

Guideline

Safe use of MS-222

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. MS-222 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 of a respiratory irritant.

Minimizing Exposure Potential

- For preparing solutions of MS-222 in the laboratory, the following personal protective equipment must be worn: labcoat, gloves and safety glasses. PPE to minimize skin exposure is especially important to me the potential for skin exposure.
- Solid MS-222 should be carefully weighed on the lab balance and dissolved in water/buffer according to procedures outlined in the use protocol.
- Weigh the solid in a closed room to minimize air disturbances which might aerosolize the solid.
- 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. In situations where the risk of aerosolization is high due to conditions, use of an N95 respirator may be prudent to help prevent inhalation. If you wish to wear an N95 respirator, you must participate in the area's Respiratory 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.



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