SAFETY DATA SHEET

TRIGONOX 178

Version 1 Revision Date 04/26/2015 Print Date 06/25/2015 US / Z8

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	TRIGONOX 178
Product Use Description	:	Curing agent
Company	:	Akzo Nobel Functional Chemicals LLC 525 West Van Buren Chicago IL 60607-3823 USA
Telephone	:	+18008287929
Fax	:	+13125447188
E-mail address	:	RegulatoryAffairs@akzonobel.com
Emergency telephone	:	AkzoNobel: +31 57 06 79211 CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	liquid
Color	clear, colorless
Odor	characteristic

GHS Classification

Organic peroxides, Type D
Acute toxicity, Category 4, Oral
Acute toxicity, Category 3, Inhalation
Skin corrosion, Category 1B
Serious eye damage, Category 1
Specific target organ systemic toxicity - repeated exposure, Category 2, Inhalation
Acute aquatic toxicity, Category 2
Chronic aquatic toxicity, Category 2

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H242 Heating may cause a fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.
H331 Toxic if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P220 Keep away from dirt, rust, chemicals in particular.
P234 Keep only in original container.
P260 Do not breathe mist, vapors or spray.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
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 skin with water/ shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391 Collect spillage.
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.
P410 Protect from sunlight.
P420 Store away from other materials.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

Potential Health Effects

Inhalation : Inhalation of aerosols may cause irritation to mucous membranes.
Thermal decomposition can lead to release of irritating gases and vapors.
Toxic if inhaled.
May cause respiratory irritation.

Skin : Symptoms may be delayed.
May be harmful in contact with skin.
Causes severe skin burns.

Eyes	:	Causes serious eye damage.
Ingestion	:	Harmful if swallowed. Causes burns.
Aggravated Medical Condition	:	None known.
Symptoms of Overexposure	:	The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Carcinogenicity:

IARC	:	Group 2B: Possibly carcinogenic to humans Cumene 98-82-8
OSHA	:	No ingredient 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.
ACGIH	:	Confirmed animal carcinogen with unknown relevance to humans Hydrogen peroxide solution 7722-84-1

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical Name	CAS-No.	Classification	Concentration [%]
Cumyl hydroperoxide	80-15-9	Org. Perox. E; H242 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 STOT RE 2; H373 Aquatic Acute 2; H401 Aquatic Chronic 2; H411	30 - 50
Methyl ethyl ketone peroxide	1338-23-4	Org. Perox. A; H240 Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Acute 3; H402	10 - 20
2-Phenylisopropanol	617-94-7	Flam. Liq. 4; H227 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2A; H319	1 - 5
Cumene	98-82-8	Flam. Liq. 3; H226 Carc. 2; H351 STOT SE 3; H335 Asp. Tox. 1; H304 Aquatic Acute 2; H401 Aquatic Chronic 2; H411	1 - 5
Methyl ethyl ketone	78-93-3	Flam. Liq. 2; H225 Eye Irrit. 2A; H319 STOT SE 3; H336	1 - 5
Hydrogen peroxide solution	7722-84-1	Ox. Liq. 1; H271 Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Acute 2; H401 Aquatic Chronic 3; H412	1 - 5

Methyl ethyl ketone peroxide and Cumyl hydroperoxide 15-18% solution in 2,2,4-Trimethyl-1,3-pentanediol diisobutanoate

For the full text of the H-Statements mentioned in this Section, see Section 16.

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.
Symptoms of poisoning may appear several hours later.

Inhalation : If breathed in, move person into fresh air.
Call a physician or poison control center immediately.
Remove to fresh air.
Keep patient warm and at rest.
If unconscious place in recovery position and seek medical advice.
Keep respiratory tract clear.

Skin contact : Take off contaminated clothing and shoes immediately.
Wash the skin immediately with soap and water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

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.

Ingestion : 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.

Notes to physician

Symptoms : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

Treatment : Treat symptomatically.

