

American National Standard

*for Hazardous Workplace Chemicals –
Hazard Evaluation and
Safety Data Sheet and
Precautionary Labeling Preparation*



ANSI®
Z400.1/Z129.1-2010
Revision, redesignation, and-
consolidation of
ANSI Z400.1-2004 and
ANSI Z129.1-2006

American National Standard
for Hazardous Workplace Chemicals –

**Hazard Evaluation and
Safety Data Sheet and
Precautionary Labeling Preparation**

Sponsor

American Chemical Council

Approved May 28, 2010

American National Standards Institute, Inc.

American National Standard

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Published by

**American National Standards Institute, Inc.
25 West 43rd Street, New York, NY 10036**

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Printed in the United States of America

Contents

	Page
Foreword	vii
Introduction	xi
1 General	1
1.1 Safety Data Sheet (SDS)	1
1.2 Precautionary labeling	1
2 Scope, purpose and application.....	2
2.1 Scope.....	2
2.2 Purpose.....	2
2.3 Application	3
2.3.1 Audience	3
2.3.2 Content and organization.....	3
2.3.3 Hazard evaluation and communication process flow.....	3
3 Hazard evaluation	6
3.1 Definition of a hazard	6
3.2 Collecting the information	6
3.3 Evaluating hazards	7
4 Physical hazards.....	8
4.1 Definition of a physical hazard	8
4.2 Physical hazard criteria.....	8
4.2.1 Fire hazard chemical.....	8
4.2.1.1 Flammability hazards	8
4.2.1.1.1 Gases.....	8
4.2.1.1.2 Liquids.....	9
4.2.1.1.2.1 Static accumulating flammable liquids	10
4.2.1.1.3 Solids	11
4.2.1.1.4 Flammable aerosols (flammables in self-pressurized containers)	11
4.2.1.2 Oxidizer.....	11
4.2.1.3 Organic peroxide.....	12
4.2.1.4 Pyrophoric chemical.....	12
4.2.2 Pressure-generating chemical	12
4.2.3 Water reactive chemical.....	12
4.2.4 Compressed gas.....	12
4.2.5 Cryogenic liquid	13
4.2.6 Unstable reactive	13
4.2.7 Corrosive to metal.....	13
4.3 Physical hazard evaluation	13
4.3.1 Sources of information	14
4.4 Statements of physical hazards	14
4.5 Physical hazard precautionary statements	14

	Page
5	Health hazards..... 15
5.1	Definition of a health hazard 15
5.1.1	Immediate health hazard criteria 15
5.1.1.1	Corrosive 15
5.1.1.2	Irritant..... 15
5.1.1.3	Inhalation 16
5.1.1.3.1	Highly toxic (poison) by inhalation 16
5.1.1.3.2	Toxic by inhalation 16
5.1.1.3.3	Simple asphyxiants..... 16
5.1.1.3.4	Additional information for inhalation toxicity..... 16
5.1.1.4	Dermal 17
5.1.1.4.1	Highly toxic (poison) by skin contact..... 17
5.1.1.4.2	Toxic by skin contact 17
5.1.1.4.3	Harmful by skin contact 17
5.1.1.5	Oral 17
5.1.1.5.1	Highly toxic (poison) by ingestion 17
5.1.1.5.2	Toxic by ingestion 17
5.1.1.5.3	Harmful by ingestion 17
5.1.1.5.4	Aspiration..... 17
5.1.2	Allergic reactions (sensitizer)..... 18
5.1.3	Delayed health hazard criteria 18
5.1.3.1	Target organ effects..... 18
5.1.3.2	Carcinogenicity/Cancer..... 18
5.1.3.3	Reproductive, developmental and teratogenic effects..... 19
5.1.3.4	Mutagenicity..... 19
5.2	Health hazard evaluation 20
5.2.1	Sources of information..... 20
5.3	Evaluating health hazards for mixtures..... 22
5.4	Statements of health hazards 22
5.4.1	Health hazards..... 23
5.4.1.1	Precautionary labeling for immediate health hazards..... 23
5.4.1.2	Precautionary labeling for allergic skin and respiratory reactions..... 23
5.4.1.3	Precautionary labeling for delayed health hazards..... 23
5.4.1.3.1	Carcinogenicity 24
5.4.1.3.2	Reproductive/Developmental/Teratogenic effects 26
5.4.1.3.3	Mutagenicity..... 27
5.4.1.4	No significant adverse health effects 27
5.5	Health hazard precautionary statements 27
6	Environmental hazards 28
6.1	Definition of an environmental hazard 28
6.2	Environmental hazard criteria 28
6.3	Environmental hazard evaluation 28
6.3.1	Sources of information 28
6.4	Statements of environmental hazards 29
6.5	Environmental hazard precautionary statements 30

