SAFETY DATA SHEET

TRIGONOX 63A

Version	Revision Date:	US / Z8	Date of last issue: 03/28/2019
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SECTION 1. IDENTIFICATION

Product name : TRIGONOX 63A

Manufacturer or supplier's details

Company name of supplier : Nouryon Functional Chemicals LLC
Address : 100 Matsonford Road, Building 1, Suite 500
Radnor PA 19087
US
Telephone : (251) 675-1310
Telefax : (251) 679-4363
E-mail address : Thioplast@nouryon.com
Emergency telephone : CHEMTREC within US Tel: +1-800-424 9300 - CHEMTREC outside US Tel: +1-703-527-3887 - CANUTEC Canada Tel: +1 613 996 6666, 24 hours emergency response number: +31 57 06 79211

Recommended use of the chemical and restrictions on use

Recommended use : Curing agent

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Organic peroxides : Type D

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin corrosion : Category 1B

Serious eye damage : Category 1

Skin sensitization : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H242 Heating may cause a fire.
H302 + H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H361d Suspected of damaging the unborn child.
H401 Toxic to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

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.
P220 Keep/Store away from clothing/ combustible materials.
P234 Keep only in original container.
P235 Keep cool.
P261 Avoid breathing mist or vapors.
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 must not be allowed out of the workplace.
P273 Avoid release to the environment.
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/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P410 Protect from sunlight.
P420 Store away from other materials.

Disposal:

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

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
2,2,4-Trimethyl-1,3-pentanediol diisobutanoate	6846-50-0	>= 30 - < 50
Diacetone alcohol	123-42-2	>= 20 - < 30
Methyl ethyl ketone peroxide	1338-23-4	>= 10 - < 20
Acetylacetone peroxide	37187-22-7	>= 10 - < 20
Acetylacetone	123-54-6	>= 5 - < 10
Diethylene glycol	111-46-6	>= 1 - < 5
Hydrogen peroxide	7722-84-1	>= 1 - < 5

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : Immediate medical attention is required.
Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air.
Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water.

		Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty. If skin irritation persists, call a physician.
In case of eye contact	:	Rinse with plenty of water. Get medical attention immediately. Continue to rinse during transport of patient. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Take victim immediately to hospital. Do not induce vomiting! May cause chemical burns in mouth and throat.
Most important symptoms and effects, both acute and delayed	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known. Harmful if swallowed or if inhaled. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. Suspected of damaging the unborn child. Causes severe burns.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire fighting	:	CAUTION: reignition may occur. Supports combustion. Do not use a solid water stream as it may scatter and spread fire. Water spray may be ineffective unless used by experienced firefighters. Do not allow run-off from fire fighting to enter drains or water courses. Hazardous decomposition products formed under fire conditions.
Hazardous combustion products	:	Fire will produce smoke containing hazardous combustion products (see section 10). Carbon oxides Oxygen

Further information	:	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment. Wear respiratory protection. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Evacuate personnel to safe areas. Only qualified personnel equipped with suitable protective equipment may intervene. Prevent unauthorized persons entering the zone.
Environmental precautions	:	Prevent product from entering drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material and dispose of as hazardous waste. Use only inert inorganic material such as vermiculite or perlite as absorbent. Keep mixture of absorbent material and spilled product wetted with water. Confinement must be avoided. Never return spills in original containers for re-use.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Use explosion protected equipment. Keep away from sources of ignition - No smoking. No sparking tools should be used. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Do not cut or weld on or near this container even when empty. Keep away from combustible material.
Advice on safe handling	:	For personal protection see section 8. Avoid formation of aerosol. Do not breathe vapors or spray mist. Avoid contact with skin. Smoking, eating and drinking should be prohibited in the

application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Prevent unauthorized access.
No smoking.
Keep in a well-ventilated place.
Electrical installations / working materials must comply with the technological safety standards.
Keep only in original container.
Store away from other materials.

Further information on storage stability : Maximum storage temperature is for quality only.

