

The Safety Data Sheet (SDS)



When? How? For whom?

This booklet gives a short introduction to the basic principles of the Safety Data Sheet (SDS). It is a compliment to the web-course presented by The Swedish Plastics & Chemicals Federation and supplies an overview of the regulatory background and purpose of the SDS. It is also supposed to answer the most common questions regarding the SDS and give hints on where to find more detailed information.

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The purpose of the Safety Data Sheets (SDS)

According to Reach, Article 31, (for details see “Acronyms, abbreviations and concepts” at the end of the booklet) there is a requirement to communicate within the supply chain. The main instrument for communication down the supply chain is the SDS.

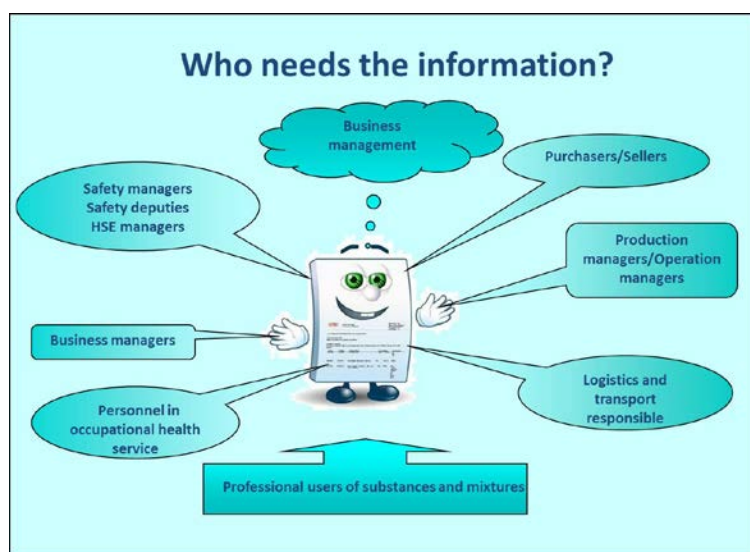
In the Reach regulation it is stated that “The safety data sheet shall enable users to take the necessary measures relating to protection of human health and safety at the workplace, and protection of the environment (Annex II)”. This means for example that a SDS shall:

- give information about health and environmental hazards
- give advice to reduce/minimize any risk of damage to health or environment
- contain information to enable users to assess any risk at the workplace and thereby to take necessary measures to make workplaces and working methods safe
- form the basis for the preparation of safety instructions at workplaces
- provide information on the safe storage, handling and disposal of the substance or the mixture
- form the basis for classification and labelling of own products (mixtures)

It is the supplier of a chemical substance or mixture who shall provide the recipient with an SDS.

Information carrier

There is a lot of information contained in the SDS and there is also a lot of different recipients that have interest in the information given in SDS. This is also why the SDS has to be produced by a competent person as stated in Reach regulation, Annex II “The safety data sheet shall be prepared by a competent person who shall take into account the specific needs and knowledge of the user audience, as far as they are known. Suppliers of substances and mixtures shall ensure that such competent persons have received appropriate training, including refresher training.”



The information found in the SDS

The information in the SDS covers the following topics:

- Who is responsible for the information
- Safe handling (transport, handling, spills, leaks, fire, disposal etc)
- Intrinsic properties
- First aid
- Regulatory information
- Conditions under which the information in a SDS is valid

When is it an obligation to provide a SDS?

The requirements for SDSs are given in Reach, Article 31. It is there stated that an SDS shall always be provided to a recipient if:

- a substance or preparation is classified as dangerous
- a substance is persistent, bioaccumulative and toxic or very persistent and very bioaccumulative in accordance with the criteria set out in Reach regulation Annex XIII
- a substance is included in the “Candidate list” (Article 59)

Classified as dangerous means that a substance or preparation/mixture meets the criteria for classification as dangerous in accordance with Directives 67/548/EEC, 1999/45/EC or REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (CLP)

A SDS shall be provided to a recipient at his request if a preparation does not meet the criteria for classification as such, but contains:

- in an individual concentration of $\geq 1\%$ by weight for nongaseous preparations and $\geq 0,2\%$ by volume for gaseous preparations at least one substance posing human health or environmental hazards
- in an individual concentration of $\geq 0,1\%$ by weight for non-gaseous preparations at least one substance that is persistent, bioaccumulative and toxic or very persistent and very bioaccumulative in accordance with the criteria set out in Annex XIII or has been included in the candidate list
- a substance for which there is a Community workplace exposure limits (OEL)

The main objective of the SDS is to give users all necessary information to ensure safe handling

How to compile a SDS

There are 16 mandatory headings and under each heading there are a number of mandatory subsections. None of the subsections is allowed to be left empty. In case the information under a certain subsection is not applicable or if there is a lack of data this must be explained. Apart from mandatory headings and subsections there are also some other general requirements for the SDS. It should:

- be written in a clear and concise manner
- be supplied in an official language of the Member State(s) where the substance or preparation is placed on the market
- contain the date of compilation on the first page
- on all pages, including any annexes, be numbered and bear either an indication of the length of the SDS (such as “page 1 of 3”) or an indication whether there is a page following (such as “Continued on next page” or “End of safety data sheet)
- be provided free of charge on paper or electronically





The information in the SDS shall be consistent with the classification of the substance or mixture.

