

Chemical Safety Practices Recommendations

Azoxymethane (AOM)

Exposure Hazards (1)

Category 2
Danger
Toxic



Fatal If Swallowed

Category 1B
Danger



Carcinogenicity
May Cause Cancer

Response to Exposure

Disulfiram may prevent the production of the toxic metabolites after acute AOM exposure.(2) Do not self-medicate.

Oral	Dermal	Inhalation	Injection
Rinse mouth; do not induce vomiting. Report to OHS.	Wash skin with soap and water for 15 minutes. Rinse eyes for 15 minutes. Report to OHS.	Leave area; go to clean air. Report to OHS.	Report to OHS.
Special Precautions	Azoxymethane is volatile and flammable. HEPA filters will not prevent exposure. Pregnant women should exercise additional caution when working with or around AOM.		
Personal Protective Equipment	Gloves (Double glove) (Latex or Nitrile) Skin Protection (Suit or Scrubs or Lab Coat) Eye Protection (Safety-glasses or Goggles) Closed-toe shoes Respirator with Organic Vapor + P100 cartridges (3M #60926) if engineering controls are not available. Supplied air or SCBA systems should be used in the event of chemical spills.		
Engineering Controls	Azoxymethane may not be used in a system which recirculates air. Azoxymethane must be used in a 100% exhausted CFH or Class II, B2 BSC.(3) Animals, waste, and bedding until 10 days after last treatment- CFH or Class II, B2 BSC		
Animal Handling	Avoid exposure to animal waste until 10 days after last treatment. Animals may exhale AOM for up to 10 days. (2) Treat animals as hazardous.		
Bedding Disposal	Dispose of bedding as hazardous material until 10 days after last treatment. Seal bags.		
Work Practices	Empty Azoxymethane containers and unused Azoxymethane must be disposed of as hazardous. Seal containers for disposal tightly to prevent evaporation. Follow LASP SOPs for preparation, handling, dosing, and disposal of Azoxymethane.		

References:

1. Azoxymethane MSDS [Internet]. Sigma. 2014 [cited 12/17/2014]. Available from: <http://www.sigmaaldrich.com/united-states.html>.
2. Fiala ES. Investigations into the metabolism and mode of action of the colon carcinogens 1,2-dimethylhydrazine and azoxymethane. *Cancer*. 1977;40(5 Suppl):2436-45.
3. National Research Council Committee on Prudent Practices in the L. The National Academies Collection: Reports funded by National Institutes of Health. Prudent Practices in the Laboratory: Handling and Management of Chemical Hazards: Updated Version. Washington (DC): National Academies Press (US)

Questions or concerns: Please contact EHS, Ted Witte, theodore.witte@nih.gov or 301-846-5860
Reviewed 12/21/2014 *These recommendations are not final and may be updated.*

Chemical Safety Practices Recommendations

Azoxymethane (AOM)

Aozymethane (AOM) is metabolized to Methylazoxymethanol (MAOM) which then spontaneously degrades to form the compounds believed to cause carcinogenic damage. AOM and MAOM are volatile and will readily evaporate into the atmosphere and are exhaled for an extended period of time by treated animals, though if metabolized normally AOM expiration will mainly occur in the first few hours after injection. AOM and MAOM are also excreted in the urine, but in trace quantities (<2%). The bulk of the AOM will be metabolized to carbon dioxide. Activated carbon filters capable of trapping organic vapors are necessary to prevent personnel exposure.

While AOM metabolites are potentially damaging to all organs of the body, the tendency to cause colon cancer is caused in part by hepatic recirculation of the proximal carcinogen Methylazoxymethanol (MAOM), which is then deconjugated by enteric bacteria and reabsorbed. The formation of toxic metabolites can be prevented in animals by treatment with Disulfiram (Antabuse) and the reabsorption of MAOM does not occur in animals without enteric bacteria.