American National Standard

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

ANSI Z400.1/Z129.1-2010

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 Chemistry Council

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American National Standard

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

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

Co-Leaders:

David W. Peters	Monsanto Company
Anne Stieffenhofer	3M

Working Group Members:

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Trish Bruen	Air Products & Chemicals, Inc.
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Janice Gadiare	Evonik Degussa Corporation
David J. Gasper	DuPont
Suzanne Hignet	PPG Industries, Inc.
Debra Randall	Arkema Inc.
Robin Ruppel-Kerr	Bayer Material Science LLC
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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.

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* 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).

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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.