

MATERIAL SAFETY DATA SHEET • MSDS



SECTION 1 • PRODUCT IDENTIFICATION

TRADE NAME	EPOXY HARDENER
ANAMET PRODUCT NUMBER	233-H

CHEMICAL NAME

MANUFACTURER / SUPPLIER'S NAME ANAMET
ADDRESS P.O. Box 538
 BOUCHERVILLE, QUÉBEC, J4B 6Y2
TELEPHONE NO. (450) 646-1290
EMERGENCY TELEPHONE NO. CANUTEC (613)-996-6666

SECTION II • COMPOSITION / INFORMATION ON COMPONENTS

Chemical characterization Description	CAS number	%	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Triethylenetetramine mixture.	112-24-3	<98.4	Not available.	Not available.
Aminoethylethanolamine.	111-41-1	<1.6	Not available.	Not available.
Aminoethylpiperazine.	140-31-8	<1.3	Not available.	Not available.
Tetraethylenepentamine mixture	112-57-2	<1.1	Not available.	Not available.

NOTE: Ingredients are listed on the TSCA Inventory of Chemical Substances. Those not identified are non-hazardous.

SECTION III • PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling point in °C	277.2 °C (531°F)	Vapor pressure (mm Hg)	0.06 mm @ 70°F
Melting point in °C	Not applicable.	Vapor density (Air = 1)	Not applicable.
Density (Water = 1)	0.98	Evaporation rate (Butyl acetate= 1)	<0.01
Solubility in water	Soluble.		
Appearance and odor	Yellow liquid / mild ammonia.		

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SECTION IV • FIRE / EXPLOSION HAZARD

Flash point	180°C			
Flammable limits	LEL	Not applicable	UEL	Not applicable
Extinguishing media	Water fog or fine spray. Dry chemical fire extinguishers. Carbon monoxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.			
Special fire fighting procedures	Wear positive pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant clothing with SCBA and fight fire from a remote location.			
Unusual fire and explosion hazards	Heat is generated when product is mixed with water. Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Carbon monoxide. Carbon dioxide.			

SECTION V • REACTIVITY

Stability	Thermally stable at typical used temperatures.
Conditions to avoid	Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Reaction with carbon dioxide may form an amine carbamate. Smoke may be generated depending on vapor pressure of mixture. Product absorbs carbon dioxide from the air.
Incompatibility	Heat is generated when mixed with water. Spattering and boiling can occur. Avoid contact with oxidizing materials. Avoid contact: Acids, acrylates, alcohol, Aldehydes, halogenated hydrocarbons, ketones, nitrites. Avoid contact with metals such as brass, bronze, copper and copper alloys. Avoid contact with absorbent materials such as ground corn cobs, peat moss and sawdust.
Hazardous decomposition products	Decomposition of the product will depend upon the temperature, air supply and the presence of other materials. Decomposition products may include and are not limited to ammonia, ethylenediamine and volatile amines.
Hazardous Polymerization	Hazardous polymerization will not occur.

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Thermal Decomposition	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Ammonia, Ethylenediamine, volatile amines
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SECTION VI • TOXICOLOGICAL PROPERTIES OF PRODUCT

A - SUGGESTED FIRST AID

Eyes	Irrigate with eyewash solution or clean water, holding the eyelids apart for at least 30 minutes. Obtain medical attention. Call a physician.
Skin	Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse.
Inhalation	Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention.
Ingestion	Do not induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain medical attention. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physician

There is no specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications. The stomach should be evacuated carefully in case of ingestion. Due to the irritating nature of the material, any aspiration during vomiting could result in severe lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. However, the acute peroral systemic toxicity of the material indicates that evacuation of the stomach contents should be undertaken at the earliest possible time by means carrying the least likelihood of aspiration (e.g. the use of gastric lavage with endotracheal intubation).

B – TOXICOLOGICAL INFORMATION

PRIMARY ENTRY ROUTES: Inhalation, ingestion, skin, and eye.

• SHORT TERM EXPOSURE

Inhalation	Vapor is irritating and may cause excessive tear formation, burning sensation of the nose and throat, coughing, wheezing, shortness of breath, nausea and vomiting. Extremely high vapor concentrations may cause lung damage. Some individuals may develop asthma.
Skin	Liquid or vapor can irritate the skin. Severe exposure may result in serious skin burns. May cause allergic skin reaction. Classified as corrosive to the skin.
Eyes	May cause pain disproportionate to the level of irritation to eye tissues. May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns occur.
Ingestion	Liquid may cause burning of the mouth, throat and digestive tract with abdominal pain, nausea, vomiting, diarrhea, thirst, weakness, shock (collapse)

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and death. Permanent damage could result.

