

SAFETY DATA SHEET

ANGUS CHEMICAL COMPANY

Product name : ZOLDINE® MS-PLUS, Oxazolidine

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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 ZOLDINE® MS-PLUS, Oxazolidine

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 +1-847-808-3711

E-mail address NAR_CC@ANGUS.COM

Emergency telephone number 800-424-9300

Recommended use of the chemical and restrictions on use

Recommended use Used in coatings and polyurethanes industry.
Chemical additive.
For industrial use.
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).

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids Category 4

Skin corrosion Category 1A

Serious eye damage Category 1
 Reproductive toxicity Category 1B

GHS Label elements, including precautionary statements

Hazard pictograms



Signal word Danger

Hazard statements Combustible liquid.
 Causes severe skin burns and eye damage.
 May damage fertility or the unborn child.

Precautionary statements **Prevention:**
 Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Wash skin thoroughly after handling.
 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
 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 exposed or concerned: Get medical advice/ attention.
 Wash contaminated clothing before reuse.
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
 Store in a well-ventilated place. Keep cool.
 Store locked up.
Disposal:
 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
 None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

Components

Chemical Name	CAS-No.	Concentration (% w/w)
3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	>= 93.0 - <= 99.0 %
Isoamyl methyl ketone	110-12-3	<= 5.0 %
N-Ethylethanolamine	110-73-6	<= 2.0 %

4. FIRST AID MEASURES

If inhaled	Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
In case of skin contact	Immediate continued and thorough washing in flowing water for at least 30 minutes is imperative while removing contaminated clothing. Prompt medical consultation is essential. Wash clothing before reuse. Properly dispose of leather items such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.
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 consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
If swallowed	If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.
Most important symptoms and effects, both acute and delayed	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.
Protection of first-aiders	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.
Notes to physician	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. Maintain adequate ventilation and oxygenation of the patient.

Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	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.
Specific hazards during firefighting	Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.
Hazardous combustion products	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 dioxide. Carbon monoxide. Nitrogen oxides.
Further information	Keep people away. Isolate fire and deny unnecessary entry. Do not use direct water stream. May spread fire. 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.
Special protective equipment for firefighters	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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Only trained and properly protected personnel must be involved in clean-up operations. Evacuate area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.
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Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up Contain spilled material if possible. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Advice on safe handling Keep away from heat, sparks and flame. 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. Wash thoroughly after handling. Avoid breathing vapor or mist. Use with adequate ventilation. Do not get in eyes, on skin, on clothing. Keep container closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage Store under an oxygen-free nitrogen atmosphere. Avoid moisture.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
110-12-3	Isoamyl methyl ketone	TWA	20 ppm	ACGIH
110-12-3	Isoamyl methyl ketone	STEL	50 ppm	ACGIH
110-12-3	Isoamyl methyl ketone	TWA	50 ppm 240 mg/m3	NIOSH REL
110-12-3	Isoamyl methyl ketone	TWA	100 ppm 475 mg/m3	OSHA Z-1
110-12-3	Isoamyl methyl ketone	TWA	50 ppm 240 mg/m3	OSHA P0

Engineering measures Local exhaust ventilation may be necessary for some operations. Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.

Personal protective equipment

Respiratory protection Respiratory protection should be worn when there is a

potential to exceed the exposure limit requirements or guidelines.
 For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.
 If there are no applicable exposure limit requirements or guidelines, use an approved respirator.
 Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.
 The following should be effective types of air-purifying respirators:
 Organic vapor cartridge.

Hand protection

Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Butyl rubber. Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR").
 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	Colorless
Odor	Mild
Odor Threshold	No test data available
pH	No test data available
Melting point/range	No test data available
Freezing point	-35 °C (-31 °F) Method: Literature
Boiling point/boiling range	209 °C (408 °F) Method: Literature

Flash point	79 °C (174 °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	2.40 mmHg (25 °C) Method: Literature
Relative Vapor Density (air = 1)	No test data available
Relative density	0.8734 (20 °C) Method: Literature
Density	0.872 g/cm ³ (24 °C) Method: Literature
Water solubility	hydrolyzes rapidly
Partition coefficient: n-octanol/water	log Pow: 3.67 Method: Estimated. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Viscosity	
Viscosity, dynamic	< 100 mPa.s Method: Literature (Brookfield Viscosity)
Viscosity, kinematic	No test data available
Explosive properties	No data available.
Oxidizing properties	No data available.
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	Thermally stable at typical use temperatures.
Conditions to avoid	Exposure to elevated temperatures can cause product to decompose. Avoid moisture.
Incompatible materials	Avoid contact with: Strong acids. Strong oxidizers. Moisture.
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: Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Low toxicity if swallowed.

LD50 (Rat, male): 4,400 mg/kg

LD50 (Rat, female): 3,000 mg/kg

Acute inhalation toxicity Remarks: Prolonged excessive exposure may cause serious adverse effects, even death.
Mist may cause severe irritation of upper respiratory tract (nose and throat).
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.
May cause central nervous system depression.