The SDS will be a document of several pages and, as a recommendation, it can be a good idea to include the product name on every page. On the other hand it is also important not to include unnecessary information. Therefore an SDS should **not** include:

- information on chemicals or hazards not present like "does not contain xx")
- sales arguments such as "environmentally friendly"
- disclaimers that are unnecessary

Which headings are the most important?

All are important.....but it also depends on recipient and situation

	• Workers ..2, 4, 7, 8.....
	• SHE-department ..3, 11, 12, 15.....
	• R&D ..9, 10, 11, 12.....
	• Emergency situations ..5, 6.....

(Note: The slide also contains illustrations of a meeting and a person cleaning a spill.)

It is clearly stated in the regulation that information under certain headings are addressed to special recipients, e.g.:

- First aid measures (Section 4) "... shall describe the initial care in such a way that it can be understood and given by an untrained responder ..."
- Firefighting measures (Section 5.3.) "Advice for firefighters "
- Accidental release measures (Section 6.1.2.) "For emergency responders "
- Toxicological information (Section 11) "This section of the safety data sheet is meant for use primarily by medical professionals, occupational health and safety professionals and toxicologists."

SDS Headings and subsections

The SDS shall include the following 16 headings in accordance with Article 31(6) and in addition the subheadings listed in Annex II except for Section 3, where only subsection 3.1 or 3.2 need to be included as appropriate.

SECTION 1:

Identification of the substance/ mixture and of the company/ undertaking

- 1.1. Product identifier
- 1.2. Relevant identified uses of the substance or mixture and uses advised against
- 1.3. Details of the supplier of the safety data sheet
- 1.4. Emergency telephone number

SECTION 2:

Hazards identification

- 2.1. Classification of the substance or mixture
- 2.2. Label elements
- 2.3. Other hazards

SECTION 3:

Composition/information on ingredients

- 3.1. Substances
- 3.2. Mixtures

SECTION 4:

First aid measures

- 4.1. Description of first aid measures
- 4.2. Most important symptoms and effects, both acute and delayed
- 4.3. Indication of any immediate medical attention and special treatment needed

SECTION 5:

Firefighting measures

- 5.1. Extinguishing media
- 5.2. Special hazards arising from the substance or mixture
- 5.3. Advice for firefighters

SECTION 6:

Accidental release measures

- 6.1. Personal precautions, protective equipment and emergency procedures
- 6.2. Environmental precautions
- 6.3. Methods and material for containment and cleaning up
- 6.4. Reference to other sections

SECTION 7:

Handling and storage

- 7.1. Precautions for safe handling
- 7.2. Conditions for safe storage, including any incompatibilities
- 7.3. Specific end use(s)

SECTION 8:

Exposure controls/personal protection

- 8.1. Control parameters
- 8.2. Exposure controls

SECTION 9:

Physical and chemical properties

- 9.1. Information on basic physical and chemical properties
- 9.2. Other information

SECTION 10:

Stability and reactivity

- 10.1. Reactivity
- 10.2. Chemical stability
- 10.3. Possibility of hazardous reactions
- 10.4. Conditions to avoid
- 10.5. Incompatible materials
- 10.6. Hazardous decomposition products

SECTION 11:

Toxicological information

- 11.1. Information on toxicological effects

SECTION 12:

Ecological information

- 12.1. Toxicity
- 12.2. Persistence and degradability
- 12.3. Bioaccumulative potential
- 12.4. Mobility in soil
- 12.5. Results of PBT and vPvB assessment
- 12.6. Other adverse effects

SECTION 13:

Disposal considerations

- 13.1. Waste treatment methods

SECTION 14:

Transport information

- 14.1. UN number
- 14.2. UN proper shipping name
- 14.3. Transport hazard class(es)
- 14.4. Packing group
- 14.5. Environmental hazards
- 14.6. Special precautions for user
- 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

SECTION 15:

Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
- 15.2. Chemical safety assessment

SECTION 16:

Other information

The text below gives a general description, and in some cases recommendations, regarding which information should be given under each section, including the first level of subsections. In some sections the regulation states even more detailed levels of subsections. These “sub-subsections” are not covered in this booklet. (For details on this level see the regulation and the ECHA guidance documents.)

