

UCSD Guidelines for the Preparation, Storage and Use of Tricaine Methanesulfonate

Tricaine Methanesulfonate (i.e. Finquel, MS-222, Tricaine-S) is used for anesthesia or euthanasia of fish and other cold-blooded aquatic animals. It comes in a powdered form and should be stored at room temperature as a powder.

The following concentrations are meant to serve only as a guideline. The exact dose should be determined considering variables such as species and size of fish, life stage, water chemistry parameters, etc.

Anesthetic Concentration:

To use Tricaine as an anesthetic, add 4.2ml (4mg/ml) Tricaine to 100ml of tank or system water to create a 0.168 mg/ml solution (168 mg/L). Buffer to pH 7 - 7.5.

Euthanasia Concentration:

To use Tricaine for euthanasia, add 1.0ml (4mg/ml) Tricaine to 10ml of tank or system water to create a 0.4 mg/ml solution (400 mg/L). Buffer to pH 7 - 7.5. Place the mixture in an appropriately sized container. Add the fish. Fish should remain completely immersed for at least 10 minutes following cessation of opercular movements (respiration).

IMPORTANT: Use a weighing dish and clean the scale thoroughly after weighing out MS-222. Store preparation in a refrigerator or freezer in a dark brown bottle or wrap the bottle with tinfoil. Bottles should be clearly labeled with the name of the drug, concentration, and date of preparation. Replace solution monthly. Handle powder and prepare solutions according to the Chemical Hygiene Plan found at blink.ucsd.edu. Standard laboratory personal protective equipment including lab coat or gown, safety glasses and gloves are required. Reconstituting powder inside a hard ducted biosafety cabinet or fume hood is recommended.

In typical use, the mode of action of MS-222 in solution is permeation of fish or amphibian skin. Of course, it can also permeate human skin (albeit at a much lower rate), particularly when dissolved. Personnel should wear chemical resistant gloves (e.g. Nitrile) when reaching into tanks containing MS-222 or handling exposed animals.

Disposal: All preparations, diluted water baths and expired powder, are considered hazardous chemical waste and must be disposed of through EH&S. Disposal of MS-222 down the drain is not an acceptable method. Please contact EH&S for additional information and to request a waste pickup. <http://blink.ucsd.edu/safety/research-lab/hazardous-waste/chemical.html>