• LONG TERM EXPOSURE

Carcinogenicity	Does not cause cancer in laboratory animals.
Teratogenicity, Mutagenicity and other reproductive effects	In vitro mutagenically studies were positive.
Skin Sensitization	The material is a strong skin sensitizer. Corrosive. Contact may cause chemical blistering and burns.
Respiratory tract sensitization	The material is a strong respiratory sensitizer.
Synergistic materials	Not available.

SECTION VII • PRECAUTIONARY INFORMATION

PERSONAL PROTECTIVE MEASURES

Eye, face & hands	Wear a face-shield which allows use of chemical goggles, or wear a full-face respirator, to protect face and eyes when there is any likelihood of splashes. Eye wash fountain should be located in immediate work area. Use protective chemically resistant to this material.
Respiratory protection	Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved air-purifying or positive-pressure supplied-air respirator depending on the potential airborne concentration.
Ventilation	Provide adequate ventilation, including appropriate local extraction, to insure that the defined occupational exposure limit is not exceeded. Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.
Hearing	As needed in accordance with OSHA 1910-215.
HMIS Coding	Health: 3 Fire: 1 Reactivity: 0

SECTION VIII • SAFETY PRECAUTIONS IN CASE OF LEAKS OR SPILLS

Spill or leak procedure	Ensure suitable personal protection (including respiratory protection) during removal of spillages. Prevent entry into drains. Adsorb spillages onto sand, earth or any suitable adsorbent material. Do not adsorb onto sawdust or other combustible materials. Transfer to a container for disposal or recovery. Spillages or uncontrolled discharges into water courses must be alerted to the appropriate regulatory body.
Waste disposal	Disposal should be in accordance with local, state, or national legislation. Incinerate under approved controlled conditions.



SECTION IX • STORAGE AND HANDLING

Storage	Store in the stainless steel or aluminum containers. Maintain a nitrogen atmosphere. Protect from atmospheric moisture. Minimize sources of ignition, such as static build up, heat, spark or flame. Do not store in brass, bronze, copper and copper alloy containers.		
Handling	Avoid contact with skin, eyes and clothing. Avoid inhalation of high concentration of vapors. Use in well ventilated area. The vapor is heavier than air; beware of pits and confined spaces. Take precautionary measures against static discharges.		
Shipping classification	<ul style="list-style-type: none"> • Dot Shipping Name: Triethylenetetramine • TDG/UN Shipping Names: Triethylenetetramine • UN Number: UN2259 • Hazard Class: 8 • Packing Group: II • TDG Exemption: May be shipped as a LIMITED QUANTITY if container is 5L or less. • Label: Corrosive Liquid • IATA Class: 8 • IMDG Class: 8 		
DOT Hazard class			
HMIS Coding	Health: 3	Fire: 1	Reactivity: 0

SECTION X • ECOLOGICAL INFORMATION

Environmental Fate and Distribution	Not available.
Persistence and Degradation	Not biodegradable in biological waste treatment facilities. This product may be toxic to biomass present in a biological waste treatment facility.
Toxicity	Toxic to fish.
Effect of effluent treatment	Not available.



SECTION XI • REGULATORY INFORMATION

• EC REGULATIONS:

TSCA STATUS: On Toxic Substance Control Inventory.

CERCLA REPORTABLE QUANTITY: None.

SARA TITLE III

- Section 302 : None
- Section 311/312: Fire, chronic.
- Section 313: None.

RCRA STATUS: Not regulated.

• CANADIAN REGULATIONS:

WHMIS Classification: E; D1B, D2A and D2B.

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TERMINOLOGY

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstract Service

CFR: Code of Federal Regulations (Transportation in U.S.A.)

DOT: Department of Transportation (USA)

DSL: Domestic Substance List

IARC: International Agency for Research and Cancer

LC: Lethal Concentration

LD: Lethal Dosage

MSHA: Mine Safety and Health Administration (USA)

NIOSH: National Institute for Occupational Safety and Health (USA)

NTP: National Toxicology Program (U.S.A.)

OSHA: Occupational Safety and Health Administration (USA)

PEL: Permissible exposure limit.

STEL: Short term exposure limit.

TDG: Transportation of Dangerous Goods

TLV: Threshold limits value.

TSCA: Toxic Substances Control Act

TWA: Time-weighted average

USEPA: United States Environmental Protection Agency

WHMIS: Workplace Hazardous Materials Information System