SDS Format<br>Minimum information for a SDS<br>Local regulations may require a more detailed structure of the SDS, including predefined sub-headings | |
|---|---|
| **Heading** | **Content descriptors to be considered** |
| Section 12 -<br>Ecological information | • Ecotoxicity (aquatic and terrestrial, where available<br>• Persistance and degradability<br>• Bioaccumulative potential<br>• Mobility in soil<br>• Other adverse effects |
| Section 13 -<br>Disposal consideration | Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging |
| Section 14 -<br>Transportation information | • UN number<br>• UN proper shipping name<br>• Transport hazard classes<br>• Packing group, if applicable<br>• Environmental hazards (e.g. Marine pollutant Yes/No)<br>• Transport in bulk (according to Annex II of MARPOL 73/78 and IBC Code)<br>• Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises |
| Section 15 -<br>Regulatory information | • Safety, health and environmental regulations specific for the product in question |
| Section 16 -<br>Other Information | Other information such as:<br>• Reference to further industry guidance, e.g. company leaflets, trade association publications, national standards, other SDS or relevant technical documents<br>• Information on preparation and revision of the SDS<br>• Disclaimer (e.g. This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment) |

# Document Information

## About this Document

| Version | Date | Author | Quality Reviewer | Approver |
|---|---|---|---|---|
| 2.0 | March 2015 | Roberto Parola<br>Dean Bell<br>(Technical Writer) | Product Stewardship ToE | Stephen Harrison |
| 1.1 | April 2010 | Andrew Bridger | Andrew Bridger | Christoph Herrman |
| 1.0 | Feb 2008 | Joachim Richter | Joachim Richter | Christoph Herrmann |

## Change History

| Version | Description of Change |
|---|---|
| 2.0 | Complete review to align with current SDS requirements. |
| 1.1 | Standard amended to reflect release of new LiMSS Standard *IMS-34-22 : About Welding Consumables*:<br>• Definition of "Material" amended<br>• "Material Mixtures" amended<br>• References to attachments "Sample SDS – BOC Industrial Products (Carbon Steel Welding Electrodes)" and "Sample SDS – BOC Canada (Carbon Steel Gas Welding Rods) deleted |
| 1.0 | Initial release as Linde Group standard. Developed from legacy BOC standards:<br>• IMS-34-10-GROUP : About Material Safety Data Sheets (MSDSs) 1.1 Dec 2005; and<br>• IMS-34-11-GROUP : Generation and Supply of Material Safety Data Sheets (MSDSs) 1.1. Dec 2005 |

# Learning and Assessment Guide

## IMS-34-10-GROUP : About Safety Data Sheets (SDS)

### Prerequisites

Nil

| As a result of training in the content of this document you will be able to: | Learning method: | Assessment method: | Reference: |
|---|---|---|---|
| Understand what Safety Data Sheets are | Self study | Multi-choice test | This document |
| Roles and responsibilities relating to SDS | Self study | Multi-choice test | This document |
| Minimum requirements for the use of SDS | Self study | Multi-choice test | This document |
| Managing the use of SDS | Self study | Multi-choice test | This document |
| **Assessment Complete** | **Sign** | | **Date** |
| Learner: | | | |
| Assessor: | | | |