SAFETY DATA SHEET

according to the Globally Harmonized System and US regulation

TRIGONOX 121

Version 1 Revision Date 10/10/2017 Print Date 11/20/2017 US / EN

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	TRIGONOX 121
Product Use Description	:	Specific use(s): Polymerization initiator
Company	:	Akzo Nobel Functional Chemicals B.V. Velperweg 76 Arnhem 6824 BM Netherlands
Telephone	:	+31263664433
Fax	:	+31263665830
E-mail address	:	RegulatoryAffairs@akzonobel.com
Emergency telephone number	:	24 hours:+31 57 06 79211, CHEMTREC-USA:1-800-424-9300, CANUTEC-CANADA:1-613-996-6666, 化学事故应急咨询电话：国家化学事故应急响应中心 +86 532 8388 9090

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	liquid
Colour	clear, colourless
Odour	Faint.

GHS Classification

Organic peroxides, Type D
Skin sensitisation, Category 1
Acute aquatic toxicity, Category 1
Chronic aquatic toxicity, Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H242 Heating may cause a fire.
H317 May cause an allergic skin reaction.
H410 Very 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.
P261 Avoid breathing mist, vapours or spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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.
P391 Collect spillage.
Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P410 Protect from sunlight.
P411 Store at temperatures not exceeding 20°C/ 68°F.
P420 Store away from other materials.
Disposal:
P501 Dispose of contents/container in accordance with local regulation.

Potential Health Effects

Inhalation	:	Not expected to be irritating.
Skin	:	May cause an allergic skin reaction.
Eyes	:	Not expected to be irritating.
Ingestion	:	Not expected to be irritating.
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	:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Chemical name	CAS-No.	Classification	Concentration [%]
tert-Amyl peroxy-2-ethylhexanoate	686-31-7	Org. Perox. D; H242 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute): 1	90 - 100

tert-Amyl peroxy-2-ethylhexanoate, neat

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

4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.

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

Skin contact : Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water.
If skin irritation persists, call a physician.

Eye contact : Rinse with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

Ingestion : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Obtain medical attention.

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.

Risks : May cause an allergic skin reaction.

Treatment : Treat symptomatically.

5. FIREFIGHTING 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 firefighting / 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. Do not allow run-off from fire fighting to enter drains or water courses. Heating may cause decomposition with release of toxic fumes.