	Page
7	Hazard communication principles 31
8	Safety data sheets (SDS)..... 32
8.1	Introduction 32
8.2	SDS communication principles 32
8.2.1	Layout and design..... 32
8.2.2	Reading level and comprehension..... 33
8.3	SDS Organization 34
8.3.1	What is the material and what do I need to know immediately in an emergency?..... 34
8.3.2	What should I do if a hazardous situation occurs?..... 34
8.3.3	How can I prevent hazardous situations from occurring? 34
8.3.4	Is there other useful information about this material? 34
8.4	Evaluation of the SDS 34
8.4.1	Internal consistency 34
8.4.2	Headers/Footers 35
8.4.3	Document identifier 35
8.4.4	Review/Preparation date..... 35
8.4.5	Page and section numbers 35
8.4.6	Units of measure 35
8.4.7	No blank data fields..... 36
8.5	Revision of the SDS 37
9	Sections of the safety data sheet (SDS) 37
9.1	Section 1: PRODUCT AND COMPANY IDENTIFICATION 37
9.2	Section 2: HAZARDS IDENTIFICATION 38
9.2.1	Emergency overview..... 38
9.2.2	OSHA Regulatory status..... 39
9.2.3	Potential health effects..... 40
9.2.4	Potential environmental effects..... 41
9.3	Section 3: COMPOSITION/INFORMATION ON INGREDIENTS 42
9.4	Section 4: FIRST AID MEASURES..... 43
9.4.1	First aid procedures 43
9.4.2	First aid statement..... 44
9.4.2.1	First aid for exposure to eyes and skin 44
9.4.2.2	First aid for inhalation..... 45
9.4.2.3	First aid for ingestion..... 45
9.4.2.3.1	When the induction of vomiting is warranted 45
9.4.3	Note to physicians..... 46
9.4.3.1	Antidotes 46
9.5	Section 5: FIRE FIGHTING MEASURES..... 47
9.5.1	Flammable properties 48
9.5.2	Extinguishing media 48
9.5.2.1	Suitable extinguishing media 48
9.5.2.2	Unsuitable extinguishing media 50
9.5.3	Protection of firefighters 50
9.5.3.1	Specific hazards arising from the chemical..... 50
9.5.3.2	Protective equipment and precautions for firefighters..... 51