Maximum storage temperature: : 30 °C (86 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diacetone alcohol	123-42-2	TWA	50 ppm	ACGIH
		TWA	50 ppm 240 mg/m3	NIOSH REL
		TWA	50 ppm 240 mg/m3	OSHA Z-1
		TWA	50 ppm 240 mg/m3	OSHA P0
Methyl ethyl ketone peroxide	1338-23-4	C	0.2 ppm	ACGIH
		C	0.2 ppm 1.5 mg/m3	NIOSH REL
		C	0.7 ppm 5 mg/m3	OSHA P0
Acetylacetone	123-54-6	TWA	25 ppm	ACGIH
Diethylene glycol	111-46-6	TWA	10 mg/m3	US WEEL
Hydrogen peroxide	7722-84-1	TWA	1 ppm	ACGIH
		TWA	1 ppm 1.4 mg/m3	NIOSH REL
		TWA	1 ppm 1.4 mg/m3	OSHA Z-1
		TWA	1 ppm 1.4 mg/m3	OSHA P0

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of	Control parameters / Permissible	Basis

		exposure)	concentration	
Acetylacetone	123-54-6	TWA	25 ppm	ACGIH
Carbon dioxide	124-38-9	TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
		TWA	5,000 ppm 9,000 mg/m3	NIOSH REL
		ST	30,000 ppm 54,000 mg/m3	NIOSH REL
		TWA	5,000 ppm 9,000 mg/m3	OSHA Z-1
		TWA	10,000 ppm 18,000 mg/m3	OSHA P0
		STEL	30,000 ppm 54,000 mg/m3	OSHA P0
Formic acid	64-18-6	TWA	5 ppm	ACGIH
		STEL	10 ppm	ACGIH
		TWA	5 ppm 9 mg/m3	NIOSH REL
		TWA	5 ppm 9 mg/m3	OSHA Z-1
		TWA	5 ppm 9 mg/m3	OSHA P0
Organic acid	64-19-7	TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGIH
		TWA	10 ppm 25 mg/m3	NIOSH REL
		ST	15 ppm 37 mg/m3	NIOSH REL
		TWA	10 ppm 25 mg/m3	OSHA Z-1
		TWA	10 ppm 25 mg/m3	OSHA P0
Fatty acid	79-09-4	TWA	10 ppm	ACGIH
		TWA	10 ppm 30 mg/m3	NIOSH REL
		ST	15 ppm 45 mg/m3	NIOSH REL
		TWA	10 ppm 30 mg/m3	OSHA P0
Methyl ethyl ketone	78-93-3	TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH
		TWA	200 ppm 590 mg/m3	NIOSH REL
		ST	300 ppm 885 mg/m3	NIOSH REL
		TWA	200 ppm 590 mg/m3	OSHA Z-1
		TWA	200 ppm	OSHA P0

			590 mg/m3	
		STEL	300 ppm 885 mg/m3	OSHA P0

Engineering measures : Explosion proof ventilation recommended.
Effective exhaust ventilation system
Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Respiratory protection : In the case of vapor or aerosol formation use a respirator with an approved filter.
Filter A

Hand protection
Material : Neoprene

Material : Nitrile rubber

Eye protection : Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : clear, colorless

Odor : Faint.

Odor Threshold : No data available

pH : Not applicable

Melting point : No data available

Boiling point/boiling range : Decomposes below the boiling point.

Flash point : Above the SADT value No flash point was obtained, but the product may release flammable vapor.

Evaporation rate : No data available

Flammability (liquids) : Decomposition products may be flammable.

Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	not determined
Relative vapor density	:	No data available
Relative density	:	1.04 (68 °F / 20 °C)
Bulk density	:	Not applicable
Solubility(ies)		
Water solubility	:	immiscible (68 °F / 20 °C)
Solubility in other solvents	:	Description: Soluble in polar organic solvents.
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	Test method not applicable
Decomposition temperature	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	131 °F / 55 °C
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	Not classified as oxidizing.
Active Oxygen Content	:	6.4 - 6.6 %
Organic peroxides	:	23 - 33 %

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under normal conditions.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	Confinement must be avoided. Heat, flames and sparks.
Incompatible materials	:	Contact with the following incompatible materials will result in hazardous decomposition: Acids and bases Iron Copper Reducing agents Heavy metals Rust Do not mix with peroxide accelerators, unless under controlled processing. Use only stainless steel 316, PP, polyethylene or glass-lined equipment. For queries regarding the suitability of other materials please contact the supplier.
Hazardous decomposition products	:	No decomposition if stored and applied as directed.
Hazardous decomposition products	:	Carbon oxides Acetylacetone Hydrocarbons Carbon dioxide Formic acid Organic acid Fatty acid Methyl ethyl ketone
Thermal decomposition	:	SADT - (Self accelerating decomposition temperature) is the lowest temperature at which self accelerating decomposition may occur with a substance in the packaging as used in transport. A dangerous self-accelerating decomposition reaction and, under certain circumstances, explosion or fire can be caused by thermal decomposition at and above the SADT. Contact with incompatible substances can cause decomposition below the SADT.
Self-Accelerating decomposition temperature (SADT)	:	55 °C

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity	:	LD50 (Rat): 1,446 mg/kg Remarks: The value is calculated
Acute inhalation toxicity	:	LC50 (Rat): 3 mg/l Exposure time: 4 h Test atmosphere: dust/mist Remarks: The value is calculated
Acute dermal toxicity	:	LD50 (Rabbit): 8,000 mg/kg Remarks: The value is calculated

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg
Acute inhalation toxicity	:	LCLo (Rat): > 0.12 mg/l Exposure time: 6 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg

Diacetone alcohol:

Acute oral toxicity	:	LD50 (Rat, male and female): 3,002 mg/kg Method: OECD Test Guideline 401 Symptoms: Central nervous system depression
Acute inhalation toxicity	:	LC0 (Rat, male and female): > 7.6 mg/l Exposure time: 4 h Test atmosphere: vapor Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD0 (Rat, male and female): > 1,875 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

Methyl ethyl ketone peroxide:

Acute oral toxicity	:	LD50 (Rat, male): 1,017 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: no

Acute dermal toxicity : LD50 (Rabbit, male and female): 4,000 mg/kg
Method: OECD Test Guideline 402

Acetylacetone peroxide:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute inhalation toxicity : LC50 (Rat, male): > 13.1 mg/l
Exposure time: 1 h
Test atmosphere: aerosol
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The substance or mixture has no acute dermal toxicity

Acetylacetone:

Acute oral toxicity : LD50 (Rat, female): 570 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): 5.1 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit, female): 790 mg/kg

Diethylene glycol:

Acute oral toxicity : LD50 Oral (Rat, male and female): > 300 - 2,000 mg/kg

Hydrogen peroxide:

Acute oral toxicity : LD50 (Rat): 431 mg/kg
Method: OECD Test Guideline 401
Remarks: Information taken from reference works and the literature.

Acute inhalation toxicity : LC50: 1.5 mg/l

Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Acute dermal toxicity : LD50 Dermal (Rabbit, male): > 5,000 mg/kg
Remarks: Information taken from reference works and the literature.

Skin corrosion/irritation

Causes severe burns.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Species	:	Rabbit
Exposure time	:	4 h
Assessment	:	No skin irritation
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	yes

Diacetone alcohol:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Methyl ethyl ketone peroxide:

Result	:	Causes burns.

Acetylacetone peroxide:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
GLP	:	yes

Acetylacetone:

Species	:	Rabbit
Result	:	No skin irritation

Diethylene glycol:

Species	:	Rabbit
Exposure time	:	23 h

Method	:	Draize Test
Result	:	No skin irritation
Remarks	:	Information taken from reference works and the literature.

