

Product name : AEPD™ 85 2-Amino-2-ethyl-1,3-propanediol

Issue Date: 02/06/2016

ANGUS CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name AEPD™ 85 2-Amino-2-ethyl-1,3-propanediol

Manufacturer or supplier's details

Company name of supplier ANGUS CHEMICAL COMPANY

Address 1500 E. LAKE COOK ROAD
Buffalo Grove IL 60089-6553

Customer Information Number 844-474-9969

E-mail address NAR_CC@ANGUS.COM

Emergency telephone number 800-424-9300**Recommended use of the chemical and restrictions on use**Recommended use Most common use(s) is(are):
Metal working fluids.
Chemical synthesis.

The ANGUS Chemical Company recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact the Customer Information Group (see Section 1 of this data sheet).
For industrial use.

2. HAZARDS IDENTIFICATION

GHS Classification

Skin irritation Category 2

Serious eye damage Category 1

GHS Label elements, including precautionary statements

Hazard pictograms



Signal word

Danger

Hazard statements

Causes skin irritation.
Causes serious eye damage.

Precautionary statements

Prevention:
Wash skin thoroughly after handling.
Wear protective gloves/ eye protection/ face protection.
Response:
IF ON SKIN: Wash with plenty of soap and water.
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 or doctor/ physician.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.

Other hazards

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Components

Chemical Name	CAS-No.	Concentration (% w/w)
2-Amino-2-ethyl-1,3-propanediol	115-70-8	<= 78.0 %
Water	7732-18-5	>= 13.0 - <= 15.0 %
2-Amino-1-butanol	96-20-8	< 5.0 %
Related reaction products (Not applicable)	Not Assigned	< 15.0 %

4. FIRST AID MEASURES

If inhaled	Move person to fresh air; if effects occur, consult a physician.
In case of skin contact	Suitable emergency safety shower facility should be available in work area. Wash off with plenty of water.
In case of eye contact	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical

	<p>consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.</p>
If swallowed	<p>Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.</p>
Most important symptoms and effects, both acute and delayed	<p>Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.</p>
Protection of first-aiders	<p>First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.</p>
Notes to physician	<p>If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote. Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist.</p>

5. FIREFIGHTING MEASURES

Suitable extinguishing media	<p>Water fog or fine spray. Carbon dioxide fire extinguishers. Dry chemical 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.</p>
Specific hazards during firefighting	<p>Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.</p>
Hazardous combustion products	<p>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: Carbon monoxide. Carbon dioxide. Nitrogen oxides.</p>
Further information	<p>Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire.</p>

	<p>Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water.</p>
Special protective equipment for firefighters	<p>Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.</p>

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	<p>Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Evacuate area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.</p>
Environmental precautions	<p>Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.</p>
Methods and materials for containment and cleaning up	<p>Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.</p>

7. HANDLING AND STORAGE

Advice on safe handling	<p>Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. Wash thoroughly after handling. Avoid breathing vapor or mist. Use with adequate ventilation. Keep container closed. Do not get in eyes. Avoid contact with skin and clothing. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.</p>
Conditions for safe storage	<p>Store in original container.</p>

Store in a dry place.
Keep container tightly closed when not in use.
Do not store in:
Zinc.
Aluminum.
Galvanized containers.
Copper.
Copper alloys.
See Section 10 for more specific information.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures

Local exhaust ventilation may be necessary for some operations.
Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Personal protective equipment

Respiratory protection

The following should be effective types of air-purifying respirators:
Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process.
For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator.
Organic vapor cartridge with a particulate pre-filter, type AP2.

Hand protection

Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Nitrile/butadiene rubber ("nitrile" or "NBR"). Natural rubber ("latex"). Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). Viton. Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection	Use chemical goggles.
Skin and body protection	Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquid.
Color	Brown
Odor	Amine.
Odor Threshold	No test data available
pH	10.3 (25 °C) Method: Literature 1% aqueous solution.
Melting point/range	<= -24 °C (<= -11 °F) Method: Measured Anhydrous
Freezing point	<= -24 °C (<= -11 °F) Method: Measured Anhydrous
Boiling point/boiling range	> 250 °C (> 482 °F) Method: Measured Anhydrous
Flash point	> 100 °C (> 212 °F) Method: Pensky-Martens Closed Cup ASTM D 93 Test Type: closed cup
Evaporation rate	No test data available
Flammability (solid, gas)	No data available.
Upper explosion limit	No test data available
Lower explosion limit	No test data available
Vapor Pressure	(20 °C) Method: Literature Negligible
Relative Vapor Density (air = 1)	No test data available
Relative density	1.08 (25 °C) Method: Literature
Density	1.082 lb/gln

	Method: Literature
Water solubility	(20 °C) completely miscible with water Method: Literature
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Viscosity	
Viscosity, dynamic	650 mPa.s (25 °C) Method: Calculated. (Brookfield Viscosity)
Viscosity, kinematic	No test data available
Explosive properties	No data available.
Oxidizing properties	No data available.
Percent volatility	Not determined
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity	No dangerous reaction known under conditions of normal use.
Chemical stability	Stable under recommended storage conditions. See Storage, Section 7.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Exposure to elevated temperatures can cause product to decompose.
Incompatible materials	Avoid contact with: Strong acids. Strong oxidizers. Avoid contact with metals such as: Aluminum. Zinc. Galvanized metals. Copper. Copper alloys.

Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Product:

Acute oral toxicity

Remarks: Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract.
Low toxicity if swallowed.

LD50 (Rat, male): 4,571 mg/kg

LD50 (Rat, female): 3,882 mg/kg

LD50 (Mouse, female): 2,470 mg/kg

Acute inhalation toxicity

Remarks: At room temperature, exposure to vapor is minimal due to low volatility.
Vapor from heated material or mist may cause respiratory irritation.

Remarks: The LC50 has not been determined.

Acute dermal toxicity

Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

LD50

(Rabbit): > 2,000 mg/kg

Symptoms: No deaths occurred at this concentration.

Assessment: The substance or mixture has no acute dermal toxicity

Components:

2-Amino-2-ethyl-1,3-propanediol

Acute oral toxicity

LD50 (Rat, male): 4,571 mg/kg

LD50 (Rat, female): 3,882 mg/kg

Acute inhalation toxicity

Remarks: At room temperature, exposure to vapor is minimal due to low volatility.
Vapor from heated material or mist may cause respiratory irritation.

Remarks: The LC50 has not been determined.

Acute dermal toxicity

LD50 (Rabbit): > 2,000 mg/kg

Symptoms: No deaths occurred at this concentration.

Assessment: The substance or mixture has no acute dermal

toxicity

2-Amino-1-butanol

Acute oral toxicity	LD50 (Rat, male and female): 1,800 mg/kg Method: OECD 401 or equivalent
Acute inhalation toxicity	Remarks: At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material or mist may cause respiratory irritation. Remarks: The LC50 has not been determined.
Acute dermal toxicity	Remarks: The dermal LD50 has not been determined.

Skin corrosion/irritation

Product:

Result: Skin irritation

Remarks: Brief contact may cause slight skin irritation with local redness.

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause more severe response if skin is abraded (scratched or cut).

Remarks: Not classified as corrosive to the skin according to DOT guidelines.

Components:

2-Amino-2-ethyl-1,3-propanediol

Remarks: Brief contact may cause slight skin irritation with local redness.

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause more severe response if skin is abraded (scratched or cut).

Remarks: Not classified as corrosive to the skin according to DOT guidelines.

2-Amino-1-butanol

Result: Corrosive

Remarks: Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Serious eye damage/eye irritation

Product:

Result: Corrosive

Remarks: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Components:

2-Amino-2-ethyl-1,3-propanediol

Result: Corrosive

Remarks: May cause severe irritation with corneal injury which may result in permanent

impairment of vision, even blindness. Chemical burns may occur.

2-Amino-1-butanol

Result: Corrosive

Remarks: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Mist may cause eye irritation.

Respiratory or skin sensitization

Product:

Remarks: For skin sensitization:

Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:

No relevant data found.

Components:

2-Amino-2-ethyl-1,3-propanediol

Remarks: For skin sensitization:

Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:

No relevant data found.

2-Amino-1-butanol

Remarks: For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:

No relevant data found.

Carcinogenicity

Product:

No relevant data found.

Components:

2-Amino-2-ethyl-1,3-propanediol

No relevant data found.

2-Amino-1-butanol

No relevant data found.

IARC

No component 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 identified as a carcinogen or potential carcinogen by OSHA.

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

Teratogenicity

Product

Did not cause birth defects or any other fetal effects in laboratory animals.

Components:

2-Amino-2-ethyl-1,3-propanediol

Did not cause birth defects or any other fetal effects in laboratory animals.

2-Amino-1-butanol

2-Aminobutanol hydrochloride salt caused maternal toxicity leading to death of embryos when administered orally to pregnant rats in a reproductive screening study. No developmental effects were observed in this study.

Mutagenicity

Product

In vitro genetic toxicity studies were negative.

Components:

2-Amino-2-ethyl-1,3-propanediol

In vitro genetic toxicity studies were negative.

2-Amino-1-butanol

In vitro genetic toxicity studies were negative.

Reproductive toxicity

Product:

In animal studies, did not interfere with reproduction.

In animal studies, did not interfere with fertility.

Components:

2-Amino-2-ethyl-1,3-propanediol

In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

2-Amino-1-butanol

In animal studies, did not interfere with reproduction.

STOT - single exposure

Product:

Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Components:

2-Amino-2-ethyl-1,3-propanediol

Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.

2-Amino-1-butanol

Assessment: Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

Repeated dose toxicity

Product:

Remarks: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Components:

2-Amino-2-ethyl-1,3-propanediol

Remarks: Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

2-Amino-1-butanol

Remarks: In animals, effects have been reported on the following organs:
Liver.