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 / Specific hazards arising from the chemical	:	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. Heating may cause decomposition with release of toxic fumes. Do not allow run-off from fire fighting to enter drains or water courses.
Combustion products	:	Fire will produce smoke containing hazardous combustion products (see section 10).
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus.
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.

See also Section 9. Physical and chemical properties: Safety data

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up / Methods for containment	:	Keep wetted with water. Soak up with inert absorbent material and dispose of as hazardous waste. Confinement must be avoided. Never return spills in original containers for re-use.
Additional advice	:	For personal protection see section 8.

7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	For personal protection see section 8. 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.
Avoid contact with skin, eyes and clothing.

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.

Temperature class : It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded.

Storage

Requirements for storage areas and containers : Prevent unauthorized access.
No smoking.
Electrical installations / working materials must comply with the technological safety standards.
Keep only in original container.
Store away from other materials.

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

Other data : No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Ingredients with workplace control parameters

Ingredients	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Cumyl hydroperoxide	80-15-9	TWA	1 ppm	2008-01-01	US WEEL	
	Further information	: Skin				
Methyl ethyl ketone peroxide	1338-23-4	C	0.2 ppm	2013-03-01	ACGIH	
	Further information	: Eye irritation Liver damage Kidney damage Skin irritation				
		C	0.2 ppm 1.5 mg/m3	2013-10-08	NIOSH REL	
		C	0.7 ppm 5 mg/m3	1989-01-19	OSHA P0	
Cumene	98-82-8	TWA	50 ppm	2013-03-01	ACGIH	
	Further information	: Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Skin irritation				
		TWA	50 ppm 245 mg/m3	2013-10-08	NIOSH REL	
	Further information	: skin: Potential for dermal absorption				
		TWA	50 ppm 245 mg/m3	1997-08-04	OSHA Z-1	

	Further information	:	X: Skin designation (b): The value in mg/m3 is approximate.			
		TWA	50 ppm 245 mg/m3	1989-01-19	OSHA P0	
	Further information	:	X: Skin notation			
Methyl ethyl ketone	78-93-3	TWA	200 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Upper Respiratory Tract irritation Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		STEL	300 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Upper Respiratory Tract irritation Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		TWA	200 ppm 590 mg/m3	2013-10-08	NIOSH REL	
		ST	300 ppm 885 mg/m3	2013-10-08	NIOSH REL	
		TWA	200 ppm 590 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	200 ppm 590 mg/m3	1989-01-19	OSHA P0	
		STEL	300 ppm 885 mg/m3	1989-01-19	OSHA P0	
Hydrogen peroxide	7722-84-1	TWA	1 ppm	2013-03-01	ACGIH	
	Further information	:	Upper Respiratory Tract irritation Eye irritation Skin irritation A3: Confirmed animal carcinogen with unknown relevance to humans			
		TWA	1 ppm 1.4 mg/m3	2013-10-08	NIOSH REL	
		TWA	1 ppm 1.4 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	1 ppm 1.4 mg/m3	1989-01-19	OSHA P0	

STEL: Short term exposure limit
TWA: Time Weighted Average

Occupational exposure limits of decomposition products

Decomposition products	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Formic acid	64-18-6, 64-18-6	TWA	5 ppm	2013-03-01	ACGIH	
	Further information	:	Upper Respiratory Tract irritation Eye irritation Skin irritation			
		STEL	10 ppm	2013-03-01	ACGIH	
	Further information	:	Upper Respiratory Tract irritation Eye irritation Skin irritation			
		TWA	5 ppm 9 mg/m3	2013-10-08	NIOSH REL	
		TWA	5 ppm 9 mg/m3	2011-07-01	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			

