NYU | STEINHARDT

Safety Matters

Safety in the Arts Topics: 3. Safety Data Sheets

SAFETY DATA SHEETS

A Safety Data Sheet (SDS) is designed to provide emergency response personnel and users of hazardous materials with the proper procedures for handling or working with a particular substance. The SDS is produced by the manufacturer of the chemical, and includes information on the health and physical hazards associated with the material and provides detailed information regarding its physical properties, reactivity, and toxicity. It also details first aid, storage, disposal, exposure control, and spill/leak procedures. These are of particular use if there is a spill or a person has accidental contact with the material.

Typical Information Found on an SDS

The OSHA Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. Since June 1, 2015, the HCS requires new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information. The new format makes it easier for users to know where to look for the information. Note: your shop or studio may still have the old-format MSDS as the during the transition period.

Sections of the new SDS format:

- Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
- Section 2, Hazard(s) Identification includes all hazards regarding the chemical; required label elements.
- Section 3, Composition/Information on Ingredients includes information on chemical ingredients; trade secret claims.
- Section 4, First-aid Measures includes important symptoms/ effects, acute, delayed; required treatment.
- Section 5, Fire-fighting Measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- Section 6, Accidental Release Measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- Section 7, Handling and Storage lists precautions for safe handling and storage, including incompatibilities.
- Section 8, Exposure Controls/Personal Protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).
- Section 9, Physical and Chemical Properties lists the chemical's characteristics.
- Section 10, Stability and Reactivity lists chemical stability and possibility of hazardous reactions.
- Section 11, Toxicological Information, includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- Section 12, Ecological Information to evaluate the environmental impact of the chemical(s) if it were released to the environment.
- Section 13, Disposal Considerations provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices.
- Section 14, Transport Information provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea.

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- Section 15, Regulatory Information identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS.
- Section 16, Other Information, includes the date of preparation or last revision.

Important information for general users (non-emergency personnel) of SDS:
All sections of the SDS have important information, however the sections probably of the most value to users of chemicals in our shops & studios include (and that you should be familiar with reading and understanding):

Section 1 – Product Identifier (name of product, manufacturer or distributor and contact information)
Section 2—Hazard(s) Identification (similar to label information)

- Similar information as the label: Signal Word, Hazard Statements, Precautionary Statements, Pictograms

Section 3—Composition Information

- Chemical name(s)—important if the product name is different than the chemical(s) it contains
- For a compound, also gives the percentage(s) of each chemical by weight
- CAS (Chemical Abstract Service) Number—many chemicals have a unique ID number
- Here's an example from a can of spray paint which has 7 hazardous ingredients:

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
14	74-98-6	Propane		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	1000 PPM	
13	106-97-8	Butane		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	800 PPM	
14	108-88-3	Toluene		
		ACGIH TLV	20 PPM	22 mm
		OSHA PEL	100 ppm (Skin)	
		OSHA PEL	150 ppm (Skin) STEL	
38	67-64-1	Acetone		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
5	616-38-6	Dimethyl Carbonate		
		ACGIH TLV	Not Available	53 mm
		OSHA PEL	Not Available	
5	763-69-9	Ethyl 3-Ethoxypropionate		
		ACGIH TLV	Not Available	1.11 mm
		OSHA PEL	Not Available	
0.4	1333-86-4	Carbon Black		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

Section 4—First Aid Measures
Section 6—Accidental Release Measures (what to do in case of a spill)
Section 7—Handling & Storage

- Lists incompatible items, special storage precautions, etc.

Section 8—Exposure Controls/Personal Protection

- Exposure Limits—how much you can be exposed to before it harms you (see more information below)
- Personal Protection—what ventilation and Personal Protective Equipment should be used.

Exposure Limits:

The OSHA permissible exposure limit (PEL), National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL), and/or the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) will also be listed, if appropriate. The OSHA PEL is the enforceable standard, while the others are recommended limits. The PEL is usually expressed in parts per million parts of air (ppm) or milligrams of dust or vapor per cubic meter of air (mg/m3). It is usually a time weighted average (TWA)—a concentration averaged over an eight hour day. Sometimes, a short term exposure limit (STEL) may be listed. The STEL is a 15 minute TWA which should not be exceeded. A ceiling limit (c), is a concentration which may not be exceeded at any time. A skin notation means that skin exposure is significant in contributing to the overall exposure.

OSHA publishes Annotated PEL Tables (October 24, 2013):

- OSHA PEL's continue to be enforced as the mandatory limits
- Acknowledged these limits are not sufficiently protective of workers' health
- New ANNOTATED PEL TABLES
- Side by side comparison of:
  - OSHA PEL
  - CalOSHA PEL
  - NIOSH REL
  - ACGIH TLV
- http://www.osha.gov/dsg/annotated-pels/index.html
- Example:

		Regulatory Limits			Recommended Limits	
		OSHA PEL[b]		Cal/OSHA PEL[f] *(as of 4/26/13)*	NIOSH REL[g] *(as of 4/26/13)*	ACGIH® 2013 TLV® [h]
Substance	**CAS No.[c]**	**ppm[d]**	**mg/m³[e]**	**8-hour TWA (ST) STEL (C) Ceiling**	**Up to 10-hour TWA (ST) STEL (C) Ceiling**	**8-hour TWA (ST) STEL (C) Ceiling**
Turpentine	8006-64-2	100	560	100 ppm	100 ppm	20 ppm