JEFFAMINE® D-230

Version	Revision Date:	SDS Number:	Date of last issue: 01/29/2025
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Print Date 09/27/2025

SECTION 1. IDENTIFICATION

Product name : JEFFAMINE® D-230

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : TechInfo: (281) 719-7780

E-mail address : Global_Product_EHS_HPP@huntsman.com

Emergency telephone : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Hardener
Amines
Manufacture of plastics products

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Skin corrosion : Sub-category 1C

Serious eye damage : Category 1

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

Other hazards

None known.

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H314 Causes severe skin burns and eye damage.
H412 Harmful to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary Statements : **Prevention:**
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363 Wash contaminated clothing before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance
Chemical nature : Polyetheramine

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Polyoxypropylenediamine (MW=230)	9046-10-0	80 - 100

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled	:	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact	:	Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	:	Causes serious eye damage. Causes severe burns. Corrosive to the respiratory tract.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing If potential for exposure exists refer to Section 8 for specific personal protective equipment. Avoid inhalation, ingestion and contact with skin and eyes. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Carbon oxides

Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Neutralize with acid. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labeled containers.
Materials to avoid	:	Do not store near acids.
Recommended storage	:	36 - 104 °F / 2 - 40 °C

temperature Further information on storage stability	:	Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection	:	General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
Hand protection		
Remarks	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	colorless
Odor	:	ammoniacal
Odor Threshold	:	No data available
pH	:	11.7 Concentration: 50 g/l
Melting point/freezing point	:	No data available

Boiling point	:	450 °F / 232 °C (1,013.25 hPa)
Flash point	:	262 °F / 128 °C Method: ISO 2719, closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Flammability (liquids)	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	0.9 hPa (68 °F / 20 °C)
Relative vapor density	:	1
Relative density	:	0.9476 (68 °F / 20 °C)
Density	:	0.948 g/cm3 (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	100 g/l soluble in cold water (68 °F / 20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	log Pow: 1.34 (77 °F / 25 °C)
Autoignition temperature	:	446 °F / 230 °C
Decomposition temperature	:	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	10.3 mPa.s (68 °F / 20 °C)
		5.08 mPa.s (104 °F / 40 °C)
Viscosity, kinematic	:	10.9 mm2/s (68 °F / 20 °C)
		5.46 mm2/s (104 °F / 40 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	None.

Molecular weight	:	230 g/mol
Metal corrosion rate	:	Not corrosive to metals.
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	None known.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 3,069 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: 3,170 mg/kg Method: Calculation method

Components:

Polyoxypropylenediamine (MW=230):

Acute oral toxicity	:	LD50 (Rat, male and female): 2,885 mg/kg Method: OECD Test Guideline 401 Assessment: The component/mixture is low toxic after single ingestion.
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 0.74 mg/l Exposure time: 8 h Test atmosphere: vapor Method: OECD Test Guideline 403
Acute dermal toxicity	:	LD50 (Rabbit, male and female): 2,980 mg/kg Method: OECD Test Guideline 402 Assessment: The component/mixture is low toxic after single contact with skin.

Skin corrosion/irritation

Causes severe burns.

Components:

Polyoxypropylenediamine (MW=230):

Species	:	Rabbit
Assessment	:	Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Polyoxypropylenediamine (MW=230):

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Assessment	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405

Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Not classified due to lack of data.

Product:

Exposure routes	:	Skin
Species	:	Guinea pig
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Product:

Genotoxicity in vitro	:	Concentration: 0 - 10000 ug/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
Genotoxicity in vivo	:	Application Route: Oral Dose: 500 mg/kg Method: OECD Test Guideline 474 Result: negative

Components:

Polyoxypropylenediamine (MW=230):

Genotoxicity in vitro	:	Test Type: reverse mutation assay Test system: Salmonella tryphimurium and E. coli

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: gene mutation test
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 125/250/500 mg/kg bw/day
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Not classified due to lack of data.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Product:

Effects on fertility : Species: Rat, male and female
Application Route: Dermal
Method: OECD Test Guideline 421
Result: Animal testing did not show any effects on fertility.

Components:

Polyoxypropylenediamine (MW=230):

Effects on fertility : Test Type: Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Dermal
Dose: 3/10/30 milligram per kilogram
General Toxicity Parent: NOAEL: 30 mg/kg body weight
General Toxicity F1: NOAEL: 30 mg/kg body weight
Method: OECD Test Guideline 421

Result: Animal testing did not show any effects on fertility.

