SIGNAGE FOR LABORATORIES AND HAZARDOUS AREAS

All University laboratories and other rooms utilized for the storage of hazardous materials must be marked at each entrance for safe and effective emergency response. The following US DOT placards and descriptions for hazardous materials are referenced in the *US DOT Emergency Response Guidebook* and the Allegheny County Emergency Planning requirements. In most cases, only significant hazards or larger quantities of materials require posting. An EH&S guideline is provided after each description.

An EXPLOSIVE is any substance or article, including a device designed to function by explosion (i.e., an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion.

Post this placard any time any quantity of explosive material is present.

A FLAMMABLE GAS is any material, which is a gas at 20°C (68°F) or less and 101.3 kPa (14.7 psi) of pressure
which-

(1) Is ignitable at 101.3 kPa (14.7 psi) when in a mixture of 13 percent or less by volume with air; or

(2) Has a flammable range at 101.3 kPa (14.7 psi) with air of at least 12 percent regardless of the lower limit.

Post this placard any time any quantity of flammable gas is present.

OXYGEN, compressed in cylinders.

Post this Placard if more than 2 oxygen cylinders (empty or full) are present.

NON-FLAMMABLE, NONPOISONOUS GAS (including compressed gas, liquefied gas, pressurized cryogenic gas, compressed gas in solution, asphyxiant gas and oxidizing gas) which-

(1) Exerts in the packaging an absolute pressure of 280 kPa (40.6 psia) or greater at 20 °C (68 °F), and

(2) Does not meet the definition of a flammable or poison gas.

Post this placard on large accumulation sites for such gas (EH&S can provide assistance in determination).

A POISON GAS is poisonous by inhalation, is a gas at 20°C (68°F) or less and a pressure of 101.3 kPa (14.7 psi), and which is known to be so toxic to humans as to pose a hazard to health during transportation; or in the absence of adequate data on human toxicity, is presumed to be toxic to humans because when tested on laboratory animals it has an LC50 value of not more than 5000 ml/m\3\

Post this placard any time any quantity of poison gas is present.

A FLAMMABLE LIQUID means a liquid having a flash point of not more than 60.5°C (141°F).

Post this placard if more than 10 gallons of flammable liquid are stored in the room.

A FLAMMABLE SOLID is a

(1) Desensitized explosive, or

(2) Self-reactive material that is thermally unstable and can undergo a strongly exothermic decomposition even without participation of oxygen (air), or

(3) Readily combustible solid which may cause a fire through friction that shows a burning rate faster than 2.2 mm (0.087 inches) per second when tested in accordance with UN Manual of Tests, and are metal powders that can be ignited and react over the whole length of a sample in 10 minutes or less.

Post this placard if more than 2kg of flammable solid is present.

A SPONTANEOUSLY COMBUSTIBLE material is

(1) A pyrophoric material: a liquid or solid that, even in small quantities and without an external ignition source, can ignite within five (5) minutes after coming in contact with air, or

(2) A self-heating material: a material that, when in contact with air and without an energy supply, is liable to self-heat. A material of this type which exhibits spontaneous ignition or if the temperature of the sample exceeds 200 °C (392 °F) during a 24-hour test period…

Post this placard any time any quantity of spontaneously combustible material is present.

A DANGEROUS WHEN WET material is a material that, by contact with water, is liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram per hour.

Post this placard any time any quantity of dangerous when wet material is present.

An OXIDIZER (**Division 5.1**) is a material that may, generally by yielding oxygen, cause or enhance the combustion of other materials.

Post this placard if more than 5 kg of an oxidizer is present.

An ORGANIC PEROXIDE (**Division 5.2**) is any organic compound containing oxygen (O) in the bivalent -O-O- structure and which may be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.

Post this placard if more than 2 liters of organic peroxide is present.

A POISON is a material, other than a gas, which is known to be so toxic to humans as to afford a hazard to health during transportation, or which, in the absence of adequate data on human toxicity:

(1) Is presumed to be toxic to humans because it falls within any one of the following categories when tested on laboratory animals (whenever possible, animal test data that has been reported in the chemical literature should be used):

(i) A liquid with an LD50 for acute oral toxicity of not more than 500 mg/kg or a solid with an LD50 for acute oral toxicity of not more than 200 mg/kg.

(ii) A material with an LD50 for acute dermal toxicity of not more than 1000 mg/kg.

(iii) A dust or mist with an LC50 for acute toxicity on inhalation of not more than 10 mg/L; or

(iv) A material with a saturated vapor concentration in air at 20 °C (68 °F) of more than one-fifth of the LC50 for acute toxicity on inhalation of vapors and with an LC50 for acute toxicity on inhalation of vapors of not more than 5000 ml/m^3.

Consult with EH&S regarding posting of areas for poisons.

A CORROSIVE material is a liquid or solid that causes full thickness destruction of human skin at the site of contact, or a liquid that exhibits a corrosion rate on steel or aluminum surfaces exceeding 6.25 mm (0.25 inch) a year at a test temperature of 55°C (130°F).

Post this placard if more than 3 gallons of corrosive material is present.

This BIOHAZARD symbol is a general biohazard warning to be used where biological hazards, such as potentially infectious material, human body fluid, unfixed human tissue, human cell lines, viral, bacterial, rickettsial, fungal and parasitic agents, and/or biological waste are utilized.