Section 1

Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

- ✓ Name of the product as provided on the label
- ✓ Chemical name (for substances)
- ✓ Registration number (for registered substances)

Hint: The last four digits of the original full registration number can be omitted by a supplier who is a distributor or a downstream user. If this is the case the supplier must however on request make the full registration number available to an enforcement authority, either directly or by forwarding the request to his supplier.

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

- ✓ At least the identified uses relevant for the recipient(s) of the substance or mixture shall be indicated by a brief description of what the substance or mixture is intended to do, such as “flame retardant” or “antioxidant”. The uses which the supplier advises against and if so why shall, where applicable, be stated.

1.3 Details of the supplier of the safety data sheet

- ✓ The full address and telephone number of the supplier shall be given as well as an e-mail address for a competent person responsible for the SDS.
Hint: For the email address of the competent person responsible for the SDS, it is advisable to use a dedicated generic (non-personal) email address that can be checked by various persons - e.g. SDS@companyX.com
- ✓ Name, address and telephone number to the responsible company in the Member State where the product is placed on the market (if possible).

1.4 Emergency telephone number

- ✓ References to emergency information services shall be provided. It can be either to an official advisory body or to the suppliers own service.
Hint: If neither of the above is referred to, it is strongly recommended that at least the telephone number of the supplier is provided. Also the opening hours and types of information that may be provided) should be indicated.

Section 2

Hazard identification

This section of the SDS shall describe the hazards of the substance or mixture and the appropriate warning information associated with those hazards.

2.1 Classification of the substance or mixture

- ✓ Substances – classification according to Regulation (EC) No 1272/2008 (CLP) and according to Directive 67/548/EEC (The obligation to give classification both according CLP and Directive 67/548/EEC apply until 1 June 2015)
- ✓ Mixtures - classification according to Directive 1999/45/EC . Classification according to Regulation (EC) No 1272/2008 (CLP) may also be given. (Mandatory after 1 June 2015)
- ✓ If the classification, including the hazard statements and R phrases, is not written out in full, reference shall be made to Section 16 where the full text of each classification, including each hazard statement and R phrase, shall be given.
- ✓ The most important adverse physicochemical, human health and environmental effects shall be listed in consistency with Sections 9 to 12 of the SDS, in a way allowing non-experts to identify the hazards of the substance or mixture.

2.2 Label elements

- ✓ Substances - hazard pictogram(s), signal word(s), hazard statement(s) and precautionary statement(s) (hazard pictogram in black and white or a graphical reproduction of the symbol may also be used)
- ✓ Mixtures - symbol(s), indication(s) of danger, risk phrase(s) and safety advice (the symbols may be in black and white). (Label elements according to CLP mandatory after 1 June 2015.)

2.3 Other hazards

- ✓ Information on whether the substance or mixture meets the criteria for PBT or vPvB (in accordance with Annex XIII)
- ✓ Information on other hazards which do not result in classification but nevertheless may contribute to the overall hazard of the substance or mixture, such as formation of air contaminants during hardening or processing, dustiness, dust explosion hazards, cross-sensitisation, suffocation, freezing, high potency for odour or taste, or environmental effects in soil-dwelling organisms, or photochemical ozone creation potential.

The transitional periods for CLP will affect the information in Section 2. For details about the transitional periods see Fact box, page 20.

Section 3

Composition/information on ingredients

3.1 Substances

- ✓ The chemical identity of the main constituent of the substance
- ✓ The chemical identity of any impurity, stabilising additive, or individual constituent other than the main constituent, which is itself classified and which contributes to the classification of the substance

3.2 Mixtures

Substances presenting a health or environmental hazard (specific "Cut-off" values, see below), substances for which an M-factor has been given, substances for which there are Community workplace exposure limits, substances that are PBT or vPvB or substances included in the "Candidate list" (>0,1%), shall be indicated with:

- ✓ Name of substance
- ✓ EC number (if known, CAS number and IUPAC name can also be given)
- ✓ Registration number (if available) – last 4 digits can be omitted (obligation to report to authority if asked for)
- ✓ Concentration or concentration ranges
Hint: If concentration ranges are used they should be chosen in such a way that there is no doubt about the classification of the mixture even if a "worst case" calculation is performed. Also the sum of all ranges should not exceed 100 % in an extreme way.
- ✓ Classification of the substance according to Directive 67/548/EEC, including indication of danger, symbol letter(s) and R phrases.
- ✓ Classification according to CLP if made known by the supplier of the substance (including the hazard class, category code and hazard statements)

Generic "Cut-off" values from Regulation (EC) No 1272/2008, Table 1.1 in Annex I	
Hazard class	Generic cut-off values to be taken into account
Acute Toxicity: Category 1-3	0,1 %
Category 4	1 %
Skin corrosion/ Irritation ¹	1 %
Serious damage to eyes/eye irritation ¹	1 %
Hazardous to Aquatic Environment	
Acute Category 1 ¹	0,1 %
Chronic Category 1 ¹	0,1 %
Chronic Category 2-4	1 %

¹ Might be necessary to list substances with lower concentration, for details see Regulation (EC) No 1272/2008, part 3 to 4, Annex I or ECHA Guidance Document.

