



## Material Safety Data Sheet

According to ISO 11014-1

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1. IDENTIFICATION OF SUBSTANCE		
<b>Name:</b>	<b>PODOPHYLLUM - SALICYLIC ACID - CANTHARIDIN MIXTURE</b>	
<b>Manufacturer:</b>	Department of Pharmacy Duke University Medical Center Box 3089 Durham, NC 27710 919-684-5125	
<b>Information Department:</b>	Occupational and Environmental Safety Office Duke University Medical Center Box 3914 Durham, NC 27710 919-684-5996	
<b>Emergency Information:</b>	Regional Poison Control Center 800-848-6946	
2. COMPOSITION/INFORMATION ON INGREDIENTS		
<b>Chemical Characterization/Description:</b> Cantharidin-podophyllum-salicylic acid-acetone mixture		
<b>Synonym(s):</b> Cantharidin: cantharone; Podophyllum resin: podophyllin; Benzoin: bitter almond oil camphor; Salicylic acid: sax; Acetone: propanone, dimethyl ketone; Ethyl alcohol: ethanol, absolute alcohol; Ethyl ether: diethyl oxide		
<b>Components (CAS#, Hazardous Chemical, Percent):</b>		
56-25-7	Cantharidin	1%
9000-55-9	Podophyllum	5%
69-72-7	Salicylic acid	30%
67-64-1	Acetone	40%
Multiple	Flexible collodion: ethyl ether (17%); ethyl alcohol (6%); camphor, castor oil, & pyroxylin (<1% each)	24%
3. HAZARDS IDENTIFICATION		
<b>Hazard Description:</b>		
Multiple components of this product are toxic or poisonous by various routes. This product should be considered flammable. (Hazard description based on concentrated constituents; this product is compounded product.)		
<b>NFPA Ratings (scale 0-4):</b>		
Health	3	
Fire:	4	
Reactivity:	3	

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**4. FIRST AID MEASURES**

**Inhalation:**

Remove victim to fresh air. Give oxygen or artificial respiration if necessary.

**Skin Contact:**

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. Seek medical attention if warranted.

**Eye Contact:**

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

**Ingestion:**

DO NOT INDUCE VOMITING.

If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open, and lay the victim on his/her side with the head lower than the body. Transport the victim IMMEDIATELY to a hospital.

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**5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Agents:**

Use alcohol foam, CO<sub>2</sub>, or dry chemical to fight fire. Consider appropriate extinguishing media for surrounding fire. Product may be combustible when heated.

**Protective Equipment:**

Self-contained breathing apparatus and protective equipment for fire fighting.

**6. ACCIDENTAL RELEASE MEASURES**

**Personnel Precautions:**

Wear gloves (butyl rubber) and eye protection (chemical splash goggles).

**Environmental Precautions:**

None necessary under normal conditions of use.

**Measures for Cleaning/Collection:**

Use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as contaminated clothing, in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution.

**7. HANDLING AND STORAGE**

**Handling:**

Wear PPE when handling this material. Wash hands after handling.

**Storage:**

Store in a cool, dry, well-ventilated location.

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION		
<b>Engineering Controls:</b>		
None necessary under conditions of normal use.		
<b>Control Parameters:</b>		
<u><b>Chemical</b></u>	<u><b>Limit</b></u>	<u><b>Reference</b></u>
Cantharidin	N/A	N/A
Podophyllum	N/A	N/A
Salicylic acid	N/A	N/A
Acetone	500 ppm	ACGIH TLV-TWA
	750 ppm	ACGIH TLV- STEL
Ethyl ether	400 ppm	ACGIH TLV-TWA
	500 ppm	ACGIH TLV- STEL
Ethyl alcohol	1000 ppm	ACGIH TLV-TWA
<b>Personal Protective Equipment:</b>		
<u><b>Respiratory Protection</b></u>		
None necessary under conditions of normal use.		
<u><b>Skin Protection</b></u>		
Wear gloves (butyl rubber) when using this chemical. If this chemical comes into contact with your gloves, or if a tear/puncture develops, remove gloves at once and wash hands.		
<u><b>Eye Protection</b></u>		
Splash-proof safety goggles should be worn while handling this chemical.		
9. PHYSICAL AND CHEMICAL		
<b>Physical State:</b> Liquid	<b>Color and Odor:</b> Brown, opaque; acetone odor	
<b>pH:</b> N/A	<b>Boiling Point (°C):</b> 56.5 (acetone)	
<b>Flashpoint (°C):</b> -18 (acetone)	<b>Autoignition Temperature (°C):</b> 465 (acetone)	
<b>Explosion Properties:</b> LEL=2.6%; UEL=12.8% (acetone)	<b>Vapor Density (air = 1):</b> 2 (acetone)	
<b>Vapor Pressure</b> <b>(mm Hg@39.5°C):</b> 400 (acetone)	<b>Odor Threshold:</b> 2 ppm (acetone)	
	<b>Specific Gravity (water = 1):</b> 0.8	
<b>Solubility:</b> Soluble in water.		