Remarks: The LC50 has not been determined.

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

LD50

(Rat, male and female): > 2,000 mg/kg

Symptoms: No deaths occurred at this concentration.

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

Acute oral toxicity	LD50 (Rat, male): 4,400 mg/kg LD50 (Rat, female): 3,000 mg/kg
Acute inhalation toxicity	Remarks: The LC50 has not been determined.
Acute dermal toxicity	LD50 (Rat, male and female): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute dermal toxicity

Isoamyl methyl ketone

Acute oral toxicity	LD50 (Rat, male): 5,657 mg/kg
Acute inhalation toxicity	LC50 (Rat): 5000 ppm Exposure time: 4 h Test atmosphere: gas Method: Estimated.
Acute dermal toxicity	LD50 (Rabbit): > 8,000 mg/kg

N-Ethylethanolamine

Acute oral toxicity	Remarks: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. LD50 (Rat, male): <** Phrase does not exist: > 500 - **> LD50 (Rat, female): <** Phrase does not exist: > 681 - **>
Acute inhalation toxicity	LC50 (Rat): > 2.169999 mg/l Exposure time: 7 h Test atmosphere: vapour Symptoms: No deaths occurred following exposure to a saturated atmosphere.
Acute dermal toxicity	Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts. LD50 (Rat): 3,670 mg/kg

Skin corrosion/irritation**Product:**

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

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Result: Corrosive

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

Isoamyl methyl ketone

Remarks: Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

N-Ethylethanolamine

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:**

Remarks: Due to the effects of the material on the skin, it is assumed that exposure may cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Result: Corrosive
Remarks: Due to the effects of the material on the skin, it is assumed that exposure may cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness.

Isoamyl methyl ketone

Remarks: May cause slight eye irritation. Corneal injury is unlikely. Vapor may cause eye irritation experienced as mild discomfort and redness.

N-Ethylethanolamine

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

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:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Remarks: Did not cause allergic skin reactions when tested in guinea pigs.
For skin sensitization:

Remarks: No relevant data found.

For respiratory sensitization:

Isoamyl methyl ketone

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

For skin sensitization:

Remarks: No relevant data found.

For respiratory sensitization:

N-Ethylethanolamine

Remarks: No relevant data found.

For skin sensitization:

Remarks: No relevant data found.

For respiratory sensitization:

Carcinogenicity

Product:

No relevant data found.

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

No relevant data found.

Isoamyl methyl ketone

No relevant data found.

N-Ethylethanolamine

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

No relevant data found.

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

No relevant data found.

Isoamyl methyl ketone

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

N-Ethylethanolamine

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Mutagenicity

Product

In vitro genetic toxicity studies were negative.

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

In vitro genetic toxicity studies were negative.

Isoamyl methyl ketone

In vitro genetic toxicity studies were negative.

N-Ethylethanolamine

In vitro genetic toxicity studies were negative.

Reproductive toxicity

Product:

In animal studies, has been shown to interfere with reproduction.

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

Reproductive toxicity - Presumed human reproductive toxicant
Assessment

Isoamyl methyl ketone

In animal studies, did not interfere with reproduction.

N-Ethylethanolamine

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

STOT - single exposure

Product:

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

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

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

Isoamyl methyl ketone

Exposure routes: Inhalation, Oral

Target Organs: Central nervous system

Assessment: May cause drowsiness or dizziness.

N-Ethylethanolamine

Assessment: Available data are inadequate to determine single exposure specific target organ toxicity.

Repeated dose toxicity**Product:**

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

Kidney.

Liver.

Ovaries.

Spleen.

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

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

Kidney.

Liver.

Ovaries.

Spleen.

Isoamyl methyl ketone

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

Liver.

Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

N-Ethylethanolamine

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

Ovaries.

Testes.

Aspiration toxicity**Product:**

Aspiration Hazard

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

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

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

Isoamyl methyl ketone

May be harmful if swallowed and enters airways.

N-Ethylethanolamine

Based on available information, aspiration hazard could not be determined.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish

Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 129 mg/l
Exposure time: 96.0 h

Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 52.00 mg/l
Exposure time: 48.0 h

Toxicity to algae

ErC50 (Pseudokirchneriella subcapitata (green algae)): 2.9 mg/l
End point: Growth rate inhibition
Exposure time: 72 h

Toxicity to bacteria

EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

Toxicity to fish

Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 129 mg/l
Exposure time: 96.0 h

Toxicity to daphnia and other aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 52.00 mg/l
Exposure time: 48.0 h

Toxicity to algae

EbC50 (Pseudokirchneriella subcapitata (green algae)): 0.99 mg/l
End point: Biomass
Exposure time: 72 h

Toxicity to bacteria

EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Isoamyl methyl ketone

Toxicity to fish	Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50 (Pimephales promelas (fathead minnow)): 159 mg/l Exposure time: 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48.0 h
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l End point: Growth rate inhibition Exposure time: 72 h
Toxicity to bacteria	EC50 (activated sludge): > 1,000 mg/l End point: Respiration rates. Exposure time: 3 h