		TWA	5 ppm 9 mg/m3	1989-01-19	OSHA P0	
Acetic acid	64-19-7, 64-19-7	TWA	10 ppm	2013-03-01	ACGIH	
	Further information	:	Pulmonary function Upper Respiratory Tract irritation Eye irritation			
		STEL	15 ppm	2013-03-01	ACGIH	
	Further information	:	Pulmonary function Upper Respiratory Tract irritation Eye irritation			
		TWA	10 ppm 25 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	Can be found in concentrations of 5-8% in vinegar			
		ST	15 ppm 37 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	Can be found in concentrations of 5-8% in vinegar			
		TWA	10 ppm 25 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	10 ppm 25 mg/m3	1989-01-19	OSHA P0	
Propionic acid	79-09-4, 79-09-4	TWA	10 ppm	2013-03-01	ACGIH	
	Further information	:	Upper Respiratory Tract irritation Eye irritation Skin irritation			
		TWA	10 ppm 30 mg/m3	2013-10-08	NIOSH REL	
		ST	15 ppm 45 mg/m3	2013-10-08	NIOSH REL	
		TWA	10 ppm 30 mg/m3	1989-01-19	OSHA P0	
Methyl ethyl ketone	78-93-3, 78-93-3	TWA	200 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Upper Respiratory Tract irritation Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		STEL	300 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Upper Respiratory Tract irritation Peripheral Nervous System impairment BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section)			
		TWA	200 ppm 590 mg/m3	2013-10-08	NIOSH REL	
		ST	300 ppm 885 mg/m3	2013-10-08	NIOSH REL	
		TWA	200 ppm 590 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	200 ppm 590 mg/m3	1989-01-19	OSHA P0	
		STEL	300 ppm 885 mg/m3	1989-01-19	OSHA P0	
Methane	74-82-8, 74-82-8	TWA	0.1 mg/m3	1989-01-19	OSHA P0	
	Further information	:	Formaldehyde			
	Further information	:	See Appendix F: Minimal Oxygen Content Asphyxia			
		TWA	0.1 mg/m3	2013-10-08	NIOSH REL	
	Further	:	'Ca' in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See			

	information		Appendices A & C (Aldehydes). Formaldehyde			
Acetophenone, Acetophenone	98-86-2, 98-86-2	TWA	10 ppm	2013-03-01	ACGIH	
	Further information	:	Central Nervous System impairment Upper Respiratory Tract irritation Pregnancy loss			
		TWA	10 ppm	2008-01-01	US WEEL	

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Update
TRIGONOX 178		methyl ethyl ketone: 2 mg/l (Urine)	End of shift	2014-03-01

Remarks:

a	No time limit
b	Immediately after exposition or after working hours
c	In case of long-term exposition: after more than one shift
d	Before the next shift

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

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

Hand protection : Glove material: butyl-rubber

: Glove material: Neoprene

Skin and body protection : Protective suit

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

Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and immediately after handling the product.

Environmental exposure controls

General advice : Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form : liquid

Color : clear

		colorless
Odor	:	characteristic
Odor Threshold	:	No data available

Safety data

pH	:	not determined
Melting point	:	No data available
Boiling point/boiling range	:	Decomposes below the boiling point.
Flash point	:	Above the SADT value
Evaporation rate	:	No data available
Flammability (solid, gas)	:	
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Vapor pressure	:	not determined
Relative vapor density	:	No data available
Relative density	:	No data available
Bulk density	:	Not applicable
Water solubility	:	at 20 °C insoluble
Solubility in other solvents	:	Soluble in most organic solvents.
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
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)	:	60 °C
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available

Explosive properties	:	Not explosive
Oxidizing properties	:	Not classified as oxidizing.
Active Oxygen Content	:	9.1 %
Organic peroxides	:	58 - 63 %

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

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Confinement must be avoided. Heat, flames and sparks. For safety, store below: 30 °C (86 °F)
Materials to avoid	:	Contact with incompatible materials will result in hazardous decomposition. For queries regarding the suitability of other materials please contact the supplier. Do not mix with peroxide accelerators, unless under controlled processing. Use only stainless steel 316, PP, polyethylene or glass-lined equipment. Acids and bases Iron Copper Reducing agents Heavy metals Rust
Hazardous decomposition products	:	Carbon oxides Formic acid Acetic acid Propionic acid Methyl ethyl ketone Methane Acetophenone 2-Phenylisopropanol
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.
Reactivity	:	Stable under normal conditions.
Chemical stability	:	Stable under recommended storage conditions.
Hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Self-Accelerating	:	60 °C (140 °F)

decomposition temperature (SADT)

11. TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION:

Toxicology Assessment

Further information : May cause damage to organs through prolonged or repeated exposure.

