# Material Safety Data Sheet

**MSDS Code and Name**: JAD230 JEFFAMINE® D-230  
**Date Issued**: 7/1/2004  
**Date Printed**: 7/1/2004

## 1. Chemical Product and Company Identification

### Company Information

Huntsman Petrochemical Corporation  
P.O. Box 4980  
The Woodlands, TX 77387-4980

**Telephone Numbers**  
- Transportation Emergency:  (409) 727-0831  
- CHEMTREC: (800) 424-9300  
- Medical Emergency: (409) 722-9673 (24 Hour)  
- General MSDS Assistance: (281) 719-6432  
- Technical Information: (512) 459-6543

## 2. Composition and Information on Ingredients

The criteria for listing components in the composition section are as follows: Carcinogens are listed when present at 0.1 % or greater; components which are otherwise hazardous according to OSHA are listed when present at 1.0 % or greater; non-hazardous components are listed at 3.0 % or greater. This is not intended to be complete compositional disclosure. Refer to Section 14 for applicable states' Right to Know and other regulatory information.

**Product and/or Component(s) Carcinogenic According to**:  
- OSHA  
- IARC  
- NTP  
- OTHER  
- NONE  
- X

### Composition:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Exposure Limits</th>
<th>Range in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxy(methyl-1,2-ethanediyl)).alpha-(2-aminomethyl)etheromega-(2-aminomethylethoxy)-</td>
<td>9046-10-0</td>
<td></td>
<td>100.00</td>
</tr>
</tbody>
</table>
3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Appearance:
Colorless to slightly yellow liquid with a slight haze

Odor:
Ammonia-like

WARNING STATEMENT
DANGER!
CORROSIVE - CAUSES EYE AND SKIN BURNS
HARMFUL OR FATAL IF SWALLOWED
CAUSES RESPIRATORY TRACT IRRITATION AND CAN CAUSE DAMAGE
ASPIRATION HAZARD IF SWALLOWED -
CAN ENTER LUNGS AND CAUSE DAMAGE

Hazardous Material Information System (United States)

National Fire Protection Association NFPA (United States)

POTENTIAL HEALTH EFFECTS

Primary Route of Exposure
Eye X Skin X Inhalation X Ingestion

Effects of Overexposure

Acute:

Eyes:
Causes irritation, experienced as pain, with excess blinking and tear production, and seen as extreme redness and swelling of the eye and chemical burns of the eye. Severe eye damage may cause blindness.

Skin:
Causes severe irritation with pain, severe excess redness and swelling with chemical burns, blister formation, and possible tissue destruction. Other than the potential skin irritation effects noted above, acute (short term) adverse effects are not expected from brief skin contact; see other effects, below, and Section 11 for information regarding potential long term effects.

Inhalation:
Vapors or mist, especially as generated from heating the material or as from exposure in poorly ventilated areas or confined spaces, are irritating and cause nasal discharge, coughing, and discomfort in nose and throat. Prolonged or repeated overexposure may result in lung damage.

Ingestion:
Causes burning of mouth, throat, and stomach with abdominal and chest pain, nausea, vomiting, diarrhea, thirst, weakness, and collapse. Aspiration may occur during swallowing or vomiting, resulting in lung damage.

Sensitization Properties:
This product is not expected to be a human skin sensitizer based on animal data.

Chronic:
Repeated skin contact may cause a persistent irritation or dermatitis. Repeated inhalation may cause lung damage.

Medical Conditions Aggravated by Exposure:
Skin contact may aggravate an existing dermatitis (skin condition). Overexposure to vapor, dust or mist may aggravate existing respiratory conditions, such as asthma, bronchitis, and inflammatory or fibrotic respiratory disease.
Other Remarks:

This product contains one or more amines which may produce temporary and reversible hazy or blurred vision. Symptoms disappear when exposure is terminated.

4. FIRST AID MEASURES

Eyes:

Immediately flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention immediately. Continue flushing for an additional 15 minutes if medical attention is not immediately available.

Skin:

Immediately remove contaminated clothing and shoes. Under a safety shower, flush skin thoroughly with large amounts of running water for at least 15 minutes. Do not attempt to neutralize with chemical agents. Get medical attention immediately. Discard or decontaminate clothing and shoes before reuse.