Section 4

First aid measures

The information shall describe the initial care in such a way that it can be understood and given by an untrained responder without the use of sophisticated equipment and without the availability of a wide selection of medications. If medical attention is required, the instructions shall state this, including its urgency.

4.1 Description of first aid measures

- ✓ First aid instructions shall be provided by relevant routes of exposure
- ✓ Advice shall be provided as to whether:

- a. immediate medical attention is required and if delayed effects can be expected
- b. movement of the exposed individual from the area to fresh air is recommended
- c. removal and handling of clothing and shoes from the individual is recommended
- d. personal protective equipment for first aid responders is recommended

4.2 Most important symptoms and effects, both acute and delayed

- ✓ Briefly summarized information shall be provided on the most important symptoms and effects, both acute and delayed.

4.3 Indication if any immediate medical attention and special treatment is needed

- ✓ Where appropriate, information shall be provided on clinical testing and medical monitoring for delayed effects, specific details on antidotes (if known) and contraindications.
- ✓ For some substances or mixtures, it may be important to emphasise that special means to provide specific and immediate treatment shall be available at the workplace.

Section 5

Firefighting measures

5.1 Extinguishing media

- ✓ Information shall be provided on the appropriate extinguishing media.
- ✓ Indications shall also be given whether any extinguishing media are inappropriate for a particular situation involving the substance or mixture.

5.2 Special hazards arising from the substance or mixture

- ✓ Information shall be provided on hazardous combustion products that form when the substance or mixture burns, such as “may produce toxic fumes of carbon monoxide if burning” or “produces oxides of sulphur and nitrogen on combustion”.

5.3 Advice for firefighters

- ✓ Advice shall be provided on protective actions during firefighting, such as “keep containers cool with water spray”, and on special protective equipment for firefighters, such as boots, overalls, gloves, eye and face protection and breathing apparatus.

Section 6

Accidental release measures

Recommendations on the appropriate response to spills, leaks, or releases and on how to prevent or minimise the adverse effects on persons, property and the environment.

6.1 Personal precaution, protective equipment and emergency procedures

- ✓ Advice shall be provided both for non-emergency personnel and for emergency responders. Some examples:
 - the wearing of suitable protective equipment (for emergency responders including suitable fabric for personal protective clothing)
 - removal of ignition sources, provision of sufficient ventilation, control of dust; and

- emergency procedures such as the need to evacuate the danger area or to consult an expert.

6.2 Environmental precautions

- ✓ Advice shall be provided on environmental precautions to be taken related to accidental spills and release of the substance or mixture, such as keeping away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

- ✓ Advice shall be provided on how to contain a spill, e.g. by bunding, covering of drains, capping procedures.
- ✓ Advice shall also be provided on how to clean-up a spill. This may include:
 - neutralisation;
 - decontamination;
 - adsorbent materials etc.
- ✓ Information shall also be provided on inappropriate containment or clean-up techniques.

6.4 Reference to other sections

- ✓ If appropriate Sections 8 and 13 shall be referred to.

Section 7

Handling and storage

This section shall provide advice on safe handling practices. It shall emphasise appropriate precautionary actions referred to under subsection 1.2 and to the unique properties of the substance or mixture. The information shall assist the employer in devising suitable working procedures and organisational measures.

7.1. Precautions for safe handling

- ✓ Recommendations shall:
 - allow safe handling of the substance or mixture, e.g. containment and measures to prevent fire as well as aerosol and dust generation;
 - prevent simultaneous handling of incompatible substances or mixtures;
 - reduce release of the substance or mixture to the environment.
- ✓ Advice on general occupational hygiene measures shall be provided

7.2. Conditions for safe storage, including any incompatibilities

- ✓ If relevant, advice shall be provided on specific storage requirements, for instance:
 - how to manage risks associated with explosive atmospheres or flammability hazards;
 - incompatible substances or mixtures;
 - potential ignition sources;
 - how to control the effects of temperature, sunlight, humidity and vibration;
 - how to maintain the integrity of the substance or mixture by the use of stabilisers and antioxidants;
 - ventilation requirements;
 - quantity limits.

7.3. Specific end use(s)

For substances and mixtures designed for specific end use(s), recommendations shall relate to the identified use(s) referred to in subsection 1.2 and be detailed and operational.

Example: For substances for which exposure scenarios are not required (e.g. substances not subject to registration at ≥ 10 t/year), this section may be used to give information which would otherwise be given in an Exposure Scenario. This section can also be of potential use in the case of SDSs for mixtures for which no consolidated document equivalent to an “exposure scenario for the mixture” is attached.

