DIETHYLAMINOPROPYLAMINE

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
900 First Avenue
King of Prussia, Pennsylvania 19406

Thio and Fine Chemicals

Customer Service Telephone Number: (800) 628-4453
(Monday through Friday, 8:00 AM to 5:00 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (866) 767-5089
(24 hrs., 7 days a week)

Product Information

Product name: DIETHYLAMINOPROPYLAMINE
Synonyms: DEAPA
Molecular formula: C7H18N2
Chemical family: amine
Product use: Chemical intermediate, Catalyst

2. HAZARDS IDENTIFICATION

Emergency Overview
Color: Clear - colourless
Physical state: liquid
Odor: ammoniacal

***Classification of the substance or mixture:**
Flammable liquid., Category 3, H226
Oral: Acute toxicity, Category 4, H302
Dermal: Acute toxicity, Category 3, H311
Skin corrosion, Category 1A, H314
Serious eye damage, Category 1, H318
Specific target organ toxicity - single exposure, Category 3, H335

*For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labelling

Hazard pictograms:

Signal word: **Danger**

Hazard statements:

H226 : Flammable liquid and vapour.
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.
H314 : Causes severe skin burns and eye damage.
H335 : May cause respiratory irritation.

Precautionary statements:

Prevention:
P210 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 : Keep container tightly closed.
P240 : Ground/bond container and receiving equipment.
P241 : Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 : Use only non-sparking tools.
P243 : Take precautionary measures against static discharge.
P261 : Avoid breathing gas/mist/vapours/spray.
P264 : Wash skin thoroughly after handling.
P270 : Do not eat, drink or smoke when using this product.
P271 : Use only outdoors or in a well-ventilated area.
P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P312 : IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331 : IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 : IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 : Immediately call a POISON CENTER or doctor/ physician.
P363 : Wash contaminated clothing before reuse.
P370 + P378 : In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 : Store in a well-ventilated place. Keep cool.
P405 : Store locked up.

Disposal:
P501 : Dispose of contents/ container to an approved waste disposal plant.

Supplemental information:

Potential Health Effects:
If swallowed, may cause severe irritation and injury to the mouth, throat and digestive tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	GHS Classification**
1,3-Propanediamine, N,N-diethyl-	104-78-9	> 99 %	H226, H302, H311, H314, H318, H335

**For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

Inhalation:
If inhaled, remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Call a Poison Control Center. Wash clothing before reuse. Destroy contaminated shoes.

Eyes:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion:
If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person. Rinse mouth.

5. FIREFIGHTING MEASURES

Extinguishing media (suitable):

Carbon dioxide (CO2), Foam, Dry chemical

Extinguishing media (unsuitable):
Water

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Cool closed containers exposed to fire with water spray.
Closed containers of this material may explode when subjected to heat from surrounding fire.
After a fire, wait until the material has cooled to room temperature before initiating clean-up activities.
Fire fighting equipment should be thoroughly decontaminated after use.
Material may spatter or foam if contacted with water.

Fire and explosion hazards:
When burned, the following hazardous products of combustion can occur:
Ammonia
Carbon oxides
Nitriles
Cyanides
Hazardous organic compounds

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak:
Prevent further leakage or spillage if you can do so without risk. Evacuate area of all unnecessary personnel. Ventilate the area. Eliminate all ignition sources. Avoid generation of vapors. Contain and collect spillage with non-combustible absorbent material such as sodium bicarbonate, sodium carbonate, calcium carbonate, clean sand or non-acidic clay and then wet down (dampen) the mixture with water. Sweep or scoop up using non-sparking tools and place into suitable properly labeled containers for prompt disposal. The sweepings should be wetted down further with water. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE

Handling

General information on handling:
Do not taste or swallow.
Do not get in eyes, on skin, or on clothing.
Avoid breathing processing vapor or mist.
Keep away from heat, sparks and flames.
No smoking.
Keep container tightly closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Check that all equipment is properly grounded and installed to satisfy electrical classification requirements.
Container hazardous when empty.
Follow label warnings even after container is emptied.
RESIDUAL VAPORS MAY EXPLODE ON IGNITION.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.
Improper disposal or reuse of this container may be dangerous and/or illegal.
Emptied container retains vapor and product residue.

Storage

General information on storage conditions:
Keep in a dry, cool place. Store in tightly closed container. Keep away from direct sunlight. Keep container closed when not in use. Store in closed containers, in a secure area to prevent container damage and subsequent spillage. Store in well ventilated area away from heat and sources of ignition such as flame, sparks and static electricity. Ensure that all storage and handling equipment is properly grounded and installed to satisfy electrical classification requirements. Static electricity may accumulate when transferring material. All metal and groundable storage containers, including but not limited to drums, cylinders, Returnable Intermodal Bulk Containers (RIBCs) and Class C Flexible Intermodal Bulk Containers (FIBCs) must be bonded and grounded during filling and emptying operations. Observe all federal, state and local regulations and National Fire Protection Association (NFPA) Codes which pertain to the specific local conditions of storage and use, including OSHA 29 CFR 1910.106 and NFPA 30, 70, 77, and 497.

Storage incompatibility – General:
Store separate from:

Oxidizers.

Perchlorates

Nitrates

Peroxides

Amines

Nitrous acid - Nitrites - Oxygen

Strong acids

Water

Halogens

Product likely to react violently in alkaline environment

Temperature tolerance – Do not store above:
122 °F (50 °C)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits or to otherwise reduce exposures. Provide ventilation if necessary to minimize exposures or to control exposure levels to below airborne exposure limits (if applicable see above).If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:
Avoid breathing vapor or mist. Where airborne exposure is likely or airborne exposure limits are exceeded (if applicable, see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

Eye protection:

Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Clear - colourless
Physical state:	liquid
Odor:	ammoniacal
Odor threshold:	No data available
Flash point	126 °F (52 °C) (closed cup)(Method: Standard NF T 60 103)
Auto-ignition temperature:	475 °F (246 °C) (Method: Standard A15 (D. 92/69/EEC))
Lower flammable limit (LFL):	Not determined
Upper flammable limit (UFL):	Not determined
pH:	alkaline
Density:	825 kg/m3 (68 °F (20 °C))liquid
Vapor pressure:	5 mmHg (86 °F (30 °C))
Vapor density:	No data available
Boiling point/boiling range:	334 °F (168 °C) 735 mmHg
Boiling range:	270.5 °F (132.5 °C) 300 mmHg
Melting point:	-58 °F (-50 °C)
Evaporation rate:	No data available
Solubility in water:	completely soluble
Solubility in other solvents: [qualitative and quantative]	Soluble in: Methanol
Oil/water partition coefficient:	No data available
Thermal decomposition	No data available
Henry's constant:	1.18E-03 $Pa.m^3/mol$ (Method: calculated)

Flammability: See GHS Classification in Section 2

10. STABILITY AND REACTIVITY

Stability:
This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Hazardous reactions:
Water (exothermic reaction.)

Materials to avoid:
Very exothermic reaction and possibility of spattering with:
Strong acids
Halogens
• Violent reaction and flammability with :
Peroxides
Nitrates
Oxidizers.
Product likely to react violently in alkaline environment
• Very exothermic reaction with :
Water
• Formation of toxic products (n-nitrosamines) with:
Nitrous acid and other nitrosating agents
Nitrites
Oxygen
Corrosion with : light metals and alloys

Conditions / hazards to avoid:
Avoid moisture. Heat

Hazardous decomposition products:

Thermal decomposition giving toxic and corrosive products :
Ammonia
Carbon oxides
Hazardous organic compounds

11. TOXICOLOGICAL INFORMATION

Data for DIETHYLAMINOPROPYLAMINE

Acute toxicity

Oral:
Harmful if swallowed. (rat) LD50 = 830 mg/kg.

Dermal:
Toxic in contact with skin. (rabbit) LD50 = 524 mg/kg.

Inhalation:
No deaths occurred. (rat) 4 h Exposure time (saturated vapor)

Specific target organ toxicity - single exposure:
Irritating to respiratory system.

Skin Irritation:
Causes severe skin burns. (rabbit) (1 min)

Eye Irritation:
Causes serious eye damage. (rabbit)

Skin Sensitization:
Not a sensitizer. Guinea pig maximization test. No skin allergy was observed

Genotoxicity

Assessment in Vitro:
No genetic changes were observed in laboratory tests using: bacteria, animal cells, human cells

Human experience

Inhalation:
respiratory irritation. (based on reports of occupational exposure to workers)

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
Data on this material and/or a similar material are summarized below.

Data for DIETHYLAMINOPROPYLAMINE

Biodegradation:
Readily biodegradable. (28 d) biodegradation 90 - 100 %

Octanol Water Partition Coefficient:
log Pow = 0.36

Ecotoxicology
Data on this material and/or a similar material are summarized below.

Data for DIETHYLAMINOPROPYLAMINE

Aquatic toxicity data:
Practically nontoxic. Leuciscus idus (Golden orfe) 96 h LC50 = 146.6 mg/l

Aquatic invertebrates:
Harmful. Daphnia (water flea) 48 h EC50 = 30.2 mg/l

Algae:
Harmful. Pseudokirchneriella subcapitata (green algae) 72 h EC50 = 34 mg/l

Microorganisms:
Pseudomonas putida 17 h EC50 = 100.5 mg/l

Activated sludge 0.5 h EC50 > 1,000 mg/l

Chronic toxicity to aquatic plants:
Pseudokirchneriella subcapitata (green algae) 72 h EC10 (growth rate) = 26 mg/l

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Disposal via incineration is recommended. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	2684
Proper shipping name	:	3-Diethyamino-propylamine
Class	:	3
Subsidiary hazard class	:	(8)
Packaging group	:	III
Marine pollutant	:	no

Special Shipping Information: For Domestic Shipments: Add Subsidiary Hazards - TOXIC

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	2684
Proper shipping name	:	3-DIETHYLAMINOPROPYLAMINE
Class	:	3
Subsidiary hazard class	:	(8)
Packaging group	:	III
Marine pollutant	:	no
Flash point	:	126 °F (52 °C) closed cup

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
United States TSCA Inventory	TSCA	The components of this product are all on the TSCA Inventory.
Canadian Domestic Substances List (DSL)	DSL	All components of this product are on the Canadian DSL.

China. Inventory of Existing Chemical Substances in China (IECSC)	IECSC (CN)	Conforms to
Japan. ENCS - Existing and New Chemical Substances Inventory	ENCS (JP)	Conforms to
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Conforms to
Korea. Korean Existing Chemicals Inventory (KECI)	KECI (KR)	Conforms to
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	PICCS (PH)	Conforms to
Australia Inventory of Chemical Substances (AICS)	AICS	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

The components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Fire Hazard

SARA Title III – Section 313 Toxic Chemicals:
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.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

The components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.

United States – State Regulations

New Jersey Right to Know

Chemical Name	CAS-No.
1,3-Propanediamine, N,N-diethyl-	104-78-9

New Jersey Right to Know – Special Health Hazard Substance(s)

Chemical Name	CAS-No.
1,3-Propanediamine, N,N-diethyl-	104-78-9

Pennsylvania Right to Know

Chemical Name	CAS-No.
1,3-Propanediamine, N,N-diethyl-	104-78-9

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Miscellaneous:

Other information:	Refer to National Fire Protection Association (NFPA) Codes 30, 70, 77, and 497 and OSHA 29 CFR 1910.106, for safe handling.

Latest Revision(s):

Reference number:	000000031850
Date of Revision:	05/28/2015
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