N-Ethylethanolamine

Toxicity to fish	Remarks: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested). LC50 (Leuciscus idus (Golden orfe)): 147 mg/l Exposure time: 96.0 h
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): 37.4 mg/l End point: Growth rate inhibition Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	(Daphnia magna (Water flea)): 3.2 mg/l Exposure time: 21 d End point: growth

Persistence and degradability**Product:**

Biodegradability	Remarks: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation: > 90 % Exposure time: 28 d Method: OECD Test Guideline 301C or Equivalent Remarks: 10-day Window: Not applicable Biodegradation: 74.299999 % Exposure time: 28 d Method: OECD Test Guideline 301F or Equivalent Remarks: 10-day Window: Pass
ThOD	3.020 mg/mg

Method: Estimated.

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Biodegradability Remarks: Chemical degradation (hydrolysis) is expected in the environment.
Material is expected to be readily biodegradable.

Result: Readily biodegradable
Biodegradation: > 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
Remarks: 10-day Window: Not applicable

Result: Readily biodegradable
Biodegradation: 74 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: 10-day Window: Pass

Biodegradation: 43 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

ThOD 3.020 mg/mg
Method: Estimated.

Isoamyl methyl ketone

Biodegradability Result: Readily biodegradable
Remarks: Material is expected to be readily biodegradable.

Biodegradation: 67 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Pass

Photodegradation Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: Degradation half life: 1.5416 h
Method: Estimated.

N-Ethylethanolamine

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

Biodegradation: 62 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

Photodegradation Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: Degradation half life: 0.1236 d
Method: Estimated.

Bioaccumulative potential**Product:**

Partition coefficient: n-octanol/water

log Pow: 3.67

Method: Estimated.

Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Partition coefficient: n-octanol/water

log Pow: 3.67

Method: Estimated.

Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Isoamyl methyl ketone

Bioaccumulation

Bioconcentration factor (BCF): 6

Method: Estimated.

Partition coefficient: n-octanol/water

Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

log Pow: 1.88

Method: Measured

N-Ethylethanolamine

Partition coefficient: n-octanol/water

Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

log Pow: -0.66

Method: Estimated.

Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil**Product:**

Distribution among environmental compartments

Koc: 170

Method: Estimated.

Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

Components:**3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine**

Distribution among environmental compartments

Koc: 170

Method: Estimated.

Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

Isoamyl methyl ketone

Distribution among environmental compartments	Koc: 250 Method: Estimated. Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).
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N-Ethylethanolamine

Distribution among environmental compartments	Remarks: No relevant data found.
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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).
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Components:

3-Ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine

Results of PBT and vPvB assessment	This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).
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Ozone-Depletion Potential	Remarks: no data available
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Isoamyl methyl ketone

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

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

UN/ID No.	UN 3267
Proper shipping name	Corrosive liquid, basic, organic, n.o.s. (Oxazolidine, N-Ethylethanolamine)
Class	8
Packing group	III
Labels	Corrosive
Packing instruction (cargo aircraft)	856
Packing instruction (passenger aircraft)	852

IMDG-Code

UN number	UN 3267
Proper shipping name	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Oxazolidine, N-Ethylethanolamine)
Class	8
Packing group	III
Labels	8
EmS Code	F-A, S-B
Marine pollutant	no
Remarks	Stowage category A Alkalis

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

UN/ID/NA number 3267
 Proper shipping name CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.

Class 8
 Packing group III
 Labels Class 8 - Corrosive
 ERG Code 153
 Marine pollutant no

49 CFR (DOT) - BULK

UN/ID/NA number 3267
 Proper shipping name CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.
 (Oxazolidine, N-Ethylethanolamine)

Class 8
 Packing group III
 Labels Class 8 - Corrosive
 ERG Code 153
 Marine pollutant no

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.
 Combustible Liquid, Corrosive to skin, Reproductive hazard

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

CERCLA Reportable Quantity

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards Fire Hazard
 Acute Health Hazard
 Chronic Health Hazard

SARA 302 No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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.

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
110-12-3	Isoamyl methyl ketone

Pennsylvania Right To Know

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

Cas No.	Component
110-12-3	Isoamyl methyl ketone

New Jersey Right To Know

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

Cas No.	Component
110-12-3	Isoamyl methyl ketone

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:

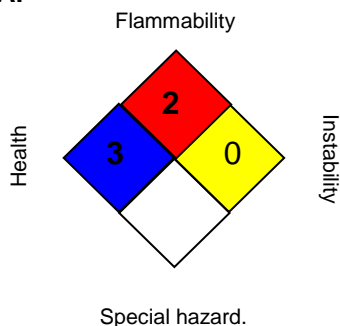
United States TSCA Inventory

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	2
PHYSICAL HAZARD	0

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

Revision Date 11/02/2017
 Version 0.0

Identification Number: 000040000138

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