Aspiration toxicity

Product:

Aspiration Hazard	Based on physical properties, not likely to be an aspiration hazard.
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Components:

2-Amino-2-ethyl-1,3-propanediol

Based on physical properties, not likely to be an aspiration hazard.

2-Amino-1-butanol

Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

2-Amino-2-ethyl-1,3-propanediol

Toxicity to fish	Remarks: Material is practically non-toxic to fish on an acute
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	basis (LC50 > 100 mg/L). May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms.
	LC50 (Leuciscus idus (Golden orfe)): 460 mg/l Exposure time: 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 668.00 mg/l Exposure time: 48.0 h
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): 548 mg/l End point: Growth rate inhibition Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	NOEC (Daphnia magna (Water flea)): 3.99 mg/l Exposure time: 21 d End point: number of offspring
	LOEC (Daphnia magna (Water flea)): 8.61 mg/l Exposure time: 21 d End point: number of offspring
Toxicity to bacteria	EC50 (Pseudomonas putida): 640 mg/l End point: Growth rate Exposure time: 16 h

2-Amino-1-butanol

Toxicity to fish	Remarks: Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species). LC50 (Leuciscus idus (Golden orfe)): 270 mg/l Exposure time: 96.0 h Test Type: static test Method: OECD Test Guideline 203 or Equivalent LC50 (Oncorhynchus mykiss (rainbow trout)): > 952 mg/l Exposure time: 96.0 h Test Type: static test Method: OECD Test Guideline 203 or Equivalent
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 115.00 mg/l Exposure time: 48.0 h Test Type: static test Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.94 mg/l End point: Growth rate inhibition Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 201 or Equivalent EyC50 (Pseudokirchneriella subcapitata (green algae)): 0.62 mg/l End point: Cell yield inhibition

Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

M-Factor (Acute aquatic toxicity)

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Toxicity to bacteria

EC50 (activated sludge): 329.2 mg/l
End point: Respiration rates.
Exposure time: 3 h
Test Type: static test
Method: OECD 209 Test

Persistence and degradability

Components:

2-Amino-2-ethyl-1,3-propanediol

Biodegradability

Remarks: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

Biodegradation: > 90 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent
Remarks: 10-day Window: Not applicable

Biodegradation: < 6 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

2-Amino-1-butanol

Biodegradability

Result: Readily biodegradable
Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: 93 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Pass

ThOD

2.690 mg/mg
Method: Calculated.

Photodegradation

Sensitiser: OH radicals
Rate constant: Degradation half life: 0.2 d
Method: Estimated.

Bioaccumulative potential

Components:

2-Amino-2-ethyl-1,3-propanediol

Partition coefficient: n-octanol/water
log Pow: -1.02
Method: OECD Test Guideline 107 or Equivalent
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

2-Amino-1-butanol

Partition coefficient: n-octanol/water
log Pow: -0.45
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Components:

2-Amino-2-ethyl-1,3-propanediol

Distribution among environmental compartments
Koc: 922
Method: Estimated.
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

2-Amino-1-butanol

Distribution among environmental compartments
Koc: < 1
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

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).

Components:

2-Amino-2-ethyl-1,3-propanediol

Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential
Remarks: This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

2-Amino-1-butanol

Results of PBT and vPvB assessment	Non-classified vPvB substance Non-classified PBT substance
Ozone-Depletion Potential	Remarks: This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues

DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER.
All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.
FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.
Landfill.
ANGUS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL.

14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

49 CFR (DOT) – NON BULK

Not regulated as a dangerous good

49 CFR (DOT) - BULK

Not regulated as a dangerous good

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazards

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards

Acute Health Hazard

Clean Air Act

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).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

Massachusetts Right to Know List of Chemicals and Hazard Classifications

Cas No.	Component
96-20-8	2-Amino-1-butanol

Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Cas No.	Component
115-70-8	2-Amino-2-ethyl-1,3-propanediol
96-20-8	2-Amino-1-butanol

New Jersey Right To Know

The following chemicals are listed because of the additional requirements of New Jersey law:

Cas No.	Component
115-70-8	2-Amino-2-ethyl-1,3-propanediol
96-20-8	2-Amino-1-butanol

California Prop. 65

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

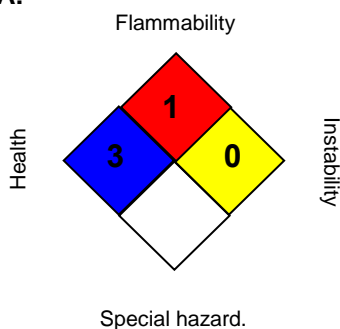
The components of this product are reported in the following inventories:

United States TSCA Inventory
All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date 02/06/2016
Version 1.0

Identification Number: 000040000067

US / EN

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may

not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Full text of other abbreviations

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods