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SECTION 1. IDENTIFICATION

Product identifier

Trade name : Amercor™ EM
CORROSION INHIBITOR
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Recommended use of the chemical and restrictions on use


<p>Details of the supplier of the safety data sheet Solenis LLC 500 Hercules Road Wilmington, Delaware 19808 United States of America (USA)</p> <p>RegulatoryRequestsNA@solenis.com</p>	<p>Emergency telephone number 1-844-SOLENIS (844-765-3647)</p> <p>Product Information Contact your local Solenis representative</p>
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SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

- Flammable liquids : Category 3
- Acute toxicity (Oral) : Category 4
- Acute toxicity (Dermal) : Category 4
- Skin corrosion : Category 1
- Serious eye damage : Category 1
- Skin sensitisation : Category 1
- Carcinogenicity : Category 2
- Reproductive toxicity : Category 2
- Specific target organ toxicity : Category 3 (Respiratory system)
- single exposure

GHS label elements

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Hazard pictograms :



Signal word :

Danger

Hazard statements :

H226 Flammable liquid and vapour.
H302 + H312 Harmful if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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 dust/ fume/ 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.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/

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attention.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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.


Other hazards

None known.


SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Hazardous components**

Chemical name	CAS-No.	Classification	Concentration (%)
CYCLOHEXYLAMINE	108-91-8	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1A; H314 Eye Dam. 1; H318 Repr. 2; H361	>= 20 - < 30
2-diethylaminoethanol	100-37-8	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT SE 3; H335	>= 10 - < 15
AMINE	Trade Secret	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Corr. 1A; H314 Eye Dam. 1; H318	>= 5 - < 10
METHYL ETHYL KETONE OXIME	Trade Secret	Flam. Liq. 4; H227 Acute Tox. 4; H312 Eye Dam. 1; H318 Skin Sens. 1; H317 Carc. 2; H351	>= 1.5 - < 3

SECTION 4. FIRST AID MEASURES

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- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Move to fresh air.
Keep patient warm and at rest.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : Remove contaminated clothing. If irritation develops, get medical attention.
If on skin, rinse well with water.
Wash contaminated clothing before re-use.
If on clothes, remove clothes.
- In case of eye contact : 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.
Protect unharmed eye.
- If swallowed : Get medical attention immediately.
Do NOT induce vomiting.
Rinse mouth with water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Overexposure to this product (or a component) may cause methemoglobinemia, which in sufficient concentration causes cyanosis. Severe cyanosis may require intravenous injection of methylene blue. Methylene blue is contraindicated if the patient has confirmed or suspected glucose-6-phosphate dehydrogenase deficiency.
Pulmonary edema may be delayed.
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
stomach or intestinal upset (nausea, vomiting, diarrhea)
irritation (nose, throat, airways)
Cough
nervousness
effects on blood pressure
chest pain
halo vision (blurred vision around bright objects)
loss of coordination
methemoglobinemia (blood abnormality which causes a blue coloring to the skin)
lung edema (fluid buildup in the lung tissue)
respiratory failure
Difficulty in breathing
Harmful if swallowed or in contact with skin


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May cause an allergic skin reaction.
 Causes serious eye damage.
 May cause respiratory irritation.
 Suspected of causing cancer.
 Suspected of damaging fertility or the unborn child.
 Causes severe burns.

Notes to physician : No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Water spray
 Foam
 Alcohol-resistant foam
 Carbon dioxide (CO₂)
 Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.
 Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
 Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Ammonia
 Carbon monoxide
 Carbon dioxide (CO₂)
 Cyanides
 toxic fumes
 various hydrocarbons
 Nitrogen oxides (NO_x)
 nitrogen oxides (NO_x)
 formaldehyde
 nitrogen compounds
 methyl ethyl ketone
 substituted amides
- Specific extinguishing methods : Product is compatible with standard fire-fighting agents.
- Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
 Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.


