

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

---

**Product Name** : **PUMA<sup>®</sup> 2133**  
**Common Chemical Name** : triethylenediamine (TEDA)  
**Supplier** : ExpoMix Corporation  
1099 Brown Street, Unit 203  
Wauconda, IL 60084  
USA  
Ph: (847) 487-0730  
Fx: (847) 487-0217  
**Emergency Telephone** : 800-424-9300 - CHEMTREC

### SECTION 2 - INGREDIENTS

---

Chemical Name	CAS	EINECS	Amount
triethylenediamine	280-57-9	205-999-9	25%
1,4-butanediol	110-63-4	203-786-5	75%

**Chemical Family** : Tertiary amine in solvent  
**Empirical Formula** : Mixture

*Occupational Exposure Limit(s), if available, are listed in section 8.*

### SECTION 3 - HEALTH HAZARDS

---

**HMIS HEALTH 2 FLAMMABILITY 1 REACTIVITY 0**

**Hazards** : Severe eye irritant. Mild respiratory tract irritant.  
Moderate skin irritant.  
**Routes of Exposure** : Eye and Skin contact. Ingestion. Inhalation. Skin  
absorption.  
**Exposure Standards** : Exposure limits not established by OSHA (ACGIH).  
Maintain air contaminant concentrations in the  
workplace at the lowest possible levels.

**SECTION 3 - HEALTH HAZARDS (CONT.)**

---

**Human Health Hazards**

: Product vapor in low concentrations can cause lacrimation, conjunctivitis and corneal edema when absorbed into the tissue of the eye from the atmosphere. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights. The effect is transient and has no known residual effect. Contact with eyes causes severe irritation and pain. Contact with the skin may cause mild irritation and discomfort. Inhalation of vapor and mists may cause irritation in the respiratory tract. Product is absorbed through the skin and may cause nausea, headache and general discomfort.

Repeated and/or prolonged exposures may result in: liver disorders (jaundice or liver enlargement), kidney disorders (such as edema, or proteinuria), nervous system disorders (narcosis, behavioral changes or decrease in motor function), adverse eye effects (such as conjunctivitis or corneal damage), muscular dysfunction. Effects from inhalation of vapors may be delayed. Repeated and/or prolonged exposure to low concentrations of vapor may cause: sore throat, eye irritation which are transient.

**Medical Conditions  
Generally Aggravated by  
Exposure  
Carcinogens Under OSHA  
ACGIH, NTP, IARC, Other**

: Kidney disorders, eye disease, liver disorders, neurological disorders.

: This product contains no carcinogens in concentrations of 0.1 percent or greater.

---

**SECTION 4 - FIRST AID**

---

**Effects and Symptoms****Ingestion**

: If swallowed call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person. Do NOT apply mouth-to-mouth respiration.

**Inhalation**

: Move patient to fresh air. If breathing has stopped or is labored give assisted respiration. Supplemental oxygen may be indicated. Seek medical advice. Prevent aspiration of vomit. Turn victim's head to the side.

**Skin Contact**

: Remove contaminated clothing and shoes. Wash affected area with soap and water. Destroy contaminated leather apparel. Launder contaminated clothing prior to use.

**Eye Contact**

: Hold eye lids apart and immediately flush eyes with plenty of water for at least 15 minutes. Seek medical advice.

---

**SECTION 5 - FIRE AND EXPLOSION DATA**

---

**Extinguishing Media**

: Ignition will give rise to a Class B fire. In case of large fire use: alcohol foam, water spray. In case of small fire use: carbon dioxide (CO<sub>2</sub>), dry chemical, dry sand or limestone.

**Protection of Fire-Fighters**

: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. May generate toxic or irritating combustion products. Contact of liquid with skin must be prevented. Sudden reaction and fire may result if product is mixed with an oxidizing agent. May generate carbon monoxide gas, toxic nitrogen oxide gases and ammonia gas.

**Fire Hazard Classification (OSHA/NFPA)**

: Class III B

---

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

---

- Containment Techniques** : Stop the leak, if possible. Ventilate the space involved. Reduce vapor spreading with water spray. Shut off and remove all ignition sources. Construct a dike to prevent spreading (includes molten liquids until they freeze).
- Personal Precautions** : Evacuate all personnel downwind from the spill. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Evacuate the area.
- Environmental Precautions** : Do NOT release product to drain. Observe all Federal, State and local environmental regulations for appropriate product disposal.
- Methods for Cleaning up** : If recovery is not feasible, absorb product with dry soil, sand or non-reactive absorbent and place it in an appropriate waste chemical container for disposal. Flush area with water spray. Transfer to containers by suction. Place in metal containers for recovery and disposal.  
Ventilate area and wash spill site after material pickup is complete. Clean-up personnel must be equipped with self contained breathing apparatus and butyl rubber protective clothing. For large spills, recover spilled material with a vacuum truck.