Hydrogen peroxide:

Result	:	Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Species	:	Rabbit
Result	:	No eye irritation
Assessment	:	No eye irritation
Method	:	OECD Test Guideline 405
GLP	:	yes
Remarks	:	Dose 0.1 ml

Diacetone alcohol:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days
Method	:	OECD Test Guideline 405

Methyl ethyl ketone peroxide:

Result	:	Risk of serious damage to eyes.

Acetylacetone peroxide:

Species	:	Rabbit
Result	:	Irritating to eyes.
Method	:	OECD Test Guideline 405
GLP	:	yes

Acetylacetone:

Species	:	Rabbit
Result	:	No eye irritation

Diethylene glycol:

Species	:	Rabbit
Result	:	No eye irritation
Exposure time	:	24 h
Remarks	:	Information taken from reference works and the literature.

Hydrogen peroxide:

Assessment : Causes severe burns.

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Species : Guinea pig
Assessment : The substance or mixture is not classified.
Result : Not a skin sensitizer.

Species : Human.
Assessment : The substance or mixture is not classified.
Result : Not a skin sensitizer.

Diacetone alcohol:

Test Type : Maximization Test
Species : Guinea pig
Assessment : Does not cause skin sensitization.
Method : OECD Test Guideline 406

Methyl ethyl ketone peroxide:

Assessment : Does not cause skin sensitization.

Acetylacetone peroxide:

Test Type : Maximization Test
Species : Guinea pig
Assessment : The product is a skin sensitizer, sub-category 1B.
Method : OECD Test Guideline 406
GLP : yes

Assessment : Eye irritation
May be harmful if swallowed.

Acetylacetone:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Assessment : Does not cause skin sensitization.
Method : OECD Test Guideline 429
GLP : yes

Diethylene glycol:

Test Type	:	Maximization Test
Species	:	Guinea pig
Method	:	Regulation (EC) No. 440/2008, Annex, B.6
Result	:	Does not cause skin sensitization.
GLP	:	yes

Germ cell mutagenicity

Not classified based on available information.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Genotoxicity in vitro : Test Type: In vitro gene mutation study in mammalian cells
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: Regulation (EC) No. 440/2008, Annex, B.13/14 (Ames test)
Result: negative
GLP: yes

Diacetone alcohol:

Genotoxicity in vitro : Test Type: Ames test
Test system: Escherichia coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro gene mutation study in mammalian cells
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Methyl ethyl ketone peroxide:

Genotoxicity in vitro : Test Type: Ames test
Result: negative

Genotoxicity in vivo : Remarks: Not classified due to data which are conclusive although insufficient for classification.

Acetylacetone peroxide:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes

Test Type: In vitro gene mutation study in mammalian cells
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Acetylacetone:

Genotoxicity in vitro : Test Type: Ames test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: positive
GLP: yes

Test Type: Microbial mutagenesis assay (Ames test)
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive
GLP: yes

Test Type: In vitro gene mutation study in mammalian cells

Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
Method: OECD Test Guideline 474
Result: positive

Test Type: Chromosome aberration test in vivo
Method: OECD Test Guideline 483
Result: negative

Test Type: gene mutation test
Method: OECD Test Guideline 478
Result: Ambiguous results

Test Type: Chromosome aberration test in vivo
Method: OECD Test Guideline 475
Result: negative

Germ cell mutagenicity - Assessment : Not mutagenic.

Hydrogen peroxide:

Genotoxicity in vivo : Species: Mouse (male and female)
Application Route: Intraperitoneal
Method: Mutagenicity (micronucleus test)
Result: negative
GLP: yes
Remarks: Information taken from reference works and the literature.

Carcinogenicity

Not classified based on available information.

Components:

Diacetone alcohol:

Result : Not carcinogenic to laboratory animals.
Remarks : Information given is based on data obtained from similar substances.

Methyl ethyl ketone peroxide:

Remarks : No data available

IARC No ingredient 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 on OSHA's list of regulated carcinogens.