	Page
9.6	Section 6: ACCIDENTAL RELEASE MEASURES 52
9.6.1	Personal precautions 52
9.6.2	Environmental precautions 52
9.6.3	Methods for containment 52
9.6.4	Methods for clean-up 52
9.6.5	Other information 53
9.6.6	Spill or leak statements by type of chemical 53
9.7	Section 7: HANDLING AND STORAGE 55
9.7.1	Handling..... 55
9.7.2	Storage 57
9.8	Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION... 58
9.8.1	Exposure guidelines 58
9.8.2	Engineering controls 59
9.8.3	Personal protective equipment (PPE)..... 59
9.8.3.1	Eye/face protection 60
9.8.3.2	Skin protection 60
9.8.3.3	Respiratory protection..... 60
9.8.3.4	General hygiene considerations 61
9.9	Section 9: PHYSICAL AND CHEMICAL PROPERTIES 61
9.10	Section 10: STABILITY AND REACTIVITY 63
9.10.1	Reactivity 63
9.10.2	Possibility of hazardous reactions 63
9.10.3	Chemical stability 63
9.10.4	Conditions to avoid 64
9.10.5	Incompatible materials 64
9.10.6	Hazardous decomposition products 64
9.11	Section 11: TOXICOLOGICAL INFORMATION 64
9.12	Section 12: ECOLOGICAL INFORMATION 67
9.13	Section 13: DISPOSAL CONSIDERATIONS 70
9.14	Section 14: TRANSPORT INFORMATION 71
9.14.1	Basic shipping description 72
9.14.2	Additional information 72
9.15	Section 15: REGULATORY INFORMATION 73
9.16	Section 16: OTHER INFORMATION 76
10	Labels and labeling 78
10.1	Introduction 78
10.2	Scope..... 78
10.3	Labeling communication principles 79
10.3.1	Comprehension 79
10.3.2	Layout and design 79
10.3.2.1	Layout 79
10.3.2.2	Color 80
10.3.2.3	Type size and style 80
10.4	Elements of a label 80

	Page
10.4.1	Importer/Distributor requirements 81
10.5	Durability of a label..... 81
10.6	Revision of precautionary labeling 81
11	Preparing precautionary labeling 82
11.1	Product identification 82
11.2	Component identification..... 82
11.2.1	Trade secrets 82
11.3	Signal word 82
11.3.1	Poison symbol..... 83
11.4	Statement of hazard..... 83
11.5	Name, address and telephone number 83
11.6	Precautionary statements 83
11.7	References to additional labeling/other documents 84
12	Review of documents 84
13	Tables of hazard criteria and precautionary label text 85
Table A	Physical Hazards (see Section 4.2) 87
Table B	Health Hazards: Skin Corrosion/Irritation (see Sections 5.1.1.1 and 5.1.1.2) 91
Table C	Health Hazards: Eye Corrosion/Eye Irritation (see Sections 5.1.1.1 and 5.1.1.2) 93
Table D	Health Hazards: Respiratory Irritation (see Sections 5.1.1.1 and 5.1.1.2) 94
Table E	Health Hazards: Sensitization (see Section 5.1.2) 95
Table F	Health Hazards: Inhalation Toxicity (see Section 5.1.1.3) 96
Table G	Health Hazards: Dermal Toxicity (see Section 5.1.1.4) 98
Table H	Health Hazards: Oral Toxicity (see Section 5.1.1.5) 100
Table I	Additional hazard warning statements 103
	Part 1 - Examples of optional hazard warning statements 103
	Part 2 - Environmental hazard warning statements 109
Table J	Additional optional precautionary measures statements..... 111
14	Resources 123
14.1	American National Standards 123
14.2	Other standards 123
14.3	Regulatory standards 123
14.4	References and other useful publications 123

	Page
Annexes	
A Examples of SDSs and labels	128
B Background: The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)	157
C Preparation resources document.....	173
D Glossary.....	181

Foreword (This foreword is not part of American National Standard ANSI Z400.1/Z129.1-2010.)

ANSI Z400.1/Z129.1-2010, American National Standard for Hazardous Workplace Chemicals - Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation, was developed by a technical committee of the American Chemistry Council (ACC) and was submitted for approval under ACC's ANSI-approved canvass method operating procedures.

The need for consistent precautionary labeling was recognized in 1944, when the Manufacturing Chemists Association (which later became the Chemical Manufacturers Association [CMA] and then the American Chemistry Council [ACC]) established the Labels and Precautionary Information (LAPI) Committee. The LAPI Committee developed the first published industry guide to precautionary labeling for hazardous chemicals titled "A Guide for the Preparation of Warning Labels for Hazardous Chemicals" or Manual L-1. This was converted to American National Standard for Hazardous Industrial Chemicals - Precautionary Labeling (ANSI Z129.1) in 1976.