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**10. STABILITY AND REACTIVITY**

**General:** This product is considered stable.

**Materials to Avoid:** Product presents a fire and explosion hazard and can react vigorously with oxidizing materials.

**Hazardous Decomposition Products:** When heated to decomposition, product may emit acrid smoke and irritating fumes.

**11. TOXICOLOGICAL INFORMATION**

**Acute Toxicity:** Cantharidin is a deadly human poison by ingestion and an experimental poison by subcutaneous route. The oral LD<sub>Lo</sub> is 428 µg/kg (human). Podophyllum resin is a poison by ingestion, subcutaneous, and intraperitoneal routes. The oral LD<sub>50</sub> is 68 mg/kg (mouse). Salicylic acid is a poison by ingestion, intravenous, and intraperitoneal routes and is moderately toxic by subcutaneous route. It is a skin and severe eye irritant. The oral LD<sub>50</sub> is 480mg/kg (mouse). Acetone is moderately toxic by various routes and is a skin and severe eye irritant. Skin exposure to 500 mg/24 hours resulted in a "mild" rating in rabbits. Ethyl ether is moderately toxic by ingestion, intraperitoneal, and intravenous routes and an experimental poison by subcutaneous route. It is moderately toxic by inhalation and is a CNS depressant. The oral LD<sub>Lo</sub> is 420 mg/kg (human). Ethyl alcohol is moderately toxic to humans by ingestion, and mildly toxic by inhalation and skin contact. The oral LD<sub>Lo</sub> for humans is 1400 mg/kg.

**Signs/Symptoms of Overexposure:** Skin contact with salicylic acid can result in ear tinnitus. Acetone is narcotic in high concentration. Human systemic effects by inhalation include changes in EEG, changes in carbohydrate metabolism, nasal effects, conjunctiva irritation, respiratory system effects, nausea and vomiting, and muscle weakness. By ingestion, acetone may cause coma, kidney damage, and metabolic changes. Systemic effects from ethyl ether include intoxication, drowsiness, stupor, and unconsciousness. Death due to respiratory failure may result from severe and continued exposure. Ethyl alcohol exposure may cause anesthesia, nausea, headaches, and dizziness.

**Chronic Toxicity:** This product is not considered a carcinogen by NTP, IARC or OSHA. Cantharidin is an experimental tumorigen and neoplastogen. Salicylic acid is an experimental teratogen and has experimental reproductive effects. Ethyl alcohol is an experimental tumorigen and teratogen and may cause human reproductive effects.

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<b>12. ECOLOGICAL EFFECTS</b>
None anticipated under normal conditions of use.
<b>13. DISPOSAL CONSIDERATIONS</b>
Dispose of all waste and contaminated materials associated with this chemical as specified by existing local, state and federal regulations concerning hazardous waste disposal. Contact the Occupational and Environmental Safety Office for specific guidance.
<b>14. TRANSPORT INFORMATION</b>
<b>Proper Shipping Name (DOT):</b> Flammable liquid, n.o.s.  <b>Hazard class: 3</b> <b>UN/ID number:</b> UN1993 <b>Labels required:</b> Flammable liquid <b>Packing group:</b> II
<b>15. REGULATORY INFORMATION</b>
Cantharidin is listed in the EPA Extremely Hazardous Substances List and TSCA Inventory. Salicylic acid, ethyl ether, and acetone are reported in EPA TSCA Inventory and Genetic Toxicology Program. Ethyl alcohol is reported in the EPA Genetic Toxicology Program.
<b>16. OTHER INFORMATION</b>
This information is based on our present knowledge; however this shall not constitute a guarantee for any specific product features. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components.