---

**SECTION 7 - HANDLING AND STORAGE**

---

- Handling** : Avoid contact with skin or eyes. Avoid breathing of vapors. Handle product in a well ventilated work space and do not eat or drink. Keep containers closed when empty. Empty containers may contain explosive vapors. Flush empty containers with water to remove residual combustible or flammable liquid and vapors. Smoking in area is prohibited.
- Storage** : Keep product away from acids, oxidants, heat, flames and sparks. Keep in cool, dry ventilated storage and in closed containers. Ground all containers during transfer. Store in steel containers preferably located outdoors, above ground and surrounded by dikes to contain spills or leaks. Do not store in reactive metal containers.
- Other Precautions** : Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations (OSHA).

**SECTION 8 - PERSONAL PROTECTION AND EXPOSURE CONTROLS**

---

<b>Engineering Measures</b>	: No specific controls needed.
<b>Hygienic Measures</b>	: Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift and before eating, smoking or using the bathroom. Promptly remove clothing that becomes contaminated. Discard contaminated leather articles. Launder or discard contaminated clothing.
<b>Occupational Exposure Limits</b>	: No Data.
<b>Personal Protective Equipment</b>	
<b>Respiratory System</b>	: Not required under normal conditions in a well-ventilated area. Use appropriate NIOSH/MSHA-approved respirator during repair and cleaning of equipment, and during transfer or discharge of the product. An organic vapor respirator NIOSH approved for organic vapor is recommended under emergency conditions.
<b>Skin and Body</b>	: Impervious clothing. Long sleeved clothing.
<b>Hands</b>	: Neoprene rubber gloves. Impermeable gloves. Cuffed butyl rubber gloves. Nitrile rubber gloves. Rubber gloves. The breakthrough time of the selected glove(s) must be greater than the intended use period.
<b>Eyes</b>	: Splash-proof eye goggles. Full face shield with goggles underneath.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

---

**Guaranteed Values**

<b>triethylenediamine</b>	: 25% min.
<b>Water</b>	: 0.25% max.

**Typical Values**

<b>Physical State</b>	: Liquid
<b>Color</b>	: Amber
<b>Odor</b>	: Ammonia-like
<b>Boiling Point</b>	: >230 °C (>446 °F)
<b>Specific Gravity (Water = 1)</b>	: 1.02
<b>Solubility in Water</b>	: Completely (100%)
<b>Flash Point (Closed Cup)</b>	: >108 °C (>226 °F)
<b>Vapor Pressure</b>	: <15 mmHg @ 21 °C (70 °F)
<b>Molecular Weight</b>	: Mixture
<b>Viscosity</b>	: 110 @ 25 °C (77 °F), cP
<b>Calculated OH Number</b>	: 934 mgKOH/g

**SECTION 10 - STABILITY AND REACTIVITY**

<b>Stability</b>	: Stable
<b>Conditions to Avoid (if instable)</b>	: Not Applicable
<b>Materials to Avoid</b>	: Mineral acids (i.e. sulfuric, phosphoric, etc.). Organic acids (i.e. acetic, citric etc.). Oxidizing agents (i.e. perchlorates, nitrates etc.). Reactive metals (i.e. sodium, calcium, zinc etc.). Sodium or calcium hypochlorite. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Dehydrating agents. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Materials reactive with hydroxyl compounds. A reaction accompanied by large heat release occurs when the product is mixed with acids. Heat generated may be sufficient to cause vigorous boiling creating a hazard due to splashing or spattering of hot material.
<b>Hazardous Decomposition</b>	: Nitrogen oxide can react with water vapor to form nitric acid (TLV = 2ppm). Carbon monoxide, carbon dioxide, and nitrogen oxides in a fire. Ammonia when heated. Irritating and toxic fumes at elevated temperatures. nitric acid in a fire. Tetrahydrofuran. Aldehydes. The decomposition of nitrogen gases (except nitrous oxide) is highly toxic.
<b>Hazardous Polymerization</b>	: Will not occur.