Ingestion:

If person is conscious and can swallow, immediately give two glasses of water (16 oz.), but do not induce vomiting. This material is corrosive. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Do not give anything by mouth to an unconscious or convulsing person.

Inhalation:

If inhaled, remove to fresh air. If not breathing or in respiratory distress, clear person's airway and start artificial respiration. With a physician's advice, give supplemental oxygen using a bag-valve mask or manually triggered oxygen supply.

Other Instructions:

Swallowing of this corrosive material may result in severe ulceration, inflammation, and possible perforation of the upper alimentary tract, with hemorrhage and fluid loss. Aspiration of this product during induced emesis can result in severe lung injury. If evacuation of stomach is necessary, use method least likely to cause aspiration, such as gastric lavage after endotracheal intubation. Contact a Poison Control Center for additional treatment information.

5. FIRE-FIGHTING MEASURES

Ignition Temperature - AIT (degrees C):
Not determined.

Flash Point (degrees C):
121.1 (250°F) (PMCC)

Flammable Limits % (Lower-Upper):
Lower: Not determined.
Upper: Not determined.

Recommended Fire Extinguishing Agents And Special Procedures:

Use water spray, dry chemical, foam or carbon dioxide to extinguish flames. Use water spray to cool fire-exposed containers. Water or foam may cause frothing.

Unusual or Explosive Hazards:
None

Special Protective Equipment for Firefighters:

Wear special chemical protective clothing and positive pressure self-contained breathing apparatus. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Decontaminate or discard any clothing that may contain chemical residues.
6. ACCIDENTAL RELEASE MEASURES (Transportation Spills: CHEMTREC (800)424-9300)

Procedures in Case of Accidental Release, Breakage or Leakage:

Ventilate area. Avoid breathing vapor. Wear appropriate personal protective equipment, including appropriate respiratory protection. Contain spill if possible. Wipe up or absorb on suitable material and shovel up. Prevent entry into sewers and waterways. Avoid contact with skin, eyes or clothing.

7. HANDLING AND STORAGE

Precautions to be Taken in

Handling:
Minimum feasible handling temperatures should be maintained. Eye wash and safety shower should be available nearby when this product is handled or used.

Storage:
Periods of exposure to high temperatures should be minimized. Water contamination should be avoided. If stored above 100°F, a nitrogen atmosphere is recommended.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective Equipment (Type)

Eye/Face Protection:
Avoid eye contact. Chemical type goggles with face shield must be worn. Do not wear contact lenses.

Skin Protection:
Protective clothing such as coveralls or lab coats should be worn. Launder or dry-clean when soiled. Gloves resistant to chemicals and petroleum distillates required. When handling large quantities, impervious suits, gloves, and rubber boots must be worn. Remove and dry-clean or launder clothing soaked or soiled with this material before reuse. Dry cleaning of contaminated clothing may be more effective than normal laundering. Inform individuals responsible for cleaning of potential hazards associated with handling contaminated clothing.

Respiratory Protection:
Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH approved air purifying or air supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

Ventilation:
Local exhaust ventilation recommended if generating vapor, dust, or mist. If exhaust ventilation is not available or inadequate, use NIOSH approved respirator as appropriate.

Exposure Limit for the Total Product:
None established for product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Colorless to slightly yellow liquid with a slight haze

Odor:
Ammonia-like

Boiling Point (degrees C):
260  (500°F)

Melting/Freezing Point (degrees C):
Not determined.
Specific Gravity (water=1):
  0.948 @ 20/20°C

pH:
  11.7 (5% aqueous)

Vapor Pressure:
  1 mmHg at 100°C (212°F)

Viscosity:
  9.5 cSt at 25°C (77°F)

VOC Content:
  25% by ASTM D 2369

Vapor Density (Air=1):
  >1

Solubility in Water (%):
  >10

Other:
  None

10. STABILITY AND REACTIVITY

This Material Reacts Violently With:
  Air  Water  Heat  Strong Oxidizers  Others  X  None of these

Comments:
  This material reacts violently with acids.

Products Evolved When Subjected to Heat or Combustion:
  Toxic levels of ammonia, combustion products of nitrogen, carbon monoxide, carbon dioxide, irritating aldehydes and ketones may be formed on burning in a limited air supply.