Test result

Acute oral toxicity : Acute toxicity estimate: 712.08 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate : 6.37 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 2,266 mg/kg
Method: Calculation method

Carcinogenicity:

IARC : Group 2B: Possibly carcinogenic to humans
Cumene 98-82-8

OSHA : No ingredient 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.

ACGIH : Confirmed animal carcinogen with unknown relevance to humans
Hydrogen peroxide solution 7722-84-1

TOXICOLOGY DATA FOR THE INGREDIENTS:

Toxicology Assessment

Component: Cumyl hydroperoxide

CMR effects : Mutagenicity: Not mutagenic.

Further information : May cause damage to organs through prolonged or repeated exposure.

Test result

Component: Cumyl hydroperoxide

Acute oral toxicity	:	LD50 Oral: 382 mg/kg Species: Rat
Acute inhalation toxicity	:	LC50 : 1.370 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Skin irritation	:	Species: Rabbit Result: Causes burns. Classification: Category 1B
Sensitization	:	Result: Not sensitizing.
Germ cell mutagenicity		
Genotoxicity in vitro	:	Result: Evidence of genotoxic effects in vitro.
Genotoxicity in vivo	:	Result: No evidence of genotoxic effects in vivo.
Target Organ Systemic Toxicant - Repeated exposure	:	Routes of exposure: Inhalation The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Component: Methyl ethyl ketone peroxide

Acute oral toxicity	:	LD50: 1,017 mg/kg Species: Rat
Acute inhalation toxicity	:	LC50 (Rat): 17 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Skin irritation	:	Result: Causes burns.
Eye irritation	:	Result: Risk of serious damage to eyes.
Germ cell mutagenicity		
Genotoxicity in vitro	:	Ames test Result: negative
Reproductive toxicity/Fertility	:	Species: Rat, male and female Application Route: Oral Dose: 0, 25, 50, 75 milligram per kilogram General Toxicity Parent: NOAEL (No observed adverse effect level): 50 mg/kg body weight/day General Toxicity F1: No observed adverse effect level F1: 50 mg/kg body weight/day Fertility: No observed adverse effect level Parent: 75 mg/kg body weight/day Method: OECD Test Guideline 421

GLP: yes

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

Aspiration toxicity : No aspiration toxicity classification

Component: 2-Phenylisopropanol

Acute oral toxicity : LD50: 1,300 mg/kg
Species: Rat
Literature data.

Skin irritation : Classification: Irritating to skin.
Literature data.

Eye irritation : Classification: Irritating to eyes.
Literature data.

Component: Cumene

Acute oral toxicity : LD50: > 2,000 mg/kg
Species: Rat

Target Organ Systemic Toxicant - Single exposure : Routes of exposure: Inhalation
May cause respiratory irritation.

Aspiration toxicity : May be fatal if swallowed and enters airways.

Component: Methyl ethyl ketone

Acute oral toxicity : LD50: 2,737 mg/kg
Species: Rat

Skin irritation : Result: Repeated exposure may cause skin dryness or cracking.
Moderately irritating.

Eye irritation : Result: Irritating to eyes.

Target Organ Systemic Toxicant - Single exposure : Routes of exposure: Inhalation
The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

Aspiration toxicity : No aspiration toxicity classification

Component: Hydrogen peroxide solution

Acute oral toxicity : LD50: 602 mg/kg
Species: Rat
Method: OECD Test Guideline 401
Literature data.

Acute inhalation toxicity : LC50 : 20 mg/l
Exposure time: 4 h
Method: Expert judgment

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

respiratory tract irritation.

Skin irritation : Result: Causes severe burns.

Germ cell mutagenicity
Genotoxicity in vivo : Species: Mouse
Method: Mutagenicity (micronucleus test)
Result: negative
Literature data.