A companion document, American National Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation (ANSI Z400.1-1993), was developed in recognition of the need for technical guidance for preparing consistent, clear and complete Material Safety Data Sheets (MSDSs).

ANSI Z400.1/Z129.1-2010 was developed in recognition that ANSI Z129.1 and ANSI Z400.1 were both hazard communication guidance documents that were generally used together, by the same audience, and had somewhat similar content. This standard is the result of the merging of ANSI Z129.1 and ANSI Z400.1 into one comprehensive standard on hazard communication. It is organized to reflect the typical work flow of hazard communicators.

In addition to the merging of ANSI Z129.1 and ANSI Z400.1, several other significant changes were made to the content of this document:

- References to "industrial chemicals" have been changed to "workplace chemicals" to more accurately reflect the scope of the OSHA Hazard Communication Standard and therefore the scope of this Standard.
- Information was added for three additional physical hazards - static accumulating flammable liquids, corrosive to metals, and flammable aerosols.
- The recommendations for First Aid have been updated to reflect the most current clinical practices.
- Aspiration hazard now includes a signal word recommendation.

Work on this standard was conducted during 2008 - 2009. In late 2009, OSHA published the Hazard Communication Proposed Rule (Federal Register, Vol. 74, No. 188, Pages 50280 - 50549) for the adoption of the Globally Harmonized System (GHS). The question was raised whether to publish a revised ANSI standard without additional alignment with GHS as originally scheduled or to delay publication until after GHS is officially adopted by OSHA. After a careful evaluation, the committee decided to publish the standard as originally scheduled for the following reasons:

- It will likely be at least eighteen months following the publication of OSHA's NPRM before it is enacted. Following GHS adoption by OSHA, there will be at least a three year transition period. This is a significant period of time during which the revised ANSI standard will still provide value.
- We believe the new merged standard is a valuable tool that is useful now and should not be delayed.

- The revised Standard includes information on static accumulating flammable liquids, and emphasis on combustible dust. These changes are in response to recommendations made to the committee by the U.S. Chemical Safety Board (CSB). Additional information is also provided on corrosive to metals.

The committee recognizes that OSHA's implementation of the GHS is likely to occur within the next few years. We have incorporated some GHS concepts throughout the text of the Standard, and have enhanced the information included in the GHS annex. We will monitor developments and will revise the Standard earlier than the regularly scheduled five years if necessary.

This Standard contains four annexes, all of which are informative and are not considered part of the Standard.

Suggestions for the improvement of this Standard are welcome and will be considered for subsequent revisions. They should be addressed to the American Chemistry Council, 700 2nd Street, NE, Washington, DC 20002.

The following organizations, recognized as having an interest in the standardization of precautionary labeling of industrial chemicals, were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that an organization concurred with the version of the proposed Standard submitted to ANSI:

