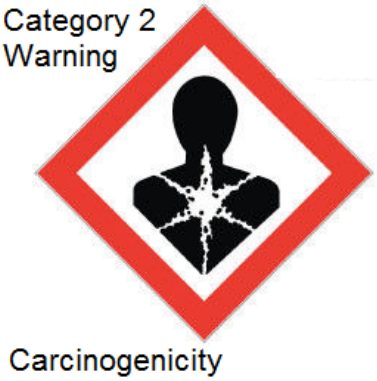
Chemical Safety Practices Recommendations

12-O-Tetradecanoylphorbol-13-acetate

(TPA, PMA, Phorbol 12-myristate 13-acetate, Phorbol myristate acetate)

Exposure Hazards (1, 2)



Suspected of Causing Cancer

Causes Serious Eye, Skin, and Respiratory Irritation

Response to Exposure

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	LATEX OR BUTYL RUBBER GLOVES SHOULD BE USED IF SKIN PAINTING ANIMALS (3) ACETONE WILL DEGRADE AND PENETRATE NITRILE DMSO Will Rapidly Penetrate Gloves- Remove Gloves Immediately if Contact with DMSO is Made.
Personal Protective Equipment	Gloves (Double glove) (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	TPA powder- Chemical Fume Hood (CFH) (4) TPA solution- CFH or Biosafety Cabinet (Class II, B2 BSC if aerosolized) Animal waste and bedding until three days after last topical treatment- CFH or Class II, B2 BSC 
Animal Handling	Avoid contact with animals until three days after last treatment. (5)
Bedding Disposal	Dispose of bedding as hazardous material until three days after last treatment.
Work Practices	Dispose of unused TPA and empty containers as hazardous. Skin Painting- Refer to NCI Frederick ACUC Document 34 Follow LASP Protocol 4.003F

References:

1. Goel G, Makkar HP, Francis G, Becker K. Phorbol esters: structure, biological activity, and toxicity in animals. International journal of toxicology. 2007;26(4):279-88.
2. TPA MSDS [Internet]. Cell Signalling Technology. 2015. Available from: http://media.cellsignal.com/www/pdfs/resources/msds/4174_SDS_US_EN_V2.pdf.
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. Berry DL, Bracken WM, Fischer SM, Viaje A, Slaga TJ. Metabolic conversion of 12-O-tetradecanoylphorbol-13-acetate in adult and newborn mouse skin and mouse liver microsomes. Cancer research. 1978;38(8):2301-6.

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

12-O-Tetradecanoylphorbol-13-acetate

(TPA, PMA, Phorbol 12-myristate 13-acetate, Phorbol myristate acetate)

TPA is an inflammatory compound isolated from the Croton plant, a member of the Euphorbia or 'spurge' family. Croton oil has been used in the past as an herbal medicine, but TPA extracted from Croton oil is the most potent promoter of tumor growth currently known. It is commonly used to induce the development of papillomas after topical or systemic administration of a carcinogen.

TPA is deactivated by carboxylesterases. Within 24 hours 70-90% of topically administered TPA will be degraded to an inactive form.

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