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To Replace GB/T 17519.1-1998, GB 16483-2000

Safety Data Sheet for Chemical Products Content and Order of Sections

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General Administration of Quality Supervision, Inspection and Quarantine of the
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And
Standardization Administration of the People's Republic of China

Foreword

This standard will replace GB/T 17519.1-1998 Chemical Products Safety Data Sheet: Section 1: Content and Order of Sections, and GB 16483-2000 General rules for the Preparation of Safety Data Sheet for Chemical Products.

Compared with GB/T 17519.1-1998, and GB 16483-2000, this standard has the following main differences:

- The order of 16 parts of information is different;
- The definition of substance is added;
- In A3.2 of Appendix A, the summary of hazard is consistent with the classification of Globally Harmonized System of Classification and Labeling of Chemicals (GHS);

The Appendix A of this standard is normative.

This standard is proposed by China Petroleum and Chemical Industry Association. This standard is to be interpreted and administered by the National Chemical Standardization Technology Commission.

The following organizations have participated in the preparation of this standard: National Registration Center for Chemicals, State Administration of Work Safety, SINOCHEM Standardization Institute, Shanghai Chemical Engineering Research Institute, China Chemical Economic and Technology Development Center, China Sinopec Qingdao Safety Engineering Institute.

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The released versions of standards replaced by this standard are:

GB/T 17519.1-1998;
GB 16483-1996; GB 16483-2000.
GB/T 16483-2008

Foreword

The Safety Data Sheet (SDS) provides information on chemical products (substance or mixture) in the aspects of safety, health, environment, etc, recommending precautionary measures and measures for emergency response. In some countries, the Safety Data Sheet for Chemical Products is also named as the Material Safety Data Sheet (MSDS), but in this standard SDS is used consistently.

The SDS is a hazard communication tool for the suppliers of chemical products to convey the basic information (including transportation, Operation, Disposal, storage and emergency action information) on the hazards of chemicals to the recipients. At the same time the SDS can convey such information to the public institutions, service providers and other stakeholders of the chemicals.

This standard is designed to standardize the information on chemical products in the aspects of safety, health, and environment, establishing unified format (such as terminology, numbering and sequence of titles), making specific rules on how to provide information on chemical products in SDS.

This standard can be applied flexibly in the information communication between different languages.

ISO11014-1 Standard Version 1 has been promulgated in 1994. Afterwards it has been widely applied worldwide. The National Chemical Standardization Technical Committee identically converted ISO11014-1: 1994 to GB/T 17519.1-1998.

The 1992 United Nations Conference on Environment and Development (UNCED) passed the 21st century agenda, where UNCED recommended the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). In Chapter 19 of the agenda, Management of Toxic Chemical in Environment includes 6 basic measures, while the SDS is one of them. GHS Version 1 has been released in 2003, and revised for the first time and second time in 2005 and 2007 respectively, which includes the guidance to develop the SDS.

The SDS standards in some countries and regions have been revised in accordance with the requirements of GHS.

ISO/TC 47 made systematic checking of ISO11014-1: 1994 in 2006, afterwards we decided to revise the standard. Therefore, this international standard was developed through revising the Version 1 so that it complies with the requirements of GHS for

SDS for communicating information on the hazards of chemicals. The National Chemical Standardization Technical Committee decided to revise GB/T 17519.1-1998 simultaneously.

ISO/TC 47 also revised the name of ISO11014-1 international standard by deleting the “Section 1”, because since releasing Section 1 in 1994, the planned Section 2 of ISO11014 has not been released till now.

It is not necessary for SDS to reflect or describe the regulatory requirements of different countries or regions. These requirements may only apply to some specific countries and regions. Therefore it is recommended that the generators of SDS should know about the regulations of different countries and regions on generating SDS, so that it helps that each chemical only corresponds to one SDS in different countries or regions.

The responsibilities of the recipients of SDS are beyond the scope of this international standard. This standard describes a part of the responsibilities of the recipients to draw a clear distinction between the responsibilities of SDS suppliers and recipients.

Safety Data Sheet for Chemical Products Content and Order of Sections

1 Scope

This standard sets the structure, content and generic forms of the Safety Data Sheet for Chemical Products (SDS). This standard applies to the preparation of the Safety Data Sheet for Chemical Products. This standard does not provide fixed format or sample for SDS.

2 Terminology and definitions

The following terminology and definition apply to this standard.

2.1

Chemical product

It refers to substance or mixture.

2.2

Substance

It refers to the chemical elements and their compounds in the natural status or obtained through any manufacturing process, including any necessary additives to keep its stability and any impurities as a result of processing, but excluding any separable solvent that will not affect the stability of the substance or change its composition.

2.3

Exposure control

The whole set protective measures to protect the personnel exposed to the chemical products.

