



Material Safety Data Sheet (MSDS) *Sicherheitsdatenblatt*

- The Environmental Final Governing Standards for Germany (FGS, February 2010) and other regulations (Occupational Safety and Health Administration, OSHA or *Verordnung zum Schutz vor Gefahrstoffen, GefStoffV*, December 2010) require that for all hazardous materials (HM) procured, stored or used on the installation, Material Safety Data Sheets (MSDSs) must be maintained (FGS, Chapter 5, paragraph C5.3.5). These must be available in both English and the predominant language of the workforce and must be readily available to all employees in the work area.
- HM are dangerous substances or mixtures with one or more of the following characteristics. One can usually find the hazard pictogram (sign) on the packaging of the product (displayed below are the new symbols in accordance with the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals; These replace the old pictograms which used to be orange squares).

	Explosive		Toxic or very toxic		Carcinogenic/ Mutagenic or teratogenic/ noxious
	Oxidizing		Corrosive		Dangerous to the environment
	Flammable or highly/ easily flammable		Irritant/ sensitizing		Compressed gases

- Format of MSDSs:** MSDSs from companies in the United States (US) differ from European (EU) MSDSs, but they are commonly divided into up to 16 sections (see table below).

US	EU		Section Name	Content (examples)
1	1		Product/Company Identification	MSDS Number, Address
3	2		Hazard Identification	Route of Entry, Acute/Chronic Hazard
2	3		Composition/Ingredients	Fraction by Weight, Additives
4	4		First Aid Measures	Skin/Eye Contact, Inhalation/Ingestion
5	5		Fire Fighting Measures	Flash Point, Extinguishing Media
6	6		Accidental Release Measures	Spill Procedures
7	7		Handling and Storage	Precautions, Storage Restrictions
8	8		Exposure Control/Personal Protection	Ventilation, PPE, Work Hygienic Practice
9	9		Physical/Chemical Properties	Hazard Characteristic Code (HHC), Boiling Point, Viscosity
10	10		Stability/Reactivity Data	Decomposition Products
11	11	*	Toxicological Information	Lethal Dose
12	12	*	Ecological Information	Ecotoxicity, Bioaccumulation, Mobility
13	13		Disposal Considerations	Disposal Method, Recycling
14	14	*	Transport Information	ID Number (UN Number)
15	15	*	Regulatory Information	Contained Components listed in Regulation
16	16		Other Information	Revision Date, HAZCOM Label

* Not always included in the MSDS.

MSDS Information Sheet

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4. **Content of the MSDSs:** Employees working with HM must know the hazards of the material. This is important to prevent accidents (proper storage, personal protective equipment [PPE]). The MSDS also contains information on transportation requirements. The ID number (UN number with four digits) identifies the substance and facilitates recognition of potential hazards. Thirdly, in the event of an emergency, MSDSs contain First Aid Measures, Spill Response and Fire Fighting Measures.

5. **Example: UN 1203** = gasoline = highly flammable liquid: easily ignitable by heat, sparks or flames;



The orange shipment panel (left) indicates the Hazard Identification Number (HIN, top half) and the UN number (bottom half). First Aid Measures: Move victim to fresh air. Remove and isolate contaminated clothing and shoes. Immediately flush skin or eyes with running water for at least 20 minutes. Wash skin with soap and water. Get medical attention.

6. **Exercise:**

- a. What HM is encrypted by the following UN numbers?
b. Find the UN number of the following substances:
- Lithium batteries,
- Argon,
- Acetylene.



7. **Sources for MSDSs:**

- a. The MSDS should be included with the product when it is purchased or received. Always ask for a copy of the respective MSDS when purchasing and picking up an ordered product.
- b. If the MSDS is not included with the product or if no MSDS is available for products already stored at your location, you can usually obtain them from the following internet sites:

<http://hmirmsds.dlis.dla.mil> (registration with CAC)

<http://hazard.com/msds>

<http://ull.chemistry.uakron.edu/erd>

<http://msds.chem.ox.ac.uk/msds-searcher.html>

- c. MSDSs (*Sicherheitsdatenblätter*) in other languages:

<http://www.kodak.com/US/en/corp/hse/prodSearchMSDS.shtml>
(various languages)



8. You can also search for information on the following web pages. Furthermore, you can contact the Safety Office (DSN 354-1670) or the DPW Environmental Division for assistance.

<http://www.wikipedia.com> or <http://www.ericards.net/> (various languages)

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