Aerospace Industries Association	Compressed Gas Association	National Lumber & Building Material Dealers Association
AFL-CIO	Consumer Specialties Product Association	National Paint & Coatings Association
Air and Waste Management Association	CropLife America	National Petrochemical & Refiners Association
Air Conditioning Contractors of America, Inc.	Data Interchange Standards Association	National Safety Council
Ampco Safety Tools	Defense Supply Center	National Toxicology Program
American Academy of Clinical Toxicology	Delphi Corporation	ManGuard Systems, Inc.
American Association of Occupational Health Nurses	Edison Electric Institute	Naval Supply Systems Command
American Association of Poison Control Centers	Environmental Protection Agency	North American Insulation Manufacturers Association
American Chemical Society	ETAD North America	Organizational Resource Counselors
American Dental Association	FM Global	Pharmaceutical Research and Manufacturers of America
American Electronics Association	Dangerous Goods Advisory Council	Pfizer, Inc.
American Feed Industry Association.	ECOLAB	Printing Industries of America
American Fiber Manufacturers Association	Honeywell Specialty Materials Healthcare Distribution Management Association	Product Safety Solutions
American Forest & Paper Association	Human Factors and Product Safety Group	Roof Coatings Manufacturers Association
American Industrial Hygiene Association	ICWUC Ctn. for Workers Health and Safety Ed.	Rubber Manufacturers Association
American Institute of Chemical Engineers (AIChE)	Independent Lubricant Manufacturers Association	Screenprinting & Graphic Imaging Association International
American Iron & Steel Institute	Industry Canada	Semiconductor Safety Association
American Petroleum Institute	International Association of Fire Chiefs	Society for Chemical Hazard Communication
American Public Health Association	International Association of Fire Fighters	Society of American Florists
American Supply Association	International Institute of Synthetic Rubber Producers	Society of the Plastics Industry
American Trucking Associations	Institute of Makers of Explosives	Society of Toxicology
American Wood Preservers Institute	International Sanitary Supply Association	Synthetic Organic Chemical Manufacturers Association
Applied Safety and Ergonomics, Inc.	MDL Information Systems, Inc.	The Adhesive and Sealant Council, Inc.
Argonne National Laboratory	MRS Associates	The American Society of Safety Engineers
Asphalt Roofing Manufacturers Association	National Association of Chemical Distributors	The Boeing Company
ASTM E34.40 Haz Com	National Association of Emergency Medical Technicians	The Soap and Detergent Association
Atrion International	National Association of Home-builders	The Sulphur Institute
Automotive Industry Action Group	National Association of Printing Ink Manufacturers	The Weinberg Group
Canadian Chemicals Producers Association	National Association of Scientific Materials Managers	United Steelworkers of America
ChemADVISOR, Inc.	National Automobile Dealers Association	U.S. Consumer Product Safety Commission
Chemical Abstracts Service	National Elevator Industry, Inc.	U.S. Coast Guard
Chemical Producers & Distributors Association	National Institute of Environmental Health Sciences	U.S. Dept. of Transportation
Chemical Safety & Hazard Investigation Board	National Institute of Standards and Technology	US General Services Administration
CIIT Centers for Health Research		WHS Consulting LLC
Color Pigments Manufacturers Association		WHMIS Division, Health Canada

The technical committee that developed this revision of the Standard had the following members:

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Introduction

The development of new chemicals, the evaluation of existing chemicals and the ever-widening use of chemicals and chemical processes in a variety of applications created a need to provide information to people who use, handle or store hazardous chemicals in the workplace. To address this need, the Occupational Safety and Health Administration (OSHA) developed the Hazard Communication Standard (HCS). The HCS requires a hazard evaluation for all chemicals produced or imported. It also requires that information on the chemical hazards be conveyed by means of a hazard communication program that includes Material Safety Data Sheets (MSDSs), container labeling and employee training.

The American National Standard Institute's *American National Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation* (ANSI Z400.1) and *American National Standard for Hazardous Industrial Chemicals - Precautionary Labeling* (ANSI Z129.1) were written as technical documents to be used as guidance for complying with the HCS. ANSI Z400.1 and Z129.1 have historically been issued as separate documents. This ANSI Standard combines and updates both SDS* and labeling guidance into a single standard. The combined American National Standard provides SDS and label preparers with one document that:

- 1) merges hazard communication guidance for SDS and precautionary labeling (in a way similar to the Globally Harmonized System [GHS]);
- 2) provides consistent SDS and label examples for the same product;
- 3) allows easier cross referencing within the document;
- 4) harmonizes the references used in previous versions of the Standards;
- 5) facilitates future Standard revisions because SDS and label issues can be addressed at the same time; and
- 6) permits the user to purchase one robust standard.