2.4

GHS classification

According to the features of physical, healthy, and environmental hazards of substance or mixture, based on the classification standard of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), classify the hazards of substances.

2.5

Harm

It refers to the physical harm or hazard to the health of humans and the damage caused to property or environment.

2.6

Hazard

Potential source of danger

2.7

Hazard statement

It refers to the statement for hazard type and class, describing the fixed danger of a certain chemical products, including hazard degree if necessary.

2.8

Ingredient

It refers to the ingredients of a certain chemical product.

2.9

Intended use

It refers to the allowed use specified in the information provided by the supplier on product, process and service.

2.10

Label

It refers to the combination of words, graphic symbols and coding that indicates the hazard and safety notes for the chemical products. It can be pasted, printed or tagged to package or container of the chemical product.

2.11

Label element

It refers to the kind of information on the labels indicating the hazard of chemical products, such as graphic symbols, signal words etc.

2.12

Precautionary statement

It refers to the relevant measures described through words or graphic symbols to reduce or prevent exposure to dangerous chemicals and to ensure correct storage and transport.

2.13

Preparation

It refers to the mixture or solution composed of two or more substances.

2.14

Pictogram

It refers to the graphic combination indicating specific information comprised of symbols and other graphic elements, such as frames, background graphic and color.

2.15

Reasonably foreseeable misuse

It refers to the misuse with very high probability of being misused in the actual use, which is not in the allowed scope of use specified in the information provided by the supplier on product, process and service.

2.16

Recipient

It refers to the intermediary personnel or end users receiving chemical products from suppliers for industrial or professional use, such as storage, transport, processing or packing.

2.17

Risk

It refers to the probability to cause hazard and the serious degree of hazard.

2.18

Safety

It refers to avoiding unacceptable risk.

2.19

Signal word

It refers to the words on the labels to indicate the relative serious degree of the hazard of chemical products and warn the person exposed to the chemical products to pay attention to the potential hazard. For example, GHS stipulates that “Danger” and “Warning” can be used as the “signal words”.

2.20

Supplier

It refers to the groups supplying a certain chemical product to the recipients.

2.21

Symbol

It refers to the graphic elements designed to convey safety information.

3 Overview

Generally, one SDS should be prepared for one chemical product.

3.1 The information included in the SDS is the non-confidential information related to the composition, and the ingredients can be provided through different methods in accordance with the provisions of Section 3 of Appendix A.

3.2 The suppliers should offer complete SDS to the recipients to provide information related to safety, health and environment. The suppliers have the responsibility to update the SDS, and provided updated SDS to the recipients.

3.3 In using the SDS, the recipients should also consider adequately the risk evaluation results of the chemical products under specific use conditions and adopt necessary preventive measures. The recipients of SDS should convey the hazard information through appropriate approaches to the users at different working premises. When proposing the specific requirements to the working premises, the recipients should consider the comprehensive suggestion on relevant SDS.

3.4 As SDS is only related to a certain chemical product, it is impossible for it to consider all possible conditions at all working premises. Therefore the SDS only includes a part of information necessary to ensure the operational safety.

3.5 The SDS should provide comprehensive information related to a certain substance or mixture according to the overall requirements of the regulations on the control of the working premises using chemical products.

Note: if the chemical product is a mixture, it is not necessary to prepare separate SDS for each ingredient. Preparing and providing the SDS for the mixture is acceptable. When the information on a certain ingredient is indispensable, the SDS for such ingredient should be provided.

4 Content and Generic Forms of SDS

4.1 SDS shall provide the information on chemical products as in the following 16 sections, and the title, numbering and the order of each section should not be changed without solid excuse.

- 1) Chemical product and company identification
- 2) Hazard overview
- 3) Composition/information on ingredients

- 4) First-aid measures
- 5) Fire-fighting measures
- 6) Accidental release measures
- 7) Handling and storage
- 8) Exposure controls/personal protection
- 9) Physical and chemical properties
- 10) Stability and reactivity
- 11) Toxicological information
- 12) Ecological information
- 13) Disposal
- 14) Transport information
- 15) Regulatory information
- 16) Other information

Note: to facilitate generators of SDS to identify SDS for different chemical products, the SDS should be numbered.

4.2 Fill in relevant information in 16 sections, giving reason if data is unavailable. Except “ Section 16, Other information”, other sections cannot be left blank.

Generally, it is not absolutely necessary to specify the information source in SDS.
Note: it is the best to provide the information source to make clear the basis.

4.3 The contents corresponding to 16 sections should be completed according to the recommendations and requirements of Appendix A.

4.4 The contents in 16 sections can be further broken down, but these smaller items will not be numbered.

4.5 The 16 sections should be separated clearly and the typesetting of the titles of larger and small items visually striking.

