

Safety Data Sheet

B2400/ B2412

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : B2400/ B2412
Product Description : Super Radiator Flush

Manufacturer or supplier's details

Company : The Berkebile Oil Company
Address : 1216 Red Brant Road
Somerset, PA 15501, PO box 715

Emergency telephone number:
Chemtrec Emergency Tel # 800-424-9300
Transport North America: CHEMTREC 800.424.9300

Additional Information: : Phone 814-443-1656
Email info@berkebileoil.com
Fax 814-443-2873

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Acute toxicity (Dermal) : Category 4
Skin corrosion : Category 1A
Serious eye damage : Category 2A
Respiratory sensitisation : Category 1
Skin sensitisation : Category 1
Reproductive toxicity : Category 1B

GHS Label element

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Hazard pictograms :



Signal word :

Danger

Hazard statements :

H226 Flammable liquid and vapour.
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H360 May damage fertility or the unborn child.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness

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, hot surfaces, sparks, open flames and other ignition sources. 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.
P281 Use personal protective equipment as required.
P285 In case of inadequate ventilation wear respiratory protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician 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): Remove/ Take off immediately all contaminated clothing. Rinse

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skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

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 or doctor/ physician.

P308 + P313 If exposed or concerned: Get medical advice/ attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P363 Wash contaminated clothing before reuse.

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

Storage:

P403 + 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.

Potential Health Effects

Aggravated Medical Condition : None known.

Symptoms of Overexposure : Pain
Redness
Lachrymation
Irritation
Blistering
Abdominal pain

Carcinogenicity:

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.

ACGIH

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

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

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than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Emergency Overview

Appearance	liquid
Colour	colourless, clear, yellow
Odour	ammoniacal, amine-like, sweet, pungent
Hazard Summary	No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical Name	Concentration (%)
110-91-8	Morpholine	< .5%
109-86-4	Ethanol, 2-methoxy-	< 5%
107-15-3	1,2-Ethanediamine	< 5%
100-74-3	4-Ethylmorpholine	< 5%
67-64-1	Acetone	< 5%

Molecular formula : C₃H₆O

Synonyms : Solv Acetone/Acetone Hydrocarbon Free

SECTION 4. FIRST AID MEASURES

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 : Call a physician or poison control center immediately.
If unconscious place in recovery position and seek medical advice.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

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In case of eye contact	: Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	: Pain Redness Lachrymation Irritation Blistering Abdominal pain
Notes to physician	: Treat symptomatically

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical
Unsuitable extinguishing media	: High volume water jet
Specific hazards during firefighting	: Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	: Carbon dioxide (CO ₂) Carbon monoxide Nitrogen oxides (NO _x)
Specific extinguishing methods	: Use a water spray to cool fully closed containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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- Further information : Collect contaminated fire extinguishing water separately. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

NFPA Flammable and Combustible Liquids Classification:
Flammable Liquid Class IB

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- 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 : Neutralise with acid.
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 safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work

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rooms.

Open drum carefully as content may be under pressure.

To avoid spills during handling keep bottle on a metal tray.

Dispose of rinse water in accordance with local and national regulations.

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 used.

Conditions for safe storage

: No smoking.
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.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
110-91-8	Morpholine	TWA	20 ppm	ACGIH
		TWA	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

Personal protective equipment

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

Hand protection
Remarks

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

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- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : colourless, clear, yellow
- Odour : ammoniacal, amine-like, sweet, pungent
- Odour Threshold : 62 ppm
- pH : 5 – 7
- Freezing Point (Melting point/range) : -5 °C (23 °F)
- Boiling Point (Boiling point/boiling range) : 56 °C (133 °F)
- Flash point : 32 °C (90 °F)
- Evaporation rate : 5.6 - 6.06
n-Butyl Acetate
- Flammability (solid, gas) : No data available
- Burning rate : No data available
- Upper explosion limit : 11.2 - 15.2 %(V)
- Lower explosion limit : 2.1 %(V)
- Vapour pressure : 5.6 - 6.06

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Relative vapour density	: 3 @ 20 °C (68 °F)
Relative density	: 1.0007Reference substance: (water = 1)
Density	: 1.00 g/cm ³ @ 20 °C (68 °F)
Bulk density	: No data available
Solubility(ies)	
Water solubility	: completely soluble
Solubility in other sol- vents	: completely miscible Solvent: organic solvents
Partition coefficient: n- octanol/water	: log Pow: -2.55 @ 25 °C (77 °F)
Auto-ignition temperature	: 255 °C
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: 2.23 mPa.s @ 20 °C (68 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Vapours may form explosive mixture with air. Stable under recommended storage conditions.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Strong oxidizing agents strong mineral acids Reducing agents Acids alkalis

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SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

- Acute oral toxicity : Acute toxicity estimate : 500 mg/kg
Method: Calculation method
- Acute inhalation toxicity : Acute toxicity estimate : 11313 ppm
Exposure time: 4 h
Test atmosphere: gas
Method: Calculation method
- Acute dermal toxicity : Acute toxicity estimate : 1,091 mg/kg
Method: Calculation method

Components:

110-91-8:

- Acute oral toxicity : Acute toxicity estimate : 500 mg/kg
Method: Expert judgement
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (rat): 11313 ppm
Exposure time: 4 h
Assessment: The component/mixture is moderately toxic after short term inhalation.
- Acute dermal toxicity : LD50 (rat): 500 mg/kg
Assessment: The component/mixture is moderately toxic after single contact with skin.

109-86-4:

- Acute oral toxicity : LD50 (rat): 1,999 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (rat): 1500 ppm
Exposure time: 7 h
Assessment: The component/mixture is moderately toxic after short term inhalation.
- Acute dermal toxicity : LD50 (rabbit): 1,280 mg/kg
Assessment: The component/mixture is moderately toxic after single contact with skin.

107-15-3:

- Acute oral toxicity : LD50 (rat, male and female): 866 mg/kg
Method: OECD Test Guideline 401

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Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (rat, male): 7.35 mg/l
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (rabbit): 560 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

100-74-3:

Acute oral toxicity : LD50 (rat): 1,780 mg/kg

Acute inhalation toxicity : LC50 (mouse): 18 mg/l
Exposure time: 2 h

Acute dermal toxicity : LD50 (rabbit): 900 mg/kg

Skin corrosion/irritation

Product:

Remarks: Extremely corrosive and destructive to tissue.

Components:

110-91-8:

Species: rabbit

Exposure time: 24 h

Result: Causes severe burns.

109-86-4:

Species: rabbit

Exposure time: 24 h

Method: EU Method B.4 (Dermal Irritation/Corrosion)

Result: No skin irritation

107-15-3:

Species: rabbit

Exposure time: 24 h

Method: In vivo

Result: Causes burns.

100-74-3:

Species: rabbit

Result: Causes burns.

Serious eye damage/eye irritation

Product:

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Remarks: Risk of serious damage to eyes.

Components:

110-91-8:

Result: Risk of serious damage to eyes.

Remarks: No data available

109-86-4:

Species: rabbit

Result: No eye irritation

Exposure time: 24 h

Method: OECD Test Guideline 405

107-15-3:

Species: rabbit

Result: Risk of serious damage to eyes.

Method: In vivo

100-74-3:

Species: rabbit

Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Remarks: Causes sensitisation.

Components:

110-91-8:

Test Type: Maximisation Test (GPMT)

Species: guinea pig

Result: Does not cause skin sensitisation.

109-86-4:

Test Type: Maximization test

Species: guinea pig

Assessment: Does not cause skin sensitisation.

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

107-15-3:

Test Type: Maximization test

Species: guinea pig

Result: May cause sensitisation by skin contact.

Result: May cause sensitisation by inhalation.

Remarks: No data available

100-74-3:

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Remarks: No data available

Germ cell mutagenicity

Components:

110-91-8:

Genotoxicity in vitro : Test Type: Cell transformation, sister chromatid exchange, unscheduled DNA synthesis
Test species: rodent hepatocytes
Metabolic activation: Without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration assay in vivo
Test species: Chinese hamster
Application Route: Oral
Result: negative

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

109-86-4:

Genotoxicity in vitro : Test Type: Mammalian cell gene mutation assay
Test species: Chinese hamster ovary (CHO)
Method: OECD Test Guideline 476
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration assay in vivo
Method: OECD Test Guideline 475
GLP: yes

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

107-15-3:

Genotoxicity in vitro : Test Type: Ames test
Test species: Salmonella typhimurium
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration assay in vivo
Test species: rat (male)
Application Route: Oral
Result: negative

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

100-74-3:

Genotoxicity in vitro : Test Type: Ames test
Test species: Salmonella typhimurium
Metabolic activation: with and without metabolic acti-

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Method: OECD Test Guideline 471

Result: negative

: Test Type: Chromosome aberration test in vitro
Test species: Chinese hamster ovary (CHO)
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

110-91-8:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

109-86-4:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

107-15-3:

Species: rat, (male and female)

NOAEL: 159 mg/kg bw/day

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

100-74-3:

Remarks: This information is not available.

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : Presumed human reproductive toxicant

Components:

110-91-8:

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, and on development, based on animal exper-

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periments.

109-86-4:

Effects on fertility

: Test Type: Fertility
Species: rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 50 mg/kg body weight

Effects on foetal development

: Species: rat
Application Route: Oral
General Toxicity Maternal: NOAEL: 73 mg/kg body weight
Teratogenicity: NOAEL: 26 mg/kg body weight
Developmental Toxicity: NOAEL: 26 mg/kg bw
Embryo-foetal toxicity.: NOAEL: 26 mg/kg body weight
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment

: Presumed human reproductive toxicant

107-15-3:

Effects on fertility

: Test Type: Two-generation study
Species: rat, male and female
Application Route: Oral
General Toxicity - Parent: NOAEL: 23 mg/kg body weight
General Toxicity F1: NOAEL: 227 mg/kg body weight
Method: OECD Test Guideline 416

Effects on foetal development

: Species: rat
Application Route: Oral
General Toxicity Maternal: LOAEL: 454 mg/kg bw

Reproductive toxicity - Assessment

: No evidence of adverse effects on sexual function and fertility, and on development, based on animal experiments.

100-74-3:

Effects on fertility

: Species: rat, male and female
Application Route: oral
Dose: 0, 50, 150, 500 mg/kg
General Toxicity - Parent: NOAEL: 50 mg/kg bw
Fertility: NOAEL: 500 mg/kg
Early Embryonic Development: NOAEL: 500 mg/kg
Method: OECD Test Guideline 421

Reproductive toxicity - Assessment

: Animal testing did not show any effects on fertility. Animal testing did not show any effects on foetal development.

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STOT - single exposure

Product:

No data available

Components:

No data available

Components:

No data available

Components:

107-15-3:

Assessment: May cause respiratory irritation.

Components:

No data available

STOT - repeated exposure

Product:

No data available

Components:

No data available

Components:

No data available

Components:

No data available

Components:

No data available

Repeated dose toxicity

Components:

109-86-4:

Species: rat, male and female

LOAEL: 71 mg/kg

Application Route: Oral

GLP: yes

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107-15-3:

Species: rat, male and female
NOAEL: 22 mg/kg
LOAEL: 114 mg/kg
Application Route: Oral
Method: OECD Test Guideline 408
GLP: no

100-74-3:

Species: rat, male and female
NOAEL: 50 mg/kg
LOAEL: 200 mg/kg
Application Route: Oral
Exposure time: 28 d
Dose: 0, 50, 200, 800 m/kg
Method: OECD Test Guideline 407
GLP: yes
Symptoms: tremors, Salivation

Aspiration toxicity

Further information

Product:

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

110-91-8:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 180 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 100 mg/l
Exposure time: 48 h
Test Type: Immobilization

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): > 310 mg/l
Exposure time: 72 h
Test Type: Growth inhibition

Ecotoxicology Assessment

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- Acute aquatic toxicity : This product has no known ecotoxicological effects.
- Chronic aquatic toxicity : This product has no known ecotoxicological effects.
- 109-86-4:
- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 10,000 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 10,000 mg/l
Exposure time: 24 h
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 25,500 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: ISO 8692
- 107-15-3:
- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 11.5 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 3 mg/l
Exposure time: 48 h
- Toxicity to algae : EC50: 151 mg/l
Exposure time: 96 h
- Ecotoxicology Assessment
- Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.
- 100-74-3:
- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 280 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 580 mg/l
Exposure time: 48 h
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 270 mg/l
Exposure time: 72 h

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Persistence and degradability

Product:

Biodegradability : Biodegradation: 90 - 100 %
Exposure time: 25 d
Remarks: Readily biodegradable

Components:

110-91-8:

Biodegradability : Inoculum: activated sludge
Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 87 %
Exposure time: 28 d

109-86-4:

Biodegradability : Remarks: No data available

107-15-3:

Biodegradability : Inoculum: activated sludge
Biodegradation: 95 %
Exposure time: 28 d
GLP: yes
Remarks: Readily biodegradable

100-74-3:

Biodegradability : Remarks: Not readily biodegradable.

Bioaccumulative potential

Product:

Bioaccumulation : Bioconcentration factor (BCF): < 2.8
Remarks: The substance has low potential for bioaccumulation.

Components:

110-91-8:

Partition coefficient: n-octanol/water : log Pow: -2.55

109-86-4:

Partition coefficient: n-octanol/water : log Pow: -0.77 (28 °C)
pH: 7

107-15-3:

Partition coefficient: n-octanol/water : log Pow: -2.04

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100-74-3:

Partition coefficient: n-octanol/water : log Pow: 0.055

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation

40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

IATA (International Air Transport Association): UN2054, Morpholine, 8 (3), I

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IMDG (International Maritime Dangerous Goods): UN1993, Flammable Liquid, n.o.s, (Acetone), 3, PGIII

DOT (Department of Transportation): UN1993, Flammable Liquid, n.o.s, (Acetone), 3, PGIII

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Flammable liquid, Toxic by skin absorption, Corrosive to skin, Severe eye irritant

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

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1,2-Ethanediamine	107-15-3	5000	*

Acetone

5000

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1,2-Ethanediamine	67-64-1 107-15-3	5000 5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Fire Hazard
Chronic Health Hazard

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

107-15-3 1,2-Ethanediamine 0.2999 %

SARA 313 : 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 does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

107-15-3 1,2-Ethanediamine 0.2999 %

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The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489):

110-91-8	Morpholine	100 %
109-86-4	Ethanol, 2-methoxy-	0.4999 %
107-15-3	1,2-Ethanediamine	0.2999 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

107-15-3	1,2-Ethanediamine	0.2999 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

107-15-3	1,2-Ethanediamine	0.2999 %
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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

110-91-8	Morpholine	90 - 100 %
107-15-3	1,2-Ethanediamine	0.1 - 1 %

Pennsylvania Right To Know

110-91-8	Morpholine	90 - 100 %
109-86-4	Ethanol, 2-methoxy-	0.1 - 1 %
107-15-3	1,2-Ethanediamine	0.1 - 1 %

New Jersey Right To Know

110-91-8	Morpholine	90 - 100 %
109-86-4	Ethanol, 2-methoxy-	0.1 - 1 %

California Prop 65

	WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	
109-86-4	Ethanol, 2-methoxy-	

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

1907/2006 (EU)	:	n (Negative listing) (Not in compliance with the inventory)
Switzerland. New notified substances and declared preparations	:	n (Negative listing) (The formulation contains substances listed on the Swiss Inventory)
United States TSCA Inventory	:	y (positive listing) (On TSCA Inventory)

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Canadian Domestic Substances List (DSL)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Australia Inventory of Chemical Substances (AICS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
New Zealand. Inventory of Chemical Substances	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan. ENCS - Existing and New Chemical Substances Inventory	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Korea. Korean Existing Chemicals Inventory (KECI)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
China. Inventory of Existing Chemical Substances in China (IECSC)	:	y (positive listing) (On the inventory, or in compliance with the inventory)

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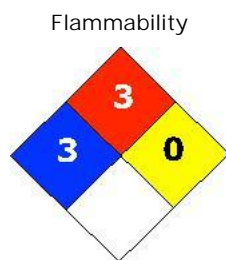
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



Special hazard.

HMIS III:

HEALTH	3
FLAMMABILITY	3
PHYSICAL HAZARD	0

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

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

Legacy MSDS: R0003825

Material number:

743251, 554099, 88803, 88403, 54890, 71410, 122400, 157970, 104201, 20422, 20420, 20421

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
ATCS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration

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EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		