* To be consistent with the GHS and with OSHA, this Standard will use the term "Safety Data Sheet" (SDS) to replace "Material Safety Data Sheet" (MSDS).

American National Standard
for Hazardous Workplace Chemicals –

Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation

1 General

1.1 Safety data sheet (SDS)

The SDS is an important resource and provides a wide range of information. Details on material identity, manufacturer information, hazard classification, emergency information, instructions on what to do if a hazardous situation has occurred, information on the prevention of hazardous situations, as well as other technical information are contained in an SDS.

The HCS provides little information regarding the format of an SDS. In 1993, the ANSI Z400.1 Standard was developed to address the need for an SDS format that was comprehensive, understandable and consistent. A complete, logical and internally consistent SDS is more likely to result from an orderly approach.

1.2 Precautionary labeling

The dissemination of hazard information includes appropriate precautionary statements that are expressed as simply and briefly as possible on labels affixed to containers of hazardous chemicals. Precautionary statements are also used in other written material provided to workers.

The term “labeling” as used in this Standard includes container labels and other documents, including SDSs, that contain precautionary and hazard communication information. The term precautionary labeling includes hazard warning statements and other precautionary statements.

It is imperative that both the SDS and other precautionary labeling be provided in a manner that is consistent, accurate, clear and concise.

This Standard is organized to present concepts and guidance to those involved in the preparation of SDSs and other Precautionary Labeling.

2 Scope, purpose and application

2.1 Scope

This Standard applies to the preparation of SDSs and precautionary labeling for hazardous chemicals used under occupational conditions. It presents basic information on how to develop and write SDSs and precautionary labels. It also identifies information that must be included to comply with the HCS. Additional information is provided to help comply with state and federal environmental and safety laws and regulations. Elements of this Standard may also be acceptable for international use. This Standard is not intended to address the distribution of SDSs.

This Standard is not intended to provide a rote specification for complying with the HCS or any other government requirements. Safety data sheet and precautionary labeling requirements and definitions are subject to change. It is the responsibility of the SDS and label preparer to be aware of current HCS requirements.

This Standard must be applied in a manner consistent with all statutory and regulatory requirements, including the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS; 29 CFR 1910.1200) and the substance specific standards (29 CFR 1910.1001-1052).

There are use-specific statutory and regulatory requirements for some chemical products that are outside the scope of OSHA HCS and therefore may have different SDS and/or labeling requirements. Some examples include:

- consumer products regulated by the Federal Hazardous Substances Act (FHSA),
- medical products regulated by the Federal Food, Drug and Cosmetic Act (FFDCA),
- pesticides regulated by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA),
- materials in transportation regulated by the Department of Transportation (DOT) Hazardous Materials Regulations, and
- laboratory chemicals regulated under 29 CFR 1910.1450, the "OSHA Laboratory Standard".

See 29 CFR 1910.1200(b) for information on the scope and application of the HCS.

For example, a company that manufactures aspirin tablets does not need to produce and distribute SDSs to individuals that are taking aspirin to treat pain or some other medical condition. This includes aspirin tablets taken by a worker in the workplace. In this scenario, the aspirin would fall under the jurisdiction of the FDA, not OSHA. However, the company would be required to produce OSHA hazard communication documents (such as an SDS and labels) for workers who may be exposed to aspirin powder during the manufacture of the tablets.

It is not the intent of this Standard to substitute for specific regulatory requirements or to list each and every unique requirement. Where there is a conflict between the applicable regulations and this Standard, the regulations must take precedence over this Standard. References to the Code of Federal Regulations (CFR) in the Standard are to the January 1, 2009 edition of the CFR.

2.2 Purpose

The purpose of this Standard is to provide:

- a common and consistent approach for assessing chemical hazards;
- a framework to communicate useful and understandable information on hazardous workplace chemicals;
- an SDS format that will allow inclusion of information to comply with applicable laws; and
- guidance for the preparation of precautionary labeling.