

Chemical Safety Practices Recommendations

7, 12 Dimethylbenz[a]anthracene (DMBA)

Exposure Hazards (1)

Category 1B
Danger



Carcinogenicity
May Cause Cancer

Category 4
Warning
Toxic



Harmful if Swallowed

Response to Exposure

Oral

Rinse mouth; do not induce vomiting.
Report to OHS.

Dermal

Protect contaminated skin from UV and sun light. (2)
Wash skin with soap and water for 15 minutes.
Rinse eyes for 15 minutes.
Report to OHS.

Inhalation

Leave area; go to clean air.
Report to OHS.

Injection

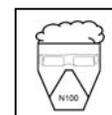
Report to OHS.

Special Precautions

LATEX OR BUTYL RUBBER GLOVES SHOULD BE USED IF SKIN PAINTING ANIMALS (3)
ACETONE WILL DEGRADE AND PENETRATE NITRILE
Discard garments as hazardous if contaminated with DMBA.
Wash potentially contaminated flesh before allowing UV/sunlight exposure.

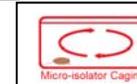
Personal Protective Equipment

Gloves (Double glove) (Latex or Nitrile) (Butyl or latex rubber if contact with acetone is possible)
Skin Protection (Suit or Scrubs or Lab Coat)
Eye Protection (Safety-glasses or Goggles)
Closed-toe shoes
Use N100 respirator if engineering controls are not available.



Engineering Controls

DMBA powder- Chemical Fume Hood (CFH)(4)
DMBA solution- CFH or Biosafety Cabinet (Class II, B2 BSC if aerosolized)
Animal waste and bedding until 1 day after last oral treatment or ten days after last topical treatment - CFH or Class II, B2 BSC



Animal Handling

Avoid exposure to animal feces and urine until one day after last systemic treatment. (5)
Avoid exposure to animal dander and bedding until 10 days after last topical treatment.(6)

Bedding Disposal

Dispose of bedding as hazardous material until one day after last oral treatment.
Dispose of bedding as hazardous material until 10 days after last topical treatment.

Work Practices

Empty DMBA containers and unused DMBA must be disposed of as hazardous.
Skin Painting- Refer to NCI Frederick [ACUC Document 34](#)
Follow [LASP SOP 4.003F](#) for preparation, handling, dosing, and disposal of DMBA.

References:

1. <7,12 - Dimethyl Benzanthracene DMBA MSDS Sigma 10272014.pdf> [Internet]. Sigma-Aldrich. 2014 [cited 10/27/2014]. Available from: <http://www.sigmaaldrich.com/united-states.html>.
2. Yu H, Xia Q, Yan J, Herreno-Saenz D, Wu YS, Tang IW, et al. Photoirradiation of polycyclic aromatic hydrocarbons with UVA light - a pathway leading to the generation of reactive oxygen species, lipid peroxidation, and dna damage. International journal of environmental research and public health. 2006;3(4):348-54.
3. OSHA. Personal Protective Equipment. OSHA; 2003.
4. 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) National Academy of Sciences.; 2011.
5. Archuleta MM, Born JL, Montano RM, Burchiel SW. Covalent binding of 7,12-dimethylbenz[a]anthracene to lymphoid and nonlymphoid tissues following oral administration to B6C3F1 mice. Toxicology and applied pharmacology. 1992;113(1):133-7.
6. ATSDR. Toxicological Profile for Polycyclic Aromatic Hydrocarbons [Toxicological Profile]. 1995. Available from: <http://www.atsdr.cdc.gov/toxprofiles/index.asp>.

Questions or concerns: Please contact EHS, Ted Witte, theodore.witte@nih.gov or 301-846-5860
Reviewed 04/06/2015 *These recommendations are not final and may be updated.*

Chemical Safety Practices Recommendations

7, 12 Dimethylbenz[a]anthracene (DMBA)

7,12 Dimethylbenzanthracene, or DMBA, is a polycyclic aromatic hydrocarbon (PAH) used in a variety of induced carcinogenesis models. DMBA does not occur in nature but functions in the same manner as other PAHs such as Benzo[a]pyrene - an ubiquitous environmental pollutant.

DMBA is activated by the action of ultraviolet light or the enzyme CYP1B1 and creates DNA damage by forming DNA adducts. When administered orally to mice DMBA is cleared from the body very rapidly. When DMBA is applied topically it may take over a week for the DMBA to diffuse through the skin and be excreted.