NTP No ingredient 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 the unborn child.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Reproductive toxicity - Assessment	:	Some evidence of adverse effects on development, based on animal experiments.

Diacetone alcohol:

Effects on fertility	:	Test Type: Fertility/early embryonic development Species: Rat, male and female Strain: wistar Application Route: Oral Dose: 0 100, 300, 1000 milligram per kilogram General Toxicity Parent: NOAEL: 300 mg/kg bw/day General Toxicity F1: NOAEL F1: 300 mg/kg bw/day Method: OECD Test Guideline 422
Effects on fetal development	:	Species: Rabbit, female Application Route: Oral Dose: 100, 300, 800 milligram per kilogram General Toxicity Maternal: NOAEL: 300 mg/kg bw/day Embryo-fetal toxicity.: NOAEL: 100 mg/kg bw/day Method: OECD Test Guideline 414 GLP: yes
Reproductive toxicity - Assessment	:	Some evidence of adverse effects on development, based on animal experiments.

Methyl ethyl ketone peroxide:

Effects on fertility	:	Species: Rat, male and female Application Route: Oral Dose: 0 25, 50, 75 milligram per kilogram General Toxicity Parent: NOAEL: 50 mg/kg bw/day General Toxicity F1: NOAEL F1: 50 mg/kg bw/day Fertility: NOAEL Parent: 75 mg/kg bw/day Method: OECD Test Guideline 421 GLP: yes

Acetylacetone peroxide:

Effects on fetal development	:	Test Type: Pre-natal Species: Rat, females Strain: wistar Application Route: Oral General Toxicity Maternal: NOAEL: 500 mg/kg bw/day Developmental Toxicity: NOAEL: 150 mg/kg bw/day Method: OECD Test Guideline 414 GLP: yes

Acetylacetone:

Effects on fertility	:	Species: Rat Application Route: Inhalation Dose: 0, 50, 200, 400 ppm General Toxicity Parent: NOAEC: 200 ppm Method: OECD Test Guideline 414 GLP: yes

Diethylene glycol:

Effects on fertility	:	Test Type: Two-generation study Species: Mouse, male and female Application Route: Oral General Toxicity Parent: NOAEL: 3,060 mg/kg bw/day
Effects on fetal development	:	Test Type: Pre-natal Species: Rabbit Application Route: Oral General Toxicity Maternal: NOAEL: 1,000 mg/kg bw/day Method: OECD Test Guideline 414 GLP: yes

STOT-single exposure

May cause respiratory irritation.

Components:

Diacetone alcohol:

Routes of exposure	:	Inhalation
Target Organs	:	Respiratory system
Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Methyl ethyl ketone peroxide:

Remarks	:	Not classified due to data which are conclusive although insufficient for classification.

STOT-repeated exposure

Not classified based on available information.

Components:

Diacetone alcohol:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Methyl ethyl ketone peroxide:

Assessment	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Species	:	Rat, male and female
NOAEL	:	750 mg/kg bw/day
Application Route	:	Oral
Remarks	:	Not classified due to data which are conclusive although insufficient for classification.

Diacetone alcohol:

Species	:	Rat
NOAEL	:	100 mg/kg
Application Route	:	Oral
Exposure time	:	44 d

Species	:	Rat
NOAEL	:	1.041 mg/l
Application Route	:	Inhalation
Test atmosphere	:	vapor
Exposure time	:	14 d
Target Organs	:	Kidney

Acetylacetone peroxide:

Species	:	Rat, male and female
NOAEL	:	1000 mg/kg bw/day
Application Route	:	Oral
Exposure time	:	28 d
Method	:	OECD Test Guideline 407
GLP	:	yes
Target Organs	:	Kidney

Species	:	Rat, male and female
NOAEL	:	250 mg/kg bw/day

Application Route	:	Oral
Exposure time	:	90 d
Method	:	OECD Test Guideline 408
GLP	:	yes

Repeated dose toxicity - Assessment	:	Eye irritation May be harmful if swallowed.