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:

Ecotoxicology Assessment

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

Further information on ecology

Hazardous to the ozone layer

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).

INGREDIENTS:

Ecotoxicology Assessment

Component: Cumyl hydroperoxide

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

Component: Methyl ethyl ketone peroxide

Acute aquatic toxicity : Harmful to aquatic life.

Component: Hydrogen peroxide solution

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

Test result

Component: Cumyl hydroperoxide

Ecotoxicity effects

Toxicity to fish	:	LC50: 3.9 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates	:	EC50: 18.84 mg/l Exposure time: 48 h Species: Daphnia
Toxicity to algae	:	EC50: 3.1 mg/l Exposure time: 72 h Species: Phaeodactylum tricornutum - Algae
Toxicity to bacteria	:	NOEC: 50 mg/l

Elimination information (persistence and degradability)

Bioaccumulation	:	Bioconcentration factor (BCF): < 1
Biodegradability	:	Result: Not readily biodegradable.

Component: Methyl ethyl ketone peroxide

Ecotoxicity effects

Toxicity to fish	:	LC50: 44.2 mg/l Exposure time: 96 h Species: Poecilia reticulata (guppy) Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	39 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test Type: Immobilization
Toxicity to algae	:	LC50: 5.6 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (algae) Test Type: Growth inhibition
Toxicity to bacteria	:	EC10: 12 mg/l Exposure time: 0.5 h Species: activated sludge Test Type: Respiration inhibition Method: Domestic OECD Guideline 209

Elimination information (persistence and degradability)

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

Component: 2-Phenylisopropanol

Ecotoxicity effects

Toxicity to fish	:	LC50: Species: Fish No data available

Component: Cumene

Ecotoxicity effects

Toxicity to daphnia and other aquatic invertebrates	:	EC50: > 1 - 10 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Literature data.

Elimination information (persistence and degradability)

Bioaccumulation	:	No data available
Mobility	:	No data available
Biodegradability	:	Result: Not readily biodegradable.

Further information on ecology

Biochemical Oxygen Demand (BOD)	:	No data available

Component: Methyl ethyl ketone

Ecotoxicity effects

Toxicity to fish	:	LC50: 3,220 mg/l Exposure time: 96 h Species: Lepomis macrochirus (Bluegill sunfish)

Elimination information (persistence and degradability)

Biodegradability	:	Result: Readily biodegradable.

Component: Hydrogen peroxide solution

Ecotoxicity effects

Toxicity to fish	:	LC50: 16.4 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) Test Type: semi-static test Literature data.
Toxicity to daphnia and other aquatic invertebrates	:	LC50: 2.4 mg/l Exposure time: 48 h Species: Daphnia pulex (Water flea) Test Type: semi-static test Literature data.
Toxicity to algae	:	ErC50: 1.38 mg/l Exposure time: 72 h Species: Skeletonema costatum Test Type: static test Literature data.

Elimination information (persistence and degradability)

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

Further information on ecology

Biochemical Oxygen Demand (BOD)	:	No data available

13. DISPOSAL CONSIDERATIONS

Product	:	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. Hazardous waste 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.

14. TRANSPORT INFORMATION

International Regulation

IATA-DGR

UN/ID No.	:	UN 3105
Proper shipping name	:	Organic peroxide type D, liquid (Methyl ethyl ketone peroxide, Cumyl hydroperoxide)
Class	:	5.2
Subsidiary risk	:	HEAT
Packing group	:	Not Assigned
Labels	:	5.2 (HEAT)
Packing instruction (cargo aircraft)	:	570
Packing instruction (passenger aircraft)	:	570
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3105
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide, Cumyl hydroperoxide)
Class	:	5.2
Packing group	:	Not Assigned
Labels	:	5.2
EmS Code	:	F-J, S-R
Marine pollutant	:	yes (Cumyl hydroperoxide)

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, <=20% / Cumyl hydroperoxide, <=45%, Cumyl hydroperoxide)
Class	:	5.2
Packing group	:	II
Labels	:	5.2
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: (Cumyl hydroperoxide, Methyl ethyl ketone peroxide)