**SECTION 11 - TOXICOLOGICAL PROPERTIES**

**Acute Toxicity**

Oral (Rat)	LD50: 2800 mg/kg
Skin (Rabbit)	LD50: >1000 mg/kg (No deaths)
Inhalation (Rat)	LC50: >20 mg/l/hr (No deaths)

**Other Data**

All of the components of this material have been tested for mutagenicity and found to be negative (AMES TEST: activated and non-activated).

**Target Organs**

- Eye
- Kidneys
- Central nervous system
- Liver or the hepatic system

---

**SECTION 11 - TOXICOLOGICAL PROPERTIES (CONT.)**

---

**Irritation Effects Data**

Severe irritant to the eyes of a rabbit. Mild irritant to the skin of a rabbit.

**Chronic/Subchronic Data**

Toxic effects described in animals for exposure to 1,4-butanediol by ingestion include: narcosis, constriction of pupils, and death due to central nervous system paralysis. Liver and kidney effects have also been seen.

---

**SECTION 12 - ECOLOGICAL INFORMATION**

---

**Ecotoxicity Effects**

No Data.

**Other Ecological Information**

No Data.

---

**SECTION 13 - DISPOSAL CONSIDERATIONS**

---

**Methods of Disposal**

: Comply with all federal, state and local environmental regulations.

*Please refer to the relevant EU regulations, in particular the guidelines / decisions of the Council regarding handling of wastes (e.g. 75/442/EEC, 91/689/EEC, 94/67/EC, 94/904/EC) as implemented in National regulations.*

*Must be disposed of by special means, e.g. suitable incineration, in accordance with local regulations.*

---

**SECTION 14 - TRANSPORT INFORMATION**

---

<b>DOT Non-Bulk Shipping Name</b>	:	Chemicals, N.O.I. - Not DOT Regulated
<b>DOT Bulk Shipping</b>	:	Refer to Bill of Lading
<b>IMO Shipping Data</b>	:	Refer to Bill of Lading
<b>ICAO/IATA Shipping Data</b>	:	Chemicals, N.O.I. - Not DOT Regulated

**SECTION 15 - REGULATORY INFORMATION**

---

**US Federal Regulations****Toxic Substances Control Act (TSCA)**

All components are included in the EPA TSCA Chemical Substance Inventory.

**Toxic Substances Control Act (TSCA) 12(b) Component(s)**

None

**OSHA Hazard Communication Standard (29 CFR1910.1200) hazard class(es)**

Irritant. Kidney toxin.

**EPA SARA Title III Section 312 (40CFR370) hazard class**

Immediate Health Hazard.

**EPA SARA Title III Section 313 (40CFR372) toxic chemicals above "de minimis" level**

None

**State Regulations**

**Proposition 65 Substances (component(s) known to the State of California to cause cancer and/or reproductive toxicity and subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986")**

None

**New Jersey Trade Secret Registry Number(s)**

None

**International Regulations:****Canada****DSL**

Included on Inventory

**WHMIS Hazard Classification**

Class D Division 2A, Class D Division 2B.

**WHMIS Ingredient Disclosure List**

triethylenediamine (TEDA)

**WHMIS Trade Secret Registry Number(s)**

**This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.**

Not applicable

**WHMIS Symbols**

Stylized T.

**European Economic Community (EEC)****EINECS/ELINCS Master Inventory**

Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.

**EEC Symbol**

Irritant (Xi)

---

**SECTION 15 - REGULATORY INFORMATION (CONT.)**

---

**EEC Risk R Phrases**

Irritating to eyes (R36).

**EEC Safety Phrases**

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice (S26)

Wear suitable gloves (S37).

**Australia****AICS**

Included on Inventory

**Japan****MITI**

Included on Inventory

**Philippines****PICCS**

Included on Inventory

**China****SEPA**

Included on Inventory

---

**SECTION 16 - OTHER INFORMATION**

---

The environmental, health and safety information contained herein is given in compliance with statutory obligations and relates only to the substance/preparation described in this material safety data sheet. This data sheet and the information it contains are not intended to supersede any terms and conditions of sale and does not constitute a specification, promise, representation, or warranty, whether express or implied, except to the extent required by applicable law. The environmental, health and safety information contained herein is believed to be accurate based on our current knowledge. It remains the responsibility of the customer to provide a safe workplace and to comply with all applicable laws and regulations.

Nothing contained herein is to be construed as a recommendation for use in violation of any patents or of applicable laws or regulations.