Section 8

Exposure controls/personal protection

The applicable occupational exposure limits and necessary risk management measures shall be described.

8.1. Control parameters

- ✓ National occupational exposure limit values and national biological limit values, including the legal basis of each of them.
- ✓ Information on recommended monitoring procedures shall be provided at least for the most relevant substances.
- ✓ If air contaminants are formed when using the substance or mixture as intended, applicable occupational exposure limit values and/or biological limit values for these shall also be listed.
- ✓ Relevant DNELs and PNECs.

8.2 Exposure controls

The information in this subsection might be omitted if an exposure scenario containing that information is attached to the SDS. The information shall cover appropriate engineering controls (shall complement information already given under Section 7) and individual protection measures. Detailed specifications shall be given on equipment that will provide adequate and suitable protection, e.g.:

- ✓ Eye/face protection
- ✓ Skin protection
- ✓ Hand protection (the type of gloves to be worn when handling the substance or mixture shall be clearly specified)
- ✓ Respiratory protection
- ✓ For gases, vapors, mist or dust, the type of protective equipment to be used shall be specified
- ✓ Thermal hazards

Also environmental exposure controls shall be specified, e.g. the information required by the employer to fulfill his commitments under Community environmental protection legislation.

Section 9

Physical and chemical properties

This section of the SDS shall describe the empirical data relating to the substance or mixture, if relevant.

9.1. Information on basic physical and chemical properties

The following properties shall be clearly identified:

a) Appearance (solid , liquid, gas and the colour)	j) Upper/lower flammability or explosive limits;	p) Auto-ignition temperature;
b) Odour	k) Vapour pressure;	q) Decomposition temperature;
c) Odour threshold	l) Vapour density;	r) Viscosity;
d) pH	m) Relative density;	s) Explosive properties;
e) Melting point/freezing point;	n) Solubility;	t) Oxidising properties
f) Initial boiling point and boiling range;	o) Partition coefficient: n-octanol/water;	
g) Flash point;		
h) Evaporation rate;		
i) Flammability (solid, gas);		

If it is stated that a particular property does not apply or if information on a particular property is not available, the reasons shall be given.

9.2. Other information

- ✓ Other physical and chemical parameters shall be indicated as necessary, e.g.:
 - miscibility,
 - conductivity,
 - redox potential,
 - radical formation potential and
 - photocatalytic properties

Section 10

Stability and reactivity

This section of the SDS shall describe the stability of the substance or mixture and the possibility of hazardous reactions occurring under certain conditions of use and also if released into the environment.

10.1. Reactivity

- ✓ The reactivity hazards of the substance or mixture shall be described. Specific test data shall be provided (may also be based on general data for the class or family of substance or mixture if such data adequately represent the anticipated hazard).

10.2. Chemical stability

- ✓ Indication if the substance or mixture is stable or unstable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Any stabilisers which are, or may need to be, used to maintain the chemical stability shall be described.

10.3. Possibility of hazardous reactions

- ✓ If relevant, it shall be stated if the substance or mixture will react or polymerise, releasing excess pressure or heat, or creating other hazardous conditions.

10.4. Conditions to avoid

- ✓ Conditions such as temperature, pressure, light, shock, static discharge, vibrations or other physical stresses that might result in a hazardous situation shall be listed.

10.5. Incompatible materials

- ✓ Families of substances or mixtures or specific substances, such as water, air, acids, bases, oxidising agents, with which a reaction producing a hazardous situation (like an explosion, a release of toxic or flammable materials, or a liberation of excessive heat) shall be listed.

10.6. Hazardous decomposition products

- ✓ Known and reasonably anticipated hazardous decomposition products shall be listed.

Section 11

Toxicological information

This section of the SDS is meant for use primarily by medical professionals, occupational health and safety professionals and toxicologists. A concise but complete and comprehensible description of the various toxicological (health) effects and the available data used to identify those effects shall be provided, including, where appropriate, information on toxicokinetics, metabolism and distribution.

11.1. Information on toxicological effects

- ✓ Information shall be provided for the following hazard classes:
 - a) acute toxicity;
 - b) skin corrosion/irritation;
 - c) serious eye damage/irritation;
 - d) respiratory or skin sensitisation;
 - e) germ cell mutagenicity;
 - f) carcinogenicity;
 - g) reproductive toxicity;
 - h) STOT-single exposure;
(not needed for mixtures)
 - i) STOT-repeated exposure;
(not needed for mixtures)
 - j) aspiration hazard.
- ✓ If available, the relevant toxicological properties of the hazardous substances in a mixture shall also be provided (LD_{50} , acute toxicity estimates or LC_{50}).
- ✓ Where the classification criteria for a particular hazard class are not met, information supporting this conclusion shall be provided.
- ✓ Information shall be provided on likely routes of exposure and the effects of the substance or mixture via each possible route (ingestion, inhalation or skin/eye exposure).
- ✓ The first symptoms at low exposures through to the consequences of severe exposure shall be described.
- ✓ Information shall be provided on whether delayed or immediate effects can be expected after short or long- term exposure.
- ✓ Information on interactions shall be included if relevant and available.
- ✓ Where specific data are not used, or where data are not available, this shall be clearly stated.
- ✓ Other relevant information on adverse health effects shall be included even when not required by the classification criteria.

