

## VCU SCULPTURE DEPARTMENT SAFETY

Below are some basics excerpted from Mike McCann's Artist Beware and Health Hazards: Manual for Artists. For further safety information on any material you are working with, it is a good idea to consult these books, which are available at the VCU Bookstore, on [www.amazon.com](http://www.amazon.com) and kept in the office as a reference as well. The materials we use everyday in our studios can pose serious risks to both our studio mates and us and it is extremely important to use these materials in the safest way possible. Over the years, many artists have gotten cancer as they experiment with new materials. Consult labels, and if they do not tell you enough, call the manufacturer.

### SOME GENERAL CONCEPTS

*Art materials are chemicals.* The fact that you are working with potentially hazardous chemicals should be a major factor in determining your work habits. *You should inquire about the hazards of an art material and how to work safely with them when you first learn about a particular technique.* ASK QUESTIONS. Ask questions the whole time you are in the department, which is what you are here for. Asking if you should be wearing a respirator is not a stupid question; not wearing one when you should be is stupid. Working safely can become an integral part of your routine.

*Consider ways in which you may be exposed to hazardous materials.* One of the aims of safe working practices is to prevent the absorption of hazardous materials into the body, whether by skin contact, inhalation, or ingestion. Examine each material you use and how you use it to determine if your work habits might contaminate your body. READ warnings and instructions. It will become common sense.

*Safety takes longer.* Precautions such as putting on gloves before working or cleanup, cleaning up spills immediately after they happen, not eating in the studio, and washing your hands carefully after work time. It is often tempting to skip a precaution in order to save time and make it to your crit. Don't. This is how accidents and overexposure to chemicals occur. These steps could save you years later.

IN OUR STUDIO SITUATION, IT IS ESPECIALLY IMPORTANT TO TAKE SAFETY PRECAUTIONS INTO ACCOUNT BECAUSE NOT ONLY ARE YOU PUTTING YOURSELF AT RISK, BUT YOU ARE ALSO AFFECTING EVERYONE AROUND YOU. BE CONSIDERATE OF THOSE WITH WHICH YOU WORK.

### KNOWING YOUR MATERIALS

In order to determine what precautions you have to take with your art materials, you have to know what art materials you have in your studio, what's in these

materials, and their hazards. Labels and Material Safety Data Sheets (MSDSs) are important sources of information. MSDSs will be explained in a moment.

### Labels

Labels can contain a lot of helpful information regarding your safety. From a label you can learn the extent of the hazard that you are exposing yourself to through the use of a signal word such as **DANGER**, being the most serious, followed by **WARNING** and **CAUTION** respectively. **DANGER** is reserved for use on items that are highly toxic, corrosive, or extremely flammable. **WARNING** or **CAUTION** is used for substances that are less hazardous.

A list of potential hazards is also included, listing the known significant acute and chronic hazards under reasonably foreseeable uses of descending severity and you should specify the type of hazard. Acutely hazardous components of the substance will be listed.

Safe handling instructions should receive special attention. These instructions should include appropriate precautionary statements concerning fire safety, work practices, ventilation, and personal protection. Followed by safe handling instructions will be the first aid section including recommendations for emergency first aid.

AND.. ALL MATERIALS AND CONTAINERS MUST HAVE ORIGINAL LABELS. This is in compliance with rules mandated by OSHA (Occupational Safety & Health Administration).

### Material Safety Data Sheets (MSDSs)

MSDSs provide the detailed information that a label does not. The problem with these sheets however is that they are not usually offered with a product, and even when they are, they can be hard to decipher. A MSDS often has to be requested from a manufacturer over the telephone or via the internet.

Below is the typical format of an MSDS. This is not necessarily the required format so long as all the information listed is present. We will go through the various sections of an MSDS, as required by the OSHA Hazard Communication Standard.

**Identity.** The identity of the product should be the same name as found on the product label.

**Section I.** The MSDS must have the name, address, and telephone number of the chemical manufacturer, importer, employer, or other responsible party preparing the MSDS who can give further information on the product hazards and emergency procedures. It must also give the date of preparation of the most

recent version. Usually that telephone number is listed under Emergency Telephone Number.