Species: Rat, male and female
Application Route: Oral
Dose: 0/50/150/450 milligram per kilogram
General Toxicity Parent: NOAEL: 150 mg/kg body weight
General Toxicity F1: NOAEL: 150 mg/kg body weight
Method: OECD Test Guideline 443

Test Type: Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 0/75/150/300/600 mg/kg bw/d
General Toxicity Parent: NOAEL: 150 mg/kg body weight
General Toxicity F1: NOAEL: 600 mg/kg body weight
Method: OECD Test Guideline 421

Effects on fetal development : Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Dose: 15/50/115 milligram per kilogram
Duration of Single Treatment: 23 d
General Toxicity Maternal: NOAEL: 50 mg/kg body weight
Developmental Toxicity: NOAEL: 115 mg/kg body weight
Method: OECD Test Guideline 414

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0/40/125/350 milligram per kilogram
Duration of Single Treatment: 13 d
General Toxicity Maternal: NOAEL: 350 mg/kg body weight
Developmental Toxicity: NOAEL: 350 mg/kg body weight
Method: OECD Test Guideline 414

STOT-single exposure

Corrosive to the respiratory tract.

STOT-repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Product:

Species	:	Rat, male and female
NOAEL	:	> 250 mg/kg
Application Route	:	Dermal
Exposure time	:	90 d
Number of exposures	:	5 d
Subsequent observation period	:	28 d
Method	:	Subchronic toxicity

Species : Rat, male and female

NOAEL	:	> 239 mg/kg
Application Route	:	oral (feed)
Exposure time	:	31 d
Method	:	Subacute toxicity

Species	:	Rat, male and female
NOAEL	:	100 mg/kg
Application Route	:	Dermal
Exposure time	:	28 d
Number of exposures	:	5 d
Method	:	Subacute toxicity

Components:

Polyoxypropylenediamine (MW=230):

Species	:	Rat, male and female
NOAEL	:	>= 250 mg/kg/d
Application Route	:	Dermal
Exposure time	:	90 days 6 h
Number of exposures	:	5 days/week
Dose	:	0/50/80/250 mg/kg bw/day
Method	:	OECD Test Guideline 411

Aspiration toxicity

Not classified due to lack of data.

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Polyoxypropylenediamine (MW=230):

Toxicity to fish	:	EC50 (Oncorhynchus mykiss (rainbow trout)): > 15 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 80 mg/l Exposure time: 48 h Test Type: static test

Test substance: Fresh water
Method: OECD Test Guideline 202

EC50 (Acartia tonsa): 418.34 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Sea water

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 15 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

NOECr (Selenastrum capricornutum (green algae)): 0.32 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

IC50 (Skeletonema costatum (marine diatom)): 141.72 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Sea water
Method: ISO 10253

ErC10 (Skeletonema costatum (marine diatom)): 33.34 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Sea water
Method: ISO 10253

Toxicity to microorganisms : EC50 (activated sludge): 750 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Persistence and degradability

Components:

Polyoxypropylenediamine (MW=230):

Biodegradability : aerobic
Inoculum: Mixture
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water : Degradation half life (DT50): 12 Months (25 °C) pH: 6.5
Method: No information available.
Remarks: Fresh water

Bioaccumulative potential

Components:

Polyoxypropylenediamine (MW=230):

Partition coefficient: n-octanol/water : Pow: 22.09 (77 °F / 25 °C)
log Pow: 1.34 (77 °F / 25 °C)

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 2735
Proper shipping name : AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Class : 8
Packing group : III
Labels : 8

Environmentally hazardous : no

IATA-DGR

UN/ID No.	:	UN 2735
Proper shipping name	:	Amines, liquid, corrosive, n.o.s. (POLYOXYPROPYLENEDIAMINE)
Class	:	8
Packing group	:	III
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	856
Packing instruction (passenger aircraft)	:	852

IMDG-Code

UN number	:	UN 2735
Proper shipping name	:	AMINES, LIQUID, CORROSIVE, N.O.S. (POLYOXYPROPYLENEDIAMINE)
Class	:	8
Packing group	:	III
Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 2735
Proper shipping name	:	Amines, liquid, corrosive, n.o.s. (POLYOXYPROPYLENEDIAMINE)
Class	:	8
Packing group	:	III
Labels	:	CORROSIVE
ERG Code	:	153
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 311/312 Hazards : Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

This product does not contain any hazardous air pollutants (HAP) >=0.1%, as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

DSL : All components of this product are on the Canadian DSL

TSCA : All substances listed as active on the TSCA inventory

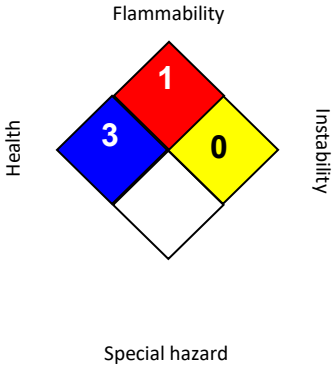
TSCA - 5(a) Significant New Use Rule List of Chemicals
No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No substances are subject to TSCA 12(b) export notification requirements.

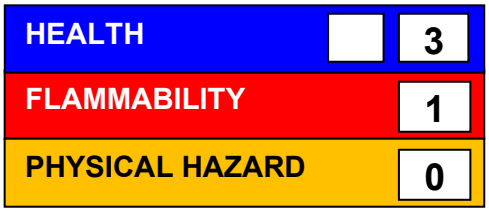
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

Revision Date : 09/26/2025

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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