4.6 When using titles for smaller items, they should be arranged according to the order specified in Appendix A.

4.7 Each page of SDS should specify the name of the chemical product, and the name should be the same as the name on the label, at the same time specifying the date and the SDS code. The date refers to the date of the last revision. The page number should include the total number of pages, or showing the last page in the total number of pages.

Note 1: the name of the chemical product should be the chemical name or the name of the chemical product on the label. If the chemical name is too long, the abbreviated name should be described in Section 1 or 3.

Note 2: The SDS code and revision date (version number) should be written on the first page of the SDS. Each page can have the SDS code and page number.

Note 3: the date of first revision and initial preparation should be written on the first page of the SDS.

4.8 The wording of the body of SDS should be concise and easily understandable. Commonly used words are recommended. The SDS should be written in the language acceptable to the users.

GB/T 16483-2008 Appendix A (Normative Appendix)

Guidance to SDS Preparation

A1 Overview

This Guidance is to guide the preparation for SDS for chemical products to ensure that the contents in the SDS can enable the recipients to adopt necessary preventive or protective measures for safety, health and environment.

—— Prepare the SDS in accordance with the suggestions and requirements of this appendix.

—— This appendix lists the main entries that should be included in Section 16 of the SDS. The unlisted entries can be added if needed.

—— The main entries in the SDS are called the small items, which have been underlined.

—— Some information is related to the SDS but is not listed into this Appendix as an entry. This entry can be added under related items.

—— For given chemical products, not all entries will apply, they can be chosen according to specific conditions.

A2 Section 1 - Chemical product and company information

Mainly specify the name of the chemical product, and the name should be consistent with the name on the safety label. It is recommended to specify the product code of the supplier.

The name, address, telephone number, emergency telephone, fax, and email of the supplier should be specified.

This part should also specify the intended use and limited use of the chemical product.

A3 Section 2 - Hazard overview

This part should specify the main physical and chemical hazard information of the chemical product, and the information on its impact on human health and environment. If the chemical product has certain special hazards, it should also be specified here.

If the hazards of chemical products have been classified according to GHS, the GHS hazard class should be specified, at the same time the label elements of GHS should be specified, such as pictogram or symbols, prevention notes, hazard

information and signal words etc. The pictograms or symbols such as flame, skull and crossed bones can be in black and white. The hazards not included in GHS classification (such as powder explosion hazard) should also be specified here. The main symptoms and emergency summary after exposure by humans should be specified.

A4 Section 3 – Composition/information on ingredients

This section should specify that the chemical product is a substance or mixture. If it is a substance, the chemical name or generic name, the U.S. Chemical Abstracts Service registration number (CAS#) and other identifiers should be provided.

If a certain substance is classified as dangerous chemical product according to the GHS classification standard, the chemical name or generic name of all hazardous ingredients including the impurities and stabilizers that affects the hazard classification of such substance, as well as the concentration or concentration scope. If it is a mixture, it is not necessary to list all ingredients.

For the ingredients classified as hazardous according to the GHS standard, and its content exceeds the concentration limit, the name, concentration or concentration scope of the ingredient should be specified. For the identified hazardous ingredients, their chemical name or generic name, concentration or concentration scope should also be provided.

A5 Section 4 – First-aid measures

This section should specify the first-aid measures to be adopted when necessary and the actions that should be avoided; the wording filled here should be easily understandable to the victim or rescuer.

The information can be further broken down according to different exposure ways as: inhalation, skin contact, eye contact and ingestion.

This section should describe briefly the acute and chronic effect and the main symptoms after exposure to the chemical products and the main impact on health. The detailed data can be listed in Section 11.

If necessary, this part should include the advices to protect the rescuer and special notes to physicians.

A6 Section 5 – Fire-fighting measures

This section should specify appropriate extinguishing agent, and the inappropriate

extinguishing agents (if any) should also be specified here.

The special hazard of the chemical products should be specified (e.g. the flammable chemical product).

Specify special fire fighting method and the special protective device to protect the fire fighters.

A7 Section 6 - Accidental release measures

This section should include the following information:

- Protective measures, devices and emergency treatment process for operator.
- Environmental protection measures
- Methods to contain and eliminate the leaked chemical products and the disposal material to be used (if different from Section 13, list the methods of recovering, neutralization and elimination).

Provide the precautions measures to prevent secondary hazards.

A8 Section 7 - Handling and storage

—Handling

The notes on safe handling should be described, including the technical measures to prevent exposure to chemical staff, fire and explosion, provide local or general ventilation, and prevent forming aerosols and dust, etc. The notes on special disposal should be also included to prevent direct exposure to incompatible substance or mixture.

—Storage

The conditions for safe storage (appropriate and inappropriate storage conditions) should be described, safety related technical measures, separated storage measures for the incompatible materials, and package material information (recommended and un-recommended storage conditions) should be described.