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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Remove all sources of ignition.
Use personal protective equipment.
Ensure adequate ventilation.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Comply with all applicable federal, state, and local regulations.
Suppress (knock down) gases/vapours/mists with a water spray jet.
- 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 : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). No sparking tools should be used. Keep away from open flames, hot surfaces and sources of ignition. Use only explosion-proof equipment.
- Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.
- Advice on safe handling : Open drum carefully as content may be under pressure.
Avoid formation of aerosol.
Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapours/dust.
Do not smoke.
Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed.
When diluting, always add the product to water. Never add water to the product.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being

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used.
 Container hazardous when empty.
 Take precautionary measures against static discharges.
 Avoid exposure - obtain special instructions before use.
 Avoid contact with skin and eyes.
 Smoking, eating and drinking should be prohibited in the application area.
 For personal protection see section 8.
 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.
 No smoking.
 Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
CYCLOHEXYLAMINE	108-91-8	TWA	10 ppm	ACGIH
			10 ppm 40 mg/m ³	NIOSH REL
		TWA	10 ppm 40 mg/m ³	OSHA P0
2-diethylaminoethanol	100-37-8	TWA	2 ppm	ACGIH
			10 ppm 50 mg/m ³	NIOSH REL
		TWA	10 ppm 50 mg/m ³	OSHA Z-1
		TWA	10 ppm 50 mg/m ³	OSHA P0
AMINE	Trade Secret	TWA	20 ppm	ACGIH
			20 ppm 70 mg/m ³	NIOSH REL
		ST	30 ppm 105 mg/m ³	NIOSH REL
		TWA	20 ppm 70 mg/m ³	OSHA Z-1
		TWA	20 ppm 70 mg/m ³	OSHA P0
		STEL	30 ppm 105 mg/m ³	OSHA P0
METHYL ETHYL KETONE	Trade Secret	TWA	10 ppm	US WEEL

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OXIME				
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Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Wear chemical splash goggles and face shield when there is potential for exposure of the eyes or face to liquid, vapor or mist.
Maintain eye wash station in immediate work area.

Skin and body protection : Wear as appropriate:
Impervious clothing
Chemical resistant apron
Safety shoes
Flame-resistant clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Discard gloves that show tears, pinholes, or signs of wear.
Wear resistant gloves (consult your safety equipment supplier).

Hygiene measures : Wash hands before breaks and at the end of workday.
When using do not eat or drink.
Ensure that eyewash stations and safety showers are close to the workstation location.
When using do not smoke.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance : liquid

Colour : amber

Odour : amine-like

Odour Threshold : No data available

pH : 12.5

: -40 °F

: > 200 °F
(1013 hPa)

Flash point : 49.99 °C

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Self-ignition : >
554 °F

Upper explosion limit : 10.0 %(V)

Lower explosion limit : 1.5 %(V)

Vapour pressure : 27.9972 hPa (20 °C)
Calculated Vapor Pressure

Relative vapour density : 3.2
AIR=1

Relative density : No data available

Density : 0.979 g/cm3 (25 °C)

Solubility(ies)

Water solubility : completely soluble

Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

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Oxidizing properties : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.


Chemical stability : Stable under recommended storage conditions.

Possibility of hazardous reactions : Vapours may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.
 excessive heat
 Heat, flames and sparks.
 Exposure to moisture

Incompatible materials : Acids
 acrylates
 Alcohols
 Aldehydes
 alkalis
 aluminum
 Copper
 Copper alloys
 galvanized metals
 glycols
 halogenated hydrocarbons
 isocyanates
 Ketones
 Metals
 nitrates
 nitrites and other nitrosating agents
 organic anhydrides
 organic solvent
 peroxides
 phenols
 Reducing agents
 Strong oxidizing agents
 Zinc
 Aqueous solutions of this product corrode steel.

Hazardous decomposition products : **Amines**
Ammonia
Carbon monoxide
Carbon dioxide (CO2)
Cyanides
Nitrogen oxides (NOx)
nitrogen compounds
methyl ethyl ketone
substituted amides

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SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed or in contact with skin

Product:

- Acute oral toxicity : Acute toxicity estimate: 1,660 mg/kg
Method: Calculation method
- Acute inhalation toxicity : Acute toxicity estimate: 46 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method
- Acute dermal toxicity : Acute toxicity estimate: 1,929 mg/kg
Method: Calculation method

Components:

CYCLOHEXYLAMINE:

- Acute oral toxicity : LD 50 (Rat): 432 mg/kg
- Acute inhalation toxicity : Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : Assessment: The component/mixture is classified as acute dermal toxicity, category 4.

