American National Standard

for Hazardous Industrial Chemicals –
Material Safety Data Sheets –
Preparation

ANSI Z400.1-2004

Approved American National Standard
ANSI

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ANSI Z400.1-1998

American National Standard
for Hazardous Industrial Chemicals –

Material Safety Data Sheets – Preparation

Secretariat

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 Z400.1-2004.)

ANSI Z400.1-2004, *American National Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - 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 first *American National Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets - Preparation*, ANSI Z400.1-1993, was developed in recognition of the need for guidance to help preparers of material safety data sheets (MSDSs) develop consistent and understandable documents that provide useful information to a variety of audiences. At that time, the standard introduced several items that had not been part of MSDSs in the past, including: the headings and order of the sections; the emergency overview; and sections 11 through 16.

The 1998 revision included: the addition of the OSHA product status; elements to improve consistency with international standards, internal consistency; and revisions of the annexes.

The 2004 revision includes the following significant changes:

- Improving hazard communication and aligning the Standard with the recommendations for safety data sheets in the Globally Harmonized System for Hazard Classification, Communication and Labeling (GHS) adopted by the United Nations in 2002;
- Improving readability and consistency and minimizing redundancy;
- Reordering the MSDS sections so Hazards Identification appears before Composition Information;
- Eliminating the option to list exposure guidelines in the Composition Information;
- Including a requirement that flammable properties appear in the physical and chemical properties section with an option to repeat them in the fire fighting measures section;
- Including required physical and chemical properties;
- Increasing consistency between the sections for Toxicological Information and Ecological Information, and including more complete and accurate lists of data types;
- Adding transportation elements that may be needed for transporting a chemical by various modes, to meet international regulations and for improved emergency response.

This standard contains 4 annexes, all of which are informative and are not considered part of the standard.

The following organizations, recognized as having an interest in the standardization of material safety data sheets, 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.

Adhesive and Sealant Council, Inc.
Aerospace Industries Association
AFL-CIO
Air and Waste Management Association
Air Conditioning Contractors of America, Inc.
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 Insurance Services Group
American Petroleum Institute
American Public Health Association
American Society of Safety Engineers
American Supply Association
American Trucking Associations
American Wood Preservers Institute
Argonne National Laboratory
Asphalt Roofing Manufacturers Association
ASTM E34.40 Hazard Communication Committee
Automotive Industry Action Group
Can Manufacturers Institute
Canadian Chemicals Producers Association
Canadian Labour Congress
Chemical Abstracts Service
Chemical Safety & Hazard Investigation Board
CIIT Centers for Health Research
Color Pigments Manufacturers Association
Compressed Gas Association
Consumer Specialties Product Association
Cosmetic, Toiletry & Fragrance Association
CropLife America
Data Interchange Standards Association
Defense General Supply Center
Edison Electric Institute
Environmental Protection Agency
ETAD North America
Flavor and Fragrance Specialties
FM Global
Graphic Arts Technical Foundation
Hazardous Materials Advisory Council
Independent Lubricant Manufacturers Association
Industry Canada
International Association of Fire Chiefs
International Association of Fire Fighters
International Chemical Workers Union Council
International Institute of Synthetic Rubber Producers
International Mass Retail Association
International Sanitary Supply Association
MDL Information Systems, Inc.
National Association of Chemical Distributors
National Association of Emergency Medical Technicians
National Association of Homebuilders
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
National Wholesale Druggists' Association
Naval Supply Systems Command
North American Insulation Manufacturers Association
Organizational Resource Counselors

Pharmaceutical Research and Manufacturers of America
Printing Industries of America
Roof Coatings Manufacturers Association
Rubber Manufacturers Association
Screenprinting & Graphic Imaging Association International
Semiconductor Safety Association
Soap and Detergent Association
Society of American Florists
Society of the Plastics Industry
Sulphur Institute
Society of Toxicology
Synthetic Organic Chemical Manufacturers Association
The Weinberg Group
U.S. Consumer Product Safety Commission
U.S. Coast Guard
U.S. Dept. of Transportation
U.S. General Services Administration
United Steelworkers of America
WHMIS Division, Health Canada

The Working Group that developed this revision of the standard had the following members

Jayne Clifton, Chair
(Chevron Phillips Chemical Company)

Ali Basaran
(Eli Lilly and Company)
Edwin C. Bisinger
(Akzo Nobel Chemicals
Susan Blanco
(American Chemistry Council)
John D. Bruhnke
(Milliken Chemical)
Carl Carlin
(ATOFINA Chemicals)
Susan Conti
(Attorney-Consultant for ACC)
Catherine Croke
(RohMax USA)
Stacie A. Eakin
(Lyondell Chemical)
Roger E. Etherington
(Vulcan Chemicals)
Wayne W. Henderson
(Bayer Corporation)
Michael Hulse
(Shell Chemical)
Roger Johnson
(Cognis Corporation)
Chun Man Lau
(Eastman Chemical)
Susan Martins
(PPG Industries)
Marlin McKinley
(Lubrizol)
David W. Peters
(Monsanto)
Janelle Restum
(Johnson Polymer)
Francis P. Rudy
(Air Products & Chemicals)
Robert Skoglund
(3M)
Anne Stieffenhofer
(Eastman Kodak)

Chapter 1

Scope and Purpose

American National Standard for Hazardous Industrial Chemicals –

Material Safety Data Sheets – Preparation

1 Introduction

The development of new chemicals, the re-evaluation of existing chemicals and the ever-widening use of chemicals and chemical processes in a variety of applications have accentuated a need to provide information to people who use, handle or store hazardous industrial chemicals. As per the United States Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS), a Material Safety Data Sheet (MSDS) is one means of providing this information.

MSDSs are an important resource and provide a wide range of information. Details on material identity, manufacturer information, hazard identity, 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 MSDS. It is imperative that this information be provided in a manner that is accurate, clear and concise.

The HCS provides little information regarding the format of an MSDS. In 1993, the *American National Standard for Hazardous Industrial Chemicals – Material Safety Data Sheets – Preparation* was developed to address the need for an MSDS format that was comprehensive, understandable and consistent. A complete, logical and internally consistent MSDS is more likely to result from an orderly approach. This Standard is organized to present concepts and guidance to those involved in the preparation of MSDSs.

2 Scope, purpose and application

2.1 Scope

This Standard applies to the preparation of MSDSs for chemicals and materials[1] used under occupational conditions. It presents basic information on how to develop and write MSDSs that are complete, clear and consistent. 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. With the addition of certain data elements, this Standard is also acceptable for international use. This Standard is not intended to address the distribution of MSDSs.

This Standard is not intended to provide a rote specification for complying with the HCS or any other government requirements. Requirements change. It is the responsibility of the MSDS preparer to be aware of current HCS requirements.

[1] OSHA requires that an MSDS be prepared for chemicals that are hazardous according to the criteria described in the HCS. This Standard recognizes that MSDSs may be prepared for nonhazardous chemicals as well as hazardous chemicals. This Standard uses the term, material, to denote this wider scope of coverage.