Hazardous Polymerizations:
  DO NOT OCCUR

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION (ANIMAL TOXICITY DATA)
  Oral:
    LD50 2.88 g/kg (rat) slightly toxic
  Dermal:
    LD50 2.98 g/kg (rabbit) practically non-toxic
  Inhalation:
    Not determined.

IRRITATION INDEX, ESTIMATION OF IRRITATION (SPECIES)
  Eyes:
    (Draize) Believed to be > 80.00 - 110.00 /110 (rabbit) extremely irritating
  Skin:
    (Draize) Believed to be > 6.50 - 8.00 /8.0 (rabbit) corrosive
  Sensitization:
    (Buehler) Negative - skin (guinea pig)

Other:
  None
12. DISPOSAL CONSIDERATIONS:

Waste Disposal Methods:
This product has been evaluated for RCRA characteristics and does not meet the criteria of a hazardous waste if discarded in its purchased form. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.

Remarks:
None

13. TRANSPORT INFORMATION

Transportation

DOT:
Proper Shipping Name:
Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)

Hazard Class:
Class 8: Corrosive material

Identification Number:
UN2735

Packing Group:
III

Label Required:
Class 8: Corrosive

IMDG

Proper Shipping Name:
AMINES, LIQUID, CORROSIVE, N.O.S. (polyoxypropylene diamine)

Hazard Class
Class 8

Identification Number
UN2735

Packing Group
III

Label Required
Class 8 - Corrosive substances

ICAO

Proper Shipping Name:
Amines, liquid, corrosive, n.o.s. (polyoxypropylene diamine)

Hazard Class
Class 8

Identification Number
UN2735

Packing Group
III

Label Required
Class 8 - Corrosive
Proper Shipping Name: Corrosive liquid, n.o.s. (polyoxypropylene diamine)

Hazard Class: 8

Identification Number: UN1760

Packing Group: III

Label Required: Corrosive

14. REGULATORY INFORMATION

Federal Regulations:

SARA Title III:

Section 302/304 Extremely Hazardous Substances

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Range in %</th>
<th>TPQ</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 311 Hazardous Categorization:

Acute \(\times\) Chronic \(\times\) Fire \(\times\) Pressure \(\times\) Reactive \(\times\) N/A

Section 313 Toxic Chemical

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CERCLA 102(a)/DOT Hazardous Substances:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Range in %</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

States Right-to-Know Regulations:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>State Right-to-know</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
</tr>
</tbody>
</table>

California Prop. 65:
The following detectable components of this product are substances, or belong to classes of substances, known to the State of California to cause cancer and/or reproductive toxicity.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
</tr>
</tbody>
</table>

INTERNATIONAL REGULATIONS:

TSCA Inventory Status:
This product, or its components, are listed on or are exempt from the Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

WHMIS Classification:
Class E: Corrosive

Canadian Inventory Status:
This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

**EINECS Inventory Status:**
This product, or its components, are listed on or are exempt from the European Inventory of Existing Chemical Substances (EINECS) or the European List of Notified Chemical Substances (ELINCS).

**Australian Inventory Status:**
This product, or its components, are listed on or are exempt from the Australian Inventory of Chemical Substances (AICS).

**Japan Inventory Status:**
This product, or its components, are listed on or are exempt from the Japan Ministry of International Trade and Industry (MITI) inventory.

### 15. ENVIRONMENTAL INFORMATION

**Aquatic Toxicity:**
Not determined.

**Mobility:**
Not determined.

**Persistence and Biodegradability:**
Not determined.

**Potential to Bioaccumulate:**
Not determined.

**Remarks:**
None

### 16. OTHER INFORMATION 7/1/2004

None
<table>
<thead>
<tr>
<th><strong>MSDS CODE AND NAME</strong></th>
<th>JAD230 JEFFAMINE® D-230</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DATE ISSUED</strong></td>
<td>7/1/2004</td>
</tr>
<tr>
<td><strong>DATE PRINTED</strong></td>
<td>7/1/2004</td>
</tr>
<tr>
<td><strong>COMPANY</strong></td>
<td>HUNTSMAN</td>
</tr>
</tbody>
</table>