Section 12

Ecological information

This section of the SDS shall describe the information provided to evaluate the environmental impact of the substance or mixture when released to the environment. Under subsections 12.1 to 12.6 of the SDS a short summary of the data shall be provided including, where available, relevant test data and clearly indicating species, media, units, test duration and test conditions. Information on bioaccumulation, persistence and degradability shall be given, where available and appropriate, for each relevant substance in the mixture. Information shall also be provided for hazardous transformation products arising from the degradation of substances and mixtures.

12.1. Toxicity

- ✓ Information on toxicity shall include relevant available data on aquatic toxicity, both acute and chronic.

12.2. Persistence and degradability

- ✓ Test results relevant to assess persistence and degradability shall be given where available.
- ✓ If degradation half lives are quoted it must be indicated whether these half lives refer to mineralisation or to primary degradation.
- ✓ The potential of the substance or certain substances in a mixture to degrade in sewage treatment plants shall also be mentioned.

12.3. Bioaccumulative potential

- ✓ Test results relevant to assess the bioaccumulative potential shall be given.
- ✓ This shall include reference to the octanol-water partition coefficient (K_{ow}) and
- ✓ Bioconcentration factor (BCF), if available.

12.4. Mobility in soil

- ✓ The potential for mobility in soil shall be given where available.

12.5. Results of PBT and vPvB assessment

- ✓ Where a chemical safety report is required, the results of the PBT and vPvB assessment as set out in the chemical safety report shall be given.

12.6. Other adverse effects

- ✓ Information on any other adverse effects in the environment shall be included where available, such as
 - environmental fate (exposure)
 - photochemical ozone creation potential
 - ozone depletion potential
 - endocrine disrupting potential
 - global warming potential

Section 13

Disposal considerations

This section of the SDS shall describe proper waste management of the substance or mixture and/or its container to assist in the determination of safe and environmentally preferred waste management options.

13.1. Waste treatment methods

- ✓ Waste treatment containers and methods shall be specified including the appropriate methods of waste treatment of both the substance or mixture and any contaminated packaging (for example, incineration, recycling, landfilling);

- ✓ Physical/chemical properties that may affect waste treatment options shall be specified;
- ✓ Sewage disposal shall be discouraged;
- ✓ Where appropriate, any special precautions for any recommended waste treatment option shall be identified.

Any relevant Community provisions relating to waste shall be referred to. In their absence any relevant national or regional provisions in force shall be referred to.

Section 14

Transport information

This section of the SDS shall provide basic information on classification for transporting/shipment of substances or mixtures mentioned under Section 1 by road, rail, sea, inland waterways or air. Where relevant, it shall provide information on the transport classification for each of the UN Model Regulations. (ADR, RID, ADN, IMDG Code (sea) and ICAO (air), for details see “Acronyms, abbreviations and concepts” at the end of the booklet).

Information (if applicable) to be provided:

14.1. UN number

14.2. UN proper shipping name

14.3. Transport hazard class(es)

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

- ✓ Information shall be provided on special precautions a user should or must comply with or be aware of in connection with transport or conveyance either within or outside his premises.

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

Section 15

Regulatory information

This section of the SDS shall describe the other regulatory information on the substance or mixture that is not already provided in the SDS (such as whether the substance or mixture is subject to Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer, Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC or Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals).

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

- ✓ Information regarding relevant Community safety, health and environmental provisions, for example:
- ✓ Seveso category/named substances in Annex I of Council Directive 96/82/EC
- ✓ National information on the regulatory status of the substance or mixture.

15.2. Chemical safety assessment

- ✓ It shall be indicated if a chemical safety assessment has been carried out for the substance or the mixture by the supplier.

Section 16

Other information

This section of the SDS shall describe the information relevant to the compilation of the SDS. It shall incorporate other information that is not included in Sections 1 to 15, including information on revision of the SDS such as:

- (a) in case of a revised SDS, a clear indication of where changes have been made to the previous version, unless such indication is given elsewhere in the SDS, with an explanation of the changes, if appropriate. A supplier of a substance or mixture shall maintain an explanation of the changes and provide it upon request;
- (b) a key or legend to abbreviations and acronyms used in the SDS;
- (c) key literature references and sources for data;
- (d) in the case of mixtures, an indication of which of the methods of evaluating information referred to in Article 9 of Regulation (EC) No 1272/2008 was used for the purpose of classification;
- (e) list of relevant R phrases, hazard statements, safety phrases and/or precautionary statements. Write out the full text of any statements which are not written out in full under Sections 2 to 15;
- (f) advice on any training appropriate for workers to ensure protection of human health and the environment.




