

Material Safety Data Sheets

When do I use an MSDS?

You use an MSDS whenever you need additional information about a hazardous material that you cannot find on the product label.

Example 1: You work with nitric acid and you spill it on the floor. You need to know how to clean it up safely! You then refer to the "Safe handling" section of the nitric acid MSDS.

Example 2: You are using fluorescent phallotoxins for cellular staining and generate biohazardous waste. You want to know if you can autoclave it. Check the "Disposal consideration" and the "Stability and Reactivity" sections.

What do I need to know to use an MSDS?

You need to know the name of the chemical in order to locate its MSDS. MSDS often contains alternate names for chemicals.

- The **chemical name** or **specific name** is used most often to find MSDSs for health effects and protective measures. **IUPAC** (International Union of Pure and Applied Chemistry) conventions are used more often than **common names**. MSDSs often contain **Synonyms**.
- The **molecular formula** may be used to locate a chemical of known composition.
- You can usually search for substance using its **CAS (Chemical Abstracts Service) registry number**. Different chemicals may have the same name, but each will have its own CAS number.
- Sometimes the easiest way to locate a product is to search by **manufacturer**.
- Products may be found using their **US Defense Department NSN**. A National Supply Number is a four-digit FSC class code number plus a nine-digit National Item Identification Number or NIIN.
- A **trade name** or **product name** is the brand, commercial, or marketing name the manufacturer gives the product. It does not specify what chemicals are in the product or whether the product is a mixture of chemicals or a single chemical.
- A **generic name** or **chemical family name** describes a group of chemicals with related physical and chemical properties. Sometimes an

MSDS will list only the generic name of a product, although in most countries laws require that chemical names also be listed.

How do I use an MSDS?

While MSDS often appear technical, the information is not intended to be difficult to understand. One may simply scan an MSDS to determine if any warnings or hazards are delineated. If the content is difficult to understand there are online MSDS glossaries to help define any unfamiliar words and often contact information for further explanations. Ideally you would read an MSDS before obtaining a product so that you could prepare proper storage and handling. More often, MSDSs are read after a product is purchased. In this case, you can scan the MSDS for any safety precautions, health effects, storage cautions, or disposal instructions. MSDSs often list symptoms that might indicate exposure to the product. An MSDS is an excellent resource to consult when a product has been spilled or a person has been exposed to the product (ingested, inhaled, spilled on skin). The instructions on an MSDS do not replace those of a health care professional, but can be helpful emergency situations. When consulting an MSDS, keep in mind that few substances are pure forms of molecules, so the content of an MSDS will depend on the manufacturer. In other words, two MSDSs for the same chemical may contain different information, depending on the impurities of the substance or the method used in its preparation.

!!!! Important !!!!

Theoretically, MSDSs can be written by pretty much anyone, so the information is only as accurate as the author's understanding of the data and references. According to a 1997 study by OSHA "one expert panel review established that only 11% of the MSDSs were found to be accurate in all of the following four areas: health effects, first aid, personal protective equipment, and exposure limits. Further, the health effects data on the MSDSs frequently are incomplete and the chronic data are often incorrect or less complete than the acute data". This doesn't mean that MSDSs are useless, but it does indicate that information needs to be used with caution and that MSDSs should be obtained from trustworthy and reliable sources.

The bottom line:

No laboratory work shall ever be done with no respect. The chemicals need to be always respected!

You need to know the hazards of chemicals you are using and have a plan for your response to an emergency before emergency happens! Then you will have a chance!