15. REGULATORY INFORMATION

Notification status

CH INV	:	YES. On the inventory, or in compliance with the inventory
TSCA	:	YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.
DSL	:	YES. All components of this product are on the Canadian DSL.
AICS	:	YES. On the inventory, or in compliance with the inventory
NZIoC	:	NO. On the inventory, or in compliance with the inventory
ENCS	:	YES. On the inventory, or in compliance with the inventory
ISHL	:	YES. On the inventory, or in compliance with the inventory
KECI	:	YES. On the inventory, or in compliance with the inventory
PICCS	:	YES. On the inventory, or in compliance with the inventory
IECSC	:	YES. On the inventory, or in compliance with the inventory

For explanation of abbreviations, see section 16.

TSCA list	:	Not relevant
OSHA Hazards	:	Organic Peroxide, Toxic by inhalation., Toxic by ingestion, Harmful by skin absorption., Corrosive to skin, Corrosive to eyes, Corrosive to respiratory system., Carcinogen

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)
Cumyl hydroperoxide	80-15-9	10 lbs

SARA 304 Extremely Hazardous Substances Reportable Quantity

Ingredients	CAS-No.	Component RQ (lbs)
Hydrogen peroxide solution	7722-84-1	1000 lbs

SARA 311/312 Hazards	:	Reactivity Hazard Acute Health Hazard Chronic Health Hazard

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:
Hydrogen peroxide solution 7722-84-1

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:
Cumene 98-82-8
Cumyl hydroperoxide 80-15-9

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
Cumene 98-82-8

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):

Cumyl hydroperoxide	80-15-9
Cumene	98-82-8
Methyl ethyl ketone	78-93-3

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

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California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.
Cumene 98-82-8

16. OTHER INFORMATION

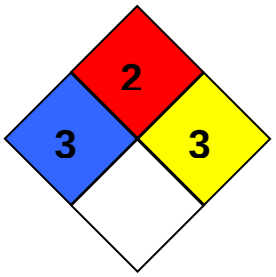
Full text of H-Statements

H225	:	Highly flammable liquid and vapor.
H226	:	Flammable liquid and vapor.
H227	:	Combustible liquid.
H240	:	Heating may cause an explosion.
H242	:	Heating may cause a fire.
H271	:	May cause fire or explosion; strong oxidizer.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H351	:	Suspected of causing cancer.
H373	:	May cause damage to organs through prolonged or repeated exposure if inhaled.
H401	:	Toxic to aquatic life.

H402	:	Harmful to aquatic life.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Further information

HMIS Classification	:	Health Hazard: 3 Chronic Health Hazard: * Flammability: 2 Physical hazards: 3
NFPA Classification	:	Health Hazard: 3 Fire Hazard: 2 Reactivity Hazard: 3



Notification status explanation

REACH	1907/2006 (EU)
CH INV	Switzerland. New notified substances and declared preparations
TSCA	United States TSCA Inventory
DSL	Canadian Domestic Substances List (DSL)
AICS	Australia Inventory of Chemical Substances (AICS)
NZIoC	New Zealand. Inventory of Chemical Substances
ENCS	Japan. ENCS - Existing and New Chemical Substances Inventory
ISHL	Japan. ISHL - Inventory of Chemical Substances
KECI	Korea. Korean Existing Chemicals Inventory (KECI)
PICCS	Philippines Inventory of Chemicals and Chemical Substances (PICCS)
IECSC	China. Inventory of Existing Chemical Substances in China (IECSC)

Further information

Revision Date	04/26/2015

The information in this material safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. The user must determine the appropriate measures that need to be implemented for the use and handling of this product in the c ontext of the user's operations and use of this product. The information contained herein supersedes all previously issued bulletins on the subject matter covered. If the date on this document is more than three years old,call to make certain that this sheet is current. No warranty is made as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. User must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. Nothing contained herein shall be construed as granting or extending any license under any patent.

The information provided in this Material 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.