2-diethylaminoethanol:

- Acute oral toxicity : LD 50 (Rat): 1,320 mg/kg ca.
- Acute inhalation toxicity : LC 50 (Rat): Approximate 4.6 mg/l
Exposure time: 4 h
Test atmosphere: vapour
- Acute dermal toxicity : LD 50 (Guinea pig): ca. 885 mg/kg

AMINE:

- Acute oral toxicity : LD50 (Rat): ca. 1,900 mg/kg
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC 50 (Rat): 8 mg/l
Exposure time: 8 h
Test atmosphere: vapour
- Acute dermal toxicity : LD 50 (Rabbit): ca. 500 mg/kg

METHYL ETHYL KETONE OXIME:

- Acute oral toxicity : LD 50 (Rat, male): 2,326 mg/kg

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Acute inhalation toxicity : LC 50 (Rat): > 4,830 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD 50 (Rabbit, male and female): > 1,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Skin corrosion/irritation

Causes severe burns.

Product:

Remarks: **May cause skin irritation in susceptible persons.**
Causes severe skin burns and eye damage.

Components:**CYCLOHEXYLAMINE:**

Result: Corrosive after 3 minutes or less of exposure

2-diethylaminoethanol:

Species: Rabbit

Result: Corrosive after 3 minutes to 1 hour of exposure

AMINE:

Result: Corrosive after 3 minutes or less of exposure

METHYL ETHYL KETONE OXIME:

Species: Rabbit

Result: Slightly irritating to skin

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Remarks: May cause irreversible eye damage.


Components:**CYCLOHEXYLAMINE:**

Result: Corrosive to eyes

2-diethylaminoethanol:

Species: Rabbit

Result: Corrosive to eyes

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AMINE:

Result: Corrosive to eyes

METHYL ETHYL KETONE OXIME:

Species: Rabbit

Result: Corrosive to eyes

Method: OECD Test Guideline 405

GLP: yes

Respiratory or skin sensitisation**Skin sensitisation**

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Product:

Remarks: May cause allergic skin reaction.

Components:**2-diethylaminoethanol:**

Test Type: Maximisation Test

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Did not cause sensitisation on laboratory animals.

METHYL ETHYL KETONE OXIME:

Test Type: Buehler Test

Exposure routes: Skin contact

Species: Guinea pig

Method: OECD Test Guideline 406

GLP: yes

Germ cell mutagenicity

Not classified based on available information.

Components:**CYCLOHEXYLAMINE:**

Genotoxicity in vitro

: Test Type: Ames test

Species: Salmonella typhimurium

Metabolic activation: with and without metabolic activation


Method: OECD Test Guideline 471

Result: negative

: Species: Chinese hamster ovary cells

Method: OPPTS 870.5300

: Species: rat hepatocytes

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Method: OPPTS 870.5550

2-diethylaminoethanol:


- Genotoxicity in vitro :
- Test Type: Ames test
 - Metabolic activation: with and without metabolic activation
 - Method: OECD Test Guideline 471
 - Result: negative
- :
- Species: Chinese hamster lung cells
 - Metabolic activation: with and without metabolic activation
 - Method: OECD Test Guideline 476
 - Result: negative
 - GLP: yes
- Genotoxicity in vivo :
- Test Type: In vivo micronucleus test
 - Species: Mouse
 - Method: OECD Test Guideline 474
 - Result: negative

AMINE:

- Genotoxicity in vitro :
- Test Type: unscheduled DNA synthesis assay
 - Species: rat hepatocytes
 - Metabolic activation: without metabolic activation
 - Method: OECD Test Guideline 482
 - Result: negative
- :
- Test Type: In vitro mammalian cell gene mutation test
 - Species: mouse lymphoma cells
 - Metabolic activation: without metabolic activation
 - Method: OECD Test Guideline 476
 - Result: positive

METHYL ETHYL KETONE OXIME:

- Genotoxicity in vitro :
- Test Type: In vitro mammalian cell gene mutation test
 - Species: mouse lymphoma cells
 - Metabolic activation: without metabolic activation
 - Method: OECD Test Guideline 476
 - Result: positive
- :
- Test Type: In vitro mammalian cell gene mutation test
 - Species: mouse lymphoma cells
 - Metabolic activation: with metabolic activation
 - Method: OECD Test Guideline 476
 - Result: negative
- :
- Test Type: unscheduled DNA synthesis assay
 - Species: rodent hepatocytes
 - Method: OECD Test Guideline 482
 - Result: negative
 - GLP: yes

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: Test Type: Ames test
 Species: Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Result: negative

Genotoxicity in vivo : Species: Drosophila melanogaster (vinegar fly) (male)
 Result: negative

Test Type: chromosome aberration assay
 Species: Rat (male and female)
 Application Route: Oral
 Method: OPPTS 870.5385
 Result: negative
 GLP: yes

Carcinogenicity

Suspected of causing cancer.

Components:

METHYL ETHYL KETONE OXIME:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

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.

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Components:

CYCLOHEXYLAMINE:

Reproductive toxicity - Assessment : Suspected human reproductive toxicant

STOT - single exposure

May cause respiratory irritation.

Components:

2-diethylaminoethanol:

Target Organs: Respiratory system
 Assessment: May cause respiratory irritation.

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STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks: Solvents may degrease the skin.

Components:

2-diethylaminoethanol:

Remarks: Central nervous system

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 423 mg/l
 Exposure time: 96 h
 Test Type: static test

LC 50 (Pimephales promelas (fathead minnow)): 77 mg/l
 Exposure time: 96 h
 Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC 50 (Water flea (Ceriodaphnia dubia)): 63.1 mg/l
 Exposure time: 48 h
 Test Type: static test

LC 50 (Water flea (Ceriodaphnia dubia)): 74.8 mg/l
 Exposure time: 48 h
 Test Type: static test

Ecotoxicology Assessment

Acute aquatic toxicity : Acute aquatic toxicity Category 3; Harmful to aquatic life.

Chronic aquatic toxicity : Not classified based on available information.

Components:

CYCLOHEXYLAMINE:

Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Test substance: Neutralised product

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- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 36.3 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202
 GLP: yes
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 29.3 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes
- NOEC (Pseudokirchneriella subcapitata (green algae)): 10.3 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1.6 mg/l
 End point: Reproduction Test
 Exposure time: 21 d
 Test Type: semi-static test
 Method: OECD Test Guideline 211
 GLP: yes
- Toxicity to microorganisms : EC10 (activated sludge): 326 mg/l
 Exposure time: 3 h
 Test Type: Static
 Method: ISO 8192
 GLP:
- 2-diethylaminoethanol:**
- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 147 mg/l
 Exposure time: 96 h
 Test Type: static test
 Method: DIN 38412
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 83.6 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: Directive 67/548/EEC, Annex V, C.2.
- Toxicity to algae : NOEC (Desmodesmus subspicatus (green algae)): 5 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: DIN 38412

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EC50 (Desmodesmus subspicatus (green algae)): 44 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: DIN 38412

Toxicity to microorganisms : EC20 (activated sludge): > 1,000 mg/l
 Exposure time: 30 min
 Method: OECD Test Guideline 209

METHYL ETHYL KETONE OXIME:

Toxicity to fish : LC 50 (Oncorhynchus mykiss (rainbow trout)): 693 mg/l
 Exposure time: 96 h
 Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : LC 50 (Water flea (Ceriodaphnia dubia)): 750.8 mg/l
 Exposure time: 48 h
 Test Type: static test

Toxicity to algae : EC50 (Scenedesmus capricornutum (fresh water algae)): 11.8 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes

NOEC (Scenedesmus capricornutum (fresh water algae)): 2.56 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Orange-red killifish)): 50 mg/l
 Exposure time: 14 d
 Test Type: flow-through test
 Method: OECD Test Guideline 204
 GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 100 mg/l
 End point: Reproduction Test
 Exposure time: 21 d
 Test Type: semi-static test
 Method: OECD Test Guideline 211
 GLP: yes

Persistence and degradability

Product:

Biochemical Oxygen : Biochemical oxygen demand within 5 days

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Demand (BOD) < 0.5 mg/l

Chemical Oxygen Demand (COD) : 924,774 mg/l

Components:**CYCLOHEXYLAMINE:**

Biodegradability : Result: Readily biodegradable.
Biodegradation: 92 %
Exposure time: 20 d
Method: Directive 67/548/EEC Annex V, C.4.E.

2-diethylaminoethanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 28 d
Method: OECD Test Guideline 301A
GLP: yes

AMINE:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 92.6 %
Exposure time: 22 d
Method: OECD Test Guideline 301E

METHYL ETHYL KETONE OXIME:

Biodegradability : Biodegradation: 24.7 %
Exposure time: 28 d
Method: OECD Test Guideline 302C

Biochemical Oxygen Demand (BOD) : Biochemical oxygen demand within 5 days
59 mg/l

Chemical Oxygen Demand (COD) : 880,000 mg/l
Method: Chemical oxygen demand

Bioaccumulative potential**Components:****CYCLOHEXYLAMINE:**

Partition coefficient: n-octanol/water : log Pow: Calculated 1.49

2-diethylaminoethanol:

Bioaccumulation : Bioconcentration factor (BCF): 0.85

Partition coefficient: n-octanol/water : log Pow: 0.21 (23 °C)
Method: OECD Test Guideline 107

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AMINE:

Partition coefficient: n- : log Pow: -0.86
 octanol/water

METHYL ETHYL KETONE OXIME:

Partition coefficient: n- : Pow: 0.65 (25 °C)
 octanol/water

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological : An environmental hazard cannot be excluded in the event of
 information unprofessional handling or disposal.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water
 courses or the soil.
 Do not contaminate ponds, waterways or ditches with
 chemical or used container.
 Send to a licensed waste management company.

 Dispose of in accordance with all applicable local, state and
 federal regulations.

Contaminated packaging : Empty remaining contents.
 Dispose of as unused product.
 Empty containers should be taken to an approved waste
 handling site for recycling or disposal.
 Do not re-use empty containers.
 Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
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U.S. DOT - ROAD

UN	2920	Corrosive liquids, flammable, n.o.s. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
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U.S. DOT - RAIL

UN	2920	Corrosive liquids, flammable, n.o.s. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

U.S. DOT - INLAND WATERWAYS

UN	2920	Corrosive liquids, flammable, n.o.s. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

TRANSPORT CANADA - ROAD

UN	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

TRANSPORT CANADA - RAIL

UN	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	2920	Corrosive liquid, flammable, n.o.s. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	---	---	-----	----

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	2920	Corrosive liquid, flammable, n.o.s. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	---	---	-----	----

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	2920	CORROSIVE LIQUID, FLAMMABLE, N.O.S. (CYCLOHEXYLAMINE, DIETHYL ETHANOLAMINE)	8	(3)	II
----	------	--	---	-----	----

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***ORM = ORM-D, CBL = COMBUSTIBLE LIQUID**

Marine pollutant	no
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Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
CYCLOHEXYLAMINE	108-91-8	10000	50000

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
CYCLOHEXYLAMINE	108-91-8	10000

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Respiratory or skin sensitization
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)


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.

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

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

- DSL : All components of this product are on the Canadian DSL
- AICS : On the inventory, or in compliance with the inventory
- ENCS : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory

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IECSC : On the inventory, or in compliance with the inventory

TCSI : On the inventory, or in compliance with the inventory

TSCA : On TSCA Inventory

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:
ETHYLENE GLYCOL MONOMETHYL ETHER 109-86-4

SECTION 16. OTHER INFORMATION

Further information

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Full text of H-Statements

H226 : Flammable liquid and vapour.
H227 : Combustible liquid.
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.
H312 : Harmful in contact with skin.
H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H331 : Toxic if inhaled.
H335 : May cause respiratory irritation.
H351 : Suspected of causing cancer.
H361 : Suspected of damaging fertility or the unborn child.


Full text of other abbreviations

Acute Tox. : Acute toxicity
Carc. : Carcinogenicity
Eye Dam. : Serious eye damage
Flam. Liq. : Flammable liquids
Repr. : Reproductive toxicity
Skin Corr. : Skin corrosion
Skin Sens. : Skin sensitisation
STOT SE : Specific target organ toxicity - single exposure

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by the Solenis Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet
Key literature references and sources of data

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SOLENIS Internal data

SOLENIS internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

Full text of other abbreviations

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

US / EN