**Section II-Hazardous Ingredients/Identity Information.** This section must have information on hazardous ingredients. This must include the chemical and common names of hazardous ingredients. For mixtures that have been tested as a whole, only the ingredients found to be hazardous must be listed. If the mixture has not been tested, all toxic ingredients at a concentration greater than 1% and all carcinogenic ingredients at concentrations over 0.1% must be listed. Materials are considered hazardous if they have been found to be toxic, carcinogenic, irritating, sensitizing, or damaging to certain body organs.

This section must also have the OSHA Permissible Exposure Limit (PEL) or any other exposure limit used by the manufacturer.

**Section III-Physical/Chemical Characteristics.** This section should include info on boiling point, vapor pressure, vapor density, solubility in water, specific gravity, percent volatile, evaporation rate, appearance and odor.

Some of this can be helpful when determining how much will evaporate and how fast. This is especially used for products containing organic solvents. The percent volatile, for example, can tell you how fast the product will evaporate. In general, low numbers means it takes longer to evaporate.

**Section IV-Fire and Explosion Hazard Data.** This section has info on the flammability of the product, on types of fire extinguishers needed, and info on other special precautions.

**Section V-Reactivity Data.** This section is very important if you might heat the product, mix it with other chemicals, or expose it to UV radiation. It tells you about the product's compatibility with other chemicals and special conditions to avoid. The stability of the product indicates whether the product can decompose to release hydrogen cyanide gas if heated or exposed to UV radiation or acids.

The incompatibility section tells you what chemicals can react with the product. For example, chlorine bleach is incompatible with ammonia, since they react to produce a poison gas. This section is very important in determining what materials you should not store near this product.

The hazardous decomposition section tells you what hazardous chemicals can be produced when the product is heated or burned.

The hazardous polymerization section tells you whether the product can polymerize and what conditions can cause this.

**Section VI-Health Hazard Data.** This section should tell you the routes (skin contact, inhalation, ingestion) by which the product can affect you, the symptoms of overexposure, acute and chronic health effects, emergency first-aid measures, and carcinogenicity.

If the product has been found to be a carcinogen, then the MSDS must say so. The MSDS should also list medical conditions that could be aggravated by exposure to the product.

**Section VII-Precautions for Safe Handling and Use.** This section covers such topics as spill control, waste disposal, storage and handling precautions, and other special precautions such as personal protective equipment needed for spills. When it comes to the part about disposal, please ask someone in the department what you should do with it.

**Section VIII-Control Measures.** This section should give you a lot of info about respirators, ventilation, and other personal protective equipment, but often it doesn't.

The respirator recommendation should state what type of cartridge should be used. The ventilation section should tell you whether general mechanical ventilation is okay and if not, what type is okay. It should also list other recommended personal protective equipment, such as gloves, goggles, and clothing.

OVERALL KEEP IN MIND THAT A LOT OF MATERIALS THAT WE USE WERE ORIGINALLY INTENDED FOR INDUSTRIAL USE. THIS MEANS THAT THE TOXIC RESIN THAT YOUR STUDIO MATE IS USING WAS MEANT TO BE USED IN A PLACE WITH PROPER VENTILATION BY "TRAINED PROFESSIONALS." It is unfortunate that MSDSs are hard to read, but it is worth your time to be on your best defense when it comes to carcinogens.

## CHOOSING A LESS TOXIC ROUTE

### Solvents

Solvents are one of the most important areas in which substitution of safer art materials is possible. The least toxic being denatured alcohol, acetone, and odorless mineral spirits, the most toxic being aromatic and chlorinated hydrocarbons.

### Use Water-Based Materials

Water-based materials are usually safer than solvent-based ones because you do not have to concern yourself with inhalation of vapors with the use of a solvent.

### Avoid Powders

Buying in liquid form instead of powder means that you do not have to worry about inhaling airborne powder.

### Choose the Safest Process

There are a variety of process changes that can be used to minimize hazards. i.e. brushing on paints instead of spraying, wet grinding instead of dry grinding.

### New Materials

If you are experimenting with a new material, it is especially important to contact the manufacturer in order to learn more about their product. Doing so could prevent injury, short or long-term.