

**Note: In December 2015 MSDS were changed to SDS. SDS can be accessed and used for this activity.**

## Background

Procedures used in a biotechnology lab often require the use of reagents ranging from mildly irritating to very dangerous, and, sometimes, mutagenic. To help prevent serious injury from chemical exposure, all chemical reagents are shipped from supply houses with a MSDS.

As you may recall from earlier lab activities, MSDS stands for "Materials Safety Data Sheet." MSDS are created to provide a worker with the proper procedures for handling substances safely. MSDS are unique to a specific compound and manufacturer; each substance produced by each supply house has its own MSDS. When reagents are ordered, MSDS are sent with them. Some chemical supply houses, such as VWR International, LLC, publish exhaustive binders with MSDS for all the substances they produce. Often, the MSDS information is available on CD-ROM or on the Internet.

The MSDS for the chemicals used in this lab manual are also available online at VWR Scientific Products, LLC. By going to the link, [www.vwrsp.com](http://www.vwrsp.com), and searching for a product name, a page will come up describing the product. A link on that page to the MSDS for the compound will download the MSDS.

A wealth of information about a chemical is found on its MSDS. Listed on the MSDS is information covering the following topics:

- chemical and company identification
- composition of ingredients
- hazards identification/emergency overview
- first aid measures
- fire fighting measures
- accidental release measures (spills/leaks protocol)
- handling and storage
- exposure controls/personal protection
- physical and chemical properties
- stability and reactivity
- toxicological information
- ecological information
- disposal considerations
- transport information
- regulatory information
- additional information

## Purpose

To learn how to access and read a MSDS for chemicals used in a biotech laboratory. To determine some of the physical characteristics of the compounds used and produced in the caffeine assay (Lab 12b) and aspirin production. (Lab 12d.)

## Materials

MSDS Web site or MSDS CD-ROM (Sargent-Welch # WLC9999-HYB)



## Procedure

1. Find and review the MSDS for each of the compounds listed in the data table (see Table 12.1) or a comparable compound from a different manufacturer.
2. Create a full page, landscape version of the data table, and record the information requested for some important characteristics of the compounds and for safety procedures.

Table 12.1. MSDS Information for Compounds in Aspirin Production

Substance	Manufacturer/ Catalog Number(s)	Molecular Weight (g/mol)	Melting Point (°C)	If Exposed to Skin?	If Ingested?
ethanol	EMD Chemicals/YW0475-3				
salicylic acid	EMD Chemicals/EM-SX0060-1				
acetylsalicylic acid	ALFA AESAR/AAA12488-OE				
ferric nitrate	EMD Chemicals/EM-FX0225-1				
acetic anhydride	Mallinckrodt Baker/ MK242002				
caffeine	EMD Chemicals/205548				