Acetylacetone:

Species	:	Rat, male and female
NOAEC	:	0.42 mg/l
Application Route	:	Inhalation
Test atmosphere	:	vapor
Exposure time	:	90 d
Method	:	OECD Test Guideline 413
GLP	:	yes
Target Organs	:	Blood, Central nervous system

Diethylene glycol:

Species	:	Rat, male and female
NOAEL	:	936 mg/kg bw/day
Application Route	:	Oral
Method	:	OECD Test Guideline 407
GLP	:	yes

Species	:	Dog, male
NOAEL	:	2220 mg/kg bw/day
Application Route	:	Dermal
Method	:	OECD Test Guideline 410
GLP	:	yes

Aspiration toxicity

Not classified based on available information.

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

No aspiration toxicity classification

Diacetone alcohol:

No aspiration toxicity classification

Methyl ethyl ketone peroxide:

No aspiration toxicity classification

Further information

Product:

Remarks : No further data available.

Components:

Acetylacetone:

Remarks : Solvents may degrease the skin.

Hydrogen peroxide:

Remarks : No further data available.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Toxicity to fish	:	NOEC (Fish): >= 6 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1.46 mg/l Exposure time: 48 h Test Type: static test
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 7.49 mg/l Exposure time: 72 h Test Type: Fresh water Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	Lowest observable effect level (Daphnia magna (Water flea)): > 1.3 mg/l End point: reproduction rate Exposure time: 21 d NOEC (Daphnia magna (Water flea)): 0.7 mg/l End point: reproduction rate Exposure time: 21 d

Ecotoxicology Assessment

Acute aquatic toxicity	:	No toxicity at the limit of solubility.
Chronic aquatic toxicity	:	Harmful to aquatic life with long lasting effects.

Diacetone alcohol:

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h Test Type: Immobilization Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes NOEC (Pseudokirchneriella subcapitata (green algae)): 1,000 mg/l 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)): 100 mg/l End point: reproduction rate Exposure time: 21 d Test Type: semi-static test Method: OECD Test Guideline 211 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209 GLP: yes

Methyl ethyl ketone peroxide:

Toxicity to fish	:	LC50 (Poecilia reticulata (guppy)): 44.2 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes NOEC (Poecilia reticulata (guppy)): 18 mg/l Exposure time: 96 h

Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes

NOEC (Daphnia magna (Water flea)): 26.7 mg/l
Exposure time: 24 h
Test Type: Immobilization
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (algae)): 5.6 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (algae)): 2.1 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): 48 mg/l
Exposure time: 0.5 h
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209
GLP: yes

EC10 (activated sludge): 12 mg/l
Exposure time: 0.5 h
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209
GLP: yes

Acetylacetone peroxide:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 67.6 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.1 mg/l
Exposure time: 48 h

Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 5.4 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC50 (Daphnia magna (Water flea)): 13 mg/l
End point: Immobilization
Exposure time: 21 d
Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

Acetylacetone:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 104 mg/l
End point: mortality
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 25.9 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (microalgae)): 83.2 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 10 mg/l
Exposure time: 34 d
Test Type: flow-through test
Method: OECD Test Guideline 210
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 18 mg/l
End point: reproduction rate
Exposure time: 21 d

Test Type: semi-static test
Method: OECD Test Guideline 211
GLP: yes

Toxicity to microorganisms : EC10 (activated sludge): 13.2 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

EC50 (activated sludge): 107.6 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209
GLP: yes

Diethylene glycol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l
Exposure time: 96 h
Test Type: flow-through test
Analytical monitoring: yes

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 15,380 mg/l
Exposure time: 7 d
Remarks: Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 8,590 mg/l
Remarks: Information taken from reference works and the literature.

Hydrogen peroxide:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 16.4 mg/l
Exposure time: 96 h
Test Type: semi-static test
Remarks: Information taken from reference works and the literature.

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia pulex (Water flea)): 2.4 mg/l
Exposure time: 48 h
Test Type: semi-static test
Remarks: Information taken from reference works and the literature.

Toxicity to algae/aquatic plants : ErC50 (Skeletonema costatum (marine diatom)): 1.38 mg/l
Exposure time: 72 h
Test Type: static test
Remarks: Information taken from reference works and the literature.

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Persistence and degradability

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Biodegradability : CO_2 Evolution Test
Biodegradation: 70.73 %
Exposure time: 28 d
Remarks: The 10 day time window criterion is not fulfilled.

Diacetone alcohol:

Biodegradability : Ready biodegradability
Result: Readily biodegradable.
Biodegradation: 98.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

Methyl ethyl ketone peroxide:

Biodegradability : Result: Readily biodegradable.
Method: Closed Bottle test

Acetylacetone peroxide:

Biodegradability : Ready biodegradability
Inoculum: Activated sludge, domestic, non-adapted
Chemical oxygen demand
Result: Readily biodegradable.
Biodegradation: 61 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes

Acetylacetone:

Biodegradability : Ready biodegradability
Inoculum: activated sludge
Result: Readily biodegradable.
Biodegradation: > 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Diethylene glycol:

Biodegradability : CO_2 Evolution Test

Inoculum: activated sludge, non-adapted
Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Biochemical Oxygen Demand (BOD) : Remarks: No data available

Hydrogen peroxide:

Biochemical Oxygen Demand (BOD) : Remarks: No data available

Bioaccumulative potential

Components:

2,2,4-Trimethyl-1,3-pentanediol diisobutanoate:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 194
Concentration: 0.00519 mg/l

Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 183
Concentration: 0.0517 mg/l

Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.95
Concentration: 0.0956 mg/l

Partition coefficient: n-octanol/water : log Pow: 4.04 - 4.91 (77 °F / 25 °C)
pH: 7
Method: Calculation method

Diacetone alcohol:

Bioaccumulation : Remarks: Bioaccumulation is not expected.

Partition coefficient: n-octanol/water : log Pow: -0.09
Remarks: estimated

Methyl ethyl ketone peroxide:

Bioaccumulation : Bioconcentration factor (BCF): 10.3
Remarks: Not expected considering the low log Pow value.

Partition coefficient: n-octanol/water : log Pow: < 2.04 (77 °F / 25 °C)
Method: OECD Test Guideline 117

Acetylacetone peroxide:

Partition coefficient: n- : log Pow: 1.1 (77 °F / 25 °C)

octanol/water		Method: OECD Test Guideline 117

Acetylacetone:

Partition coefficient: n-octanol/water	:	log Pow: 0.68 Method: Tested according to Annex V of Directive 67/548/EEC.

Diethylene glycol:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water	:	log Pow: -1.98 (68 °F / 20 °C)

Hydrogen peroxide:

Bioaccumulation	:	Remarks: Bioaccumulation is unlikely.

Mobility in soil

Components:

Diethylene glycol:

Mobility	:	Remarks: Adsorption to the solid soil particles is not expected.

Hydrogen peroxide:

Mobility	:	Remarks: Can be leached out from soil.
Distribution among environmental compartments	:	Remarks: Transport to air is not expected.

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

Components:

Acetylacetone:

Additional ecological information	:	None known.

Diethylene glycol:

Results of PBT and vPvB assessment	:	This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic) This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

Hydrogen peroxide:

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).
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

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. Dispose of contents/container in accordance with local regulation.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not burn, or use a cutting torch on, the empty drum. Due to the high risk of contamination recycling/recovery is not recommended. Follow all warnings even after the container is emptied.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3105
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide, Acetylacetone peroxide)
Class	:	5.2
Packing group	:	Not assigned by regulation
Labels	:	5.2

IATA-DGR

UN/ID No.	:	UN 3105
Proper shipping name	:	Organic peroxide type D, liquid (Methyl ethyl ketone peroxide, Acetylacetone peroxide)
Class	:	5.2

Packing group	:	Not assigned by regulation
Labels	:	Organic Peroxides, Keep Away From Heat
Packing instruction (cargo aircraft)	:	570
Packing instruction (passenger aircraft)	:	570

IMDG-Code

UN number	:	UN 3105
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide, Acetylacetone peroxide)
Class	:	5.2
Packing group	:	Not assigned by regulation
Labels	:	5.2
EmS Code	:	F-J, S-R
Marine pollutant	:	no

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

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 3105
Proper shipping name	:	Organic peroxide type D, liquid (Methyl ethyl ketone peroxide, <=30% / Acetylacetone peroxide, <=35%)
Class	:	5.2
Packing group	:	Not assigned by regulation
Labels	:	ORGANIC PEROXIDE
ERG Code	:	145
Marine pollutant	:	no
Reportable Quantity	:	This product contains the following substance(s) which are environmentally hazardous per 49 CFR 172.101, Appendix A: (Methyl ethyl ketone peroxide)

Special precautions for user

The transport classification(s) provided herein are for informational purposes only. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Methyl ethyl ketone peroxide	1338-23-4	10	60
Methyl ethyl ketone	78-93-3	5000	5000 (D035)
Methyl ethyl ketone	78-93-3	100	100 (F005)

SARA 304 Extremely Hazardous Substances Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

Components	CAS-No.	Component TPQ (lbs)
Hydrogen peroxide	7722-84-1	1000

SARA 311/312 Hazards : Organic peroxides
Acute toxicity (any route of exposure)
Respiratory or skin sensitization
Reproductive toxicity
Skin corrosion or irritation
Serious eye damage or eye irritation
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.

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 112 (40 CFR 61).
This product does not contain any chemicals subject to disclosure and listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

Diacetone alcohol	123-42-2	>= 20 - < 30 %
Diethylene glycol	111-46-6	>= 1 - < 5 %

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
This product does not contain any priority pollutants related to the U.S. Clean Water Act

Maine Chemicals of High Concern

This product does not contain any chemicals that are listed as Maine Chemicals of High Concern.

California Prop. 65

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

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

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

AIIC	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
ENCS	:	On the inventory, or in compliance with the inventory
ISHL	:	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
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
TECI	:	Not in compliance with the inventory
TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

TSCA list

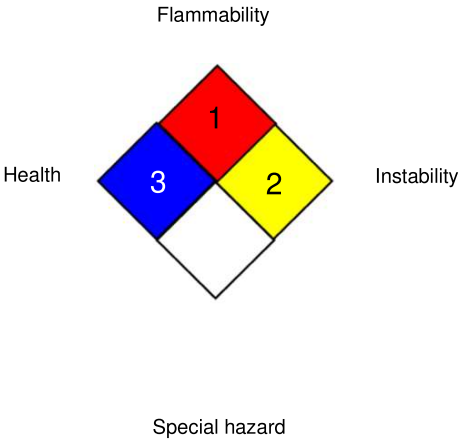
No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:
Acetylacetone 123-54-6

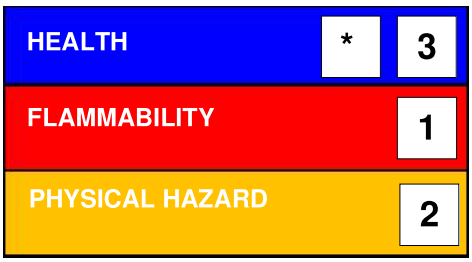
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
ACGIH / C	:	Ceiling limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
NIOSH REL / C	:	Ceiling value not be exceeded at any time.
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA P0 / C	:	Ceiling limit
OSHA Z-1 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; 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; TECI - Thailand Existing Chemicals 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

This data sheet contains changes from the previous version in section(s):
Hazards identification
Composition/information on ingredients
Toxicological information

Revision Date : 12/26/2022

This material safety datasheet only contains information relating to safety and does not replace any product information or product specification.

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.

US / Z8