

Safety Guideline:

Use of Tricaine Methane Sulfonate (MS-222)

Background:

Tricaine methane sulfonate (MS-222) is a commonly used fish/amphibian anesthetic. The compound is an isomer of benzocaine. It is a solid at room temperature.

Tricaine methane sulfonate has an oral rat LD50 of 5200mg/kg, which does not meet the OSHA classification of a toxic chemical. OSHA classifies a chemical as toxic if the oral rat LD50 is less than 500 mg/kg. The primary hazard of MS-222 is that it is a respiratory irritant.

Procedures:

- Solid MS-222 should be carefully weighed on the lab balance and dissolved in water/buffer at 10 to 1000 mg/liter (.001 to 0.1 percent) depending on species of fish.
- Weigh the solid in a closed room to minimize air disturbances which might aerosolize the solid.
- For preparing solutions of MS-222 in the laboratory, the following personal protective equipment should be worn: labcoat, gloves and safety glasses.
- When animals are immersed in an anesthetizing bath, there is a potential for splash and the following personal protective equipment should be worn: labcoat, gloves and chemical splash goggles.
- Local exhaust ventilation (hood) is not required for typical applications in research labs or in the field, and air currents within the hood may make weighing the solid difficult. As long as staff are careful to avoid aerosolization during the weighing of the solid, there is minimal potential for exposure to the pure MS-222.
- Use of a particulate respirator (N-95) is not required for typical applications in research labs or in the field. As long as staff are careful during the weighing of the solid, there is minimal potential for exposure to the pure MS-222. Use of an N95 respirator will help prevent inhalation in the event of accidental aerosolization, and is encouraged for those seeking additional protection, or who are new at carrying out the procedure. If you wish to wear an N95 respirator, you must participate in the MSU Respirator Protection Program.
- Contact Environmental Health and Safety to assist with risk assessment if non-typical applications (e.g., use of large quantities, long exposure duration) are being considered.

Questions regarding safety practices when using tricaine methane sulfonate should be directed to Environmental Health and Safety, Office of Radiation, Chemical and Biological Safety (355-0153).

References:

Western Chemical, Inc., Tricaine-S Instructions for Use, Retrieved October 27, 2009.

http://www.wchemical.com/Assets/File/tricaineS_instructions.pdf

Western Chemical, Inc., Tricaine-S MSDS, Retrieved October 27, 2009.

http://www.wchemical.com/Assets/File/tricaineS_MSDS.pdf

PHARMAQ, Ltd., MS222 MSDS, Retrieved October 27, 2009.

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