If in accordance with Article 31(10) a supplier of a mixture chooses to identify and inform about the classification necessary from 1 June 2015 in advance of using it for classification and labelling on the package, he may include this classification in this section.

Exposure scenarios attached to the SDS (Extended SDS, eSDS)

When a substance is registered according to Reach, and a chemical safety report is required (>10 tons/year and manufacturer/importer), the relevant exposure scenarios (ES) shall be annexed to the SDS, which is then called an extended SDS, or eSDS. This also applies to mixtures that contain such substances. The ES shall be in the same language as the SDS.

An ES is a set of conditions that describes how a substance or mixture can be safely used during its entire life-cycle and how the risks to humans and the environment are controlled for identified uses.

As an annex to a SDS the ES shall give the downstream user:

	➤ practical advice on how to control the risk	
	➤ means to check if the risk associated with the identified use or uses of the substance or mixture are adequately controlled	

The identified use of the substance shall be indicated Section 1 of the SDS and, if required, in the attached ES. In order to have a standardized way of describing the use a system, utilizing standard phrases, has been developed.

The system of standard phrases

- Sectors of Use (SU), "Agriculture"... to "Scientific R&D"
- Product Category (PC), "Adhesives"...to "Extraction agents"
- PROcess Category (PROC), "Use in closed process" ... to "Production of metal powders"
- Article Category (AC), "Vehicles"... to "Packaging material for metal parts"

An Exposure Scenario (ES) consists of:

Use description such as:

- Use in industrial manufacturing (SU)
- As an adhesive (PC)
- In closed process by spraying (PROC)

Detailed description of exposure (where, how, when) such as:

- Duration
- Temperature
- Volume etc

Detailed description of Risk Management Measures (RMM) such as:

- Local Exhaust Ventilation (LEV)
- Gloves
- Eye protection etc

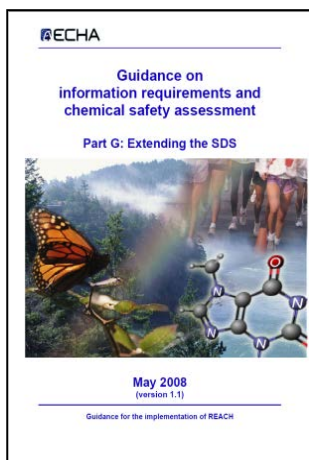
If several uses, with different risk management measures, are known, several ES will be annexed to the SDS. On the other hand the same ES can apply to several uses or even several substances if the uses and other conditions are similar.

For mixtures several types of ESs might be found:

- ✓ the inclusion of individual ESs for each and every substance present in the mixture
- ✓ a new single consolidated ES for the actual mixture
- ✓ an ES integrated in the SDS (if the product is intended for the final use only)

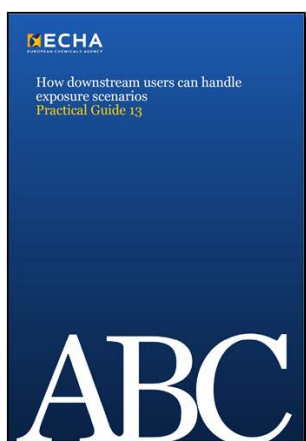
Guidance documents

There are some guidance documents available for SDS at ECHA's homepage (see Links, page 23).



One is “Guidance on Information Requirements and Chemical Safety Assessment - Part G: Extending the SDS, May 2008” available under “Guidance on the different methods under REACH”.

Another is “Guidance on the compilation of safety data sheets December 2011”.




ES involves several downstream user obligations. Some tools have therefore been developed to help downstream users to assess whether the conditions specified for safe use are fulfilled or not. One such method is “scaling” which involves a comparison between the operational conditions and risk management measures at hand and those specified in the SDS. More information can be found in the document “How downstream users can handle exposure scenarios, Practical Guide 13. June 2012”.

These documents give a lot more details than the regulation and also a number of examples.

Note! Not juridically binding/mandatory, only

Transitional periods

<p>1st of December 2010</p> 	<p>SDS for substances shall be made according to Annex II, COMMISSION REGULATION (EU) No 453/2010.</p> <p>For substances already placed on the market before the 1st of December 2010 SDS in accordance with Directive 67/548/EEC may be used.</p> <p><i>(This applies to substances that have left the primary supplier and at the moment are somewhere in the distribution chain.)</i></p> <p>SDS for mixtures that have been provided to any recipient at least once before 1 December 2010 may continue to be used and need not comply with Annex II to 30 November 2012.</p> <p>Substances must be classified both according to Regulation (EC) No 1272/2008 (CLP) and according to Directive 67/548/EEC.</p> <p>Mixtures are to be classified according to Directive 1999/45/EC.</p> <p>Classification according to Regulation (EC) No 1272/2008 (CLP) may also be given.</p>
<p>1st of December 2012</p>	<p>SDS for substances and mixtures shall be in accordance with Annex II, COMMISSION REGULATION (EU) No 453/2010.</p>
<p>1st of June 2015</p>	<p>Substances and mixtures shall be classified according to Regulation (EC) No 1272/2008 (CLP).</p>

Definitions

Article

An object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition.

Distributor

Any natural or legal person established within the Community, including a retailer, who only stores and places on the market a substance, on its own or in a preparation, for third parties.

Downstream user

Any natural or legal person established within the Community other than the manufacturer or the importer, who uses a substance, either on its own or in a preparation, in the course of its industrial or professional activities.

A distributor or a consumer is not a downstream user.

Import

The physical introduction into the customs territory of the Community.

Acronyms, abbreviations and concepts

The following is based on list compiled by Cefic (Conseil Européen de l'Industrie Chimique / European Chemical Industry Council). Note that not every listed acronym, abbreviation or concept have appeared in previous text.

ADN

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR

European Agreement concerning the International Carriage of Dangerous Goods by Road

ATP

Adaptation to Technical Progress (of an EC Directive/Regulation)

C&L

Classification and labelling

Importer

Any natural or legal person established within the Community who is responsible for import.

Manufacturer

Any natural or legal person established within the Community who manufactures a substance within the Community.

Placing on the market

Supplying or making available, whether in return for payment or free of charge, to a third party. Import shall be deemed to be placing on the market.

Substance

A chemical **element** and its **compounds** in the natural state or obtained by any manufacturing process.

Use

Any processing, formulation, consumption, storage, keeping, treatment, filling into containers, transfer from one container to another, mixing, production of an article or any other utilisation.

CAS

Chemical Abstracts Service number

CBI

Confidential Business Information

CL

Candidate List

CLP or CLP Regulation

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

CMR

Carcinogen, Mutagen or Reproductive toxicant. Substances which are carcinogenic, mutagenic and/or toxic for reproduction

CSA

Chemical Safety Assessment

CSR

Chemical Safety Report

DMEL

Derived Minimum Effect Level, a calculated value that can be used if DNEL can not be set

DNEL

Derived No Effect Level (for human)

DU

Downstream User

DPD

Dangerous Preparations Directive (88/379/EEC)

DSD

Dangerous Substances Directive (67/548/EEC)

EC

European Commission

ECHA

The European Chemicals Agency

ECETOC

European Centre for Ecotoxicology and Toxicology of Chemicals

EC-number

EINECS and ELINCS number

EINECS

European Inventory of Existing Commercial Chemical Substances

ELINCS

European List of Notified Chemical Substances

ERC

Environmental Release Category

ES

Exposure Scenario

EU

European Union

GES

Generic Exposure Scenario

GHS

Globally Harmonised System for Classification and Labelling of Chemicals

ICAO

Technical Instructions for the Safe Transport of Dangerous Goods by Air

IMDG

International Maritime Dangerous Goods Code (sea)

IUPAC

International Union of Pure and Applied Chemistry

M-factor

Multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present.

MSDS

Material Safety Data Sheet

NOEL

No Observable Effect Level

OEL

Occupational Exposure Limits

PBT

Persistent, Bioaccumulative and Toxic. Substances which decompose slowly in the environment, can accumulate in living organisms, and are toxic

PNEC

Predicted No Effect Concentration (for environment)

PPE

Personal Protective Equipment

(Q)SAR

(Quantitative) Structure-Activity Relationship

REACH

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

Article 31, gives the basic requirements regarding Safety Data Sheets (SDS). More detailed information about requirements for the compilation of SDS can be found in Annex II

RID

Regulations concerning the International Carriage of Dangerous Goods by Rail

RMM

Risk Management Measure

SDS

Safety Data Sheet

SES

Specific Exposure Scenario

SPERC

Specific Environmental Release Classes

SVHC

Substances of Very High Concern

SU

Sector of Use

TGD

Technical Guidance Document

TLV

Threshold Limit Value

TRA

Targeted Risk Assessment

UN Number

United Nations Substance Identification Number (for transport purposes)

UVC

Substances of poorly defined, complex or variable composition

UVCB

Substances of unknown or variable composition, complex reaction products or biological materials

vPvB

very Persistent, very Bioaccumulative (P and B in PBT)

Links

Useful links

European Chemicals Agency

http://ec.europa.eu/echa/home_en.html

European Commission

http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm

Swedish Chemicals Agency

<http://www.kemi.se>

The European Chemical Industry Council

<http://www.cefic.org/>

The Swedish Plastics & Chemicals Federation

<http://www.plastkemiforetagen.se>