A9 Section 8 - Exposure controls/personal protection

List the tolerated concentration, such as occupational exposure limit or biological limit.

List the engineering control method to reduce exposure. This information is a further supplementation to the content of Section 7.

If possible, list the release date, data source, testing method and source of methodology of the tolerated concentration.

List the recommended individual protection device, such as:

- Protection of the respiratory system;
- Hand protection;
- Eye protection;
- Skin and body protection

List the type and material of protective device.

If the chemical product is only hazardous under special conditions, such as large quantity, high concentration, high temperature, high pressure, etc, the special protective measures should be specified for these conditions.

A10 Section 9 - Physical and Chemical Properties

This section should provide the following information:

- The appearance and status of the chemical product, such as physical state, shape and color;
- Odor;
- pH value, and specify concentration;
- Melting/freezing point;
- Boiling point, initial boiling point and boiling range;
- Flash point;
- Upper/lower flammable limit or explosion limit;
- Vapour pressure;
- Vapour density;
- Density/relative density;
- Solubility;
- n-octanol / water distribution coefficient;
- Auto-ignition temperature;
- Decomposition temperature;

If necessary, the following information should be provided:

- Odor threshold;
- Evaporation rate;
- Flammability (solid, gas)

Other data on the safe use of chemical products should also be provided, such as radioactivity and bulk density etc.

The units of the International System of Units (SI) should be used, refer to ISO

1000:1992 and ISO 1000:1992/Amd 1:1998. Non-SI units can be used only as supplementary to SI units.

When necessary, the measurement method of data should be provided.

A11 Section 10 - Stability and reactivity

This section should describe the stability of chemicals and the possible hazardous reactions under specific conditions.

The following information should be provided:

- Conditions to avoid (such as: static electricity, impact or shock);
- Incompatible substances;
- Dangerous decomposition products, except carbon monoxide, carbon dioxide and water.

When filling out this section, the intended use and foreseeable misuse of the chemical product should be provided.

A12 Section 11 - Toxicological information

This section should describe comprehensively and concisely the toxic effects (impact to health) to the users for exposure to chemical products.

The following information should be included:

- Acute toxicity;
- Skin irritation or corrosion;
- Eye irritation or corrosion;
- Respiratory or skin allergies;
- Germ cell mutation;
- Carcinogenicity;
- Reproductive toxicity;
- Specific target organ system toxicity - single exposure;
- Specific target organ system toxicity - repeated exposure;
- Inhalation hazard

The following information can also be provided:

- Toxicokinetics, metabolism and distribution information

Note: the in vitro mutagenesis experimental data such as Ames data should be described in the germ cell mutagenesis entry.

If possible, describe the toxic effects from single exposure, repeated exposure and continuous exposure separately; the chronic effects and acute effects should be

described respectively.

The potential hazardous effects should include the related symptoms, physical, chemical, and toxicological features observed in the toxicity value (such as acute toxicity estimate) testing.

Provide information according to different exposure approach (such as: inhalation, skin contact, eye contact, ingestion).

If possible, provide more data or results from scientific experiments, and remark the source of the quoted literature.

If a mixture has not been tested as a whole for its toxicity, related information on each ingredient should be provided.

A13 Section 12 - Ecological information

This section provides the information on the environmental impact, environment behavior and end result of chemical products, such as:

- The anticipated behavior of the chemical product in the environment, the possible impact/ecological toxicity to the environment;
- Persistency and degradation;
- Potential biological accumulation;
- Mobility in soil

If possible, provide more data or results from scientific experiments, and remark the source of the quoted literature.

If possible, provide any ecological limits.

A14 Section 13 – Disposal

This section includes the information on the recommended waste disposal methods for safety and environment protection.

These disposal methods apply to chemical products (residual wastes), also apply to any contaminated container and package.

Remind the recipients to pay attention to the local regulations on waste disposal.

A15 Section 14 - Transport Information

This section includes the number and classification information stipulated by the international transport codes, classifying the information by different transport means, such as land, sea, and air.

The following information should be included:

- United Nations Numbers for Dangerous Goods (UN numbers);
- UN Shipping Name;
- UN Classification of Hazards;
- Package Group (if possible);
- Marine Pollutants (yes/no)
- Other special protective measures related to transport or transport means that the users need to know or comply with.

Provisions of other relevant laws and regulations can be added.

A16 Section 15 - Regulatory information

This section should specify the name of laws and regulations on the management of the chemical products in the countries and regions using this SDS.

Provide regulation information and chemical product label information related to law.

Remind the recipients to pay attention to the local laws and regulations on waste disposal.

A17 Section 16 - Other information

This section should further provide other important information not covered by the above-mentioned sections.

For example, provide the needed professional training, intended use, and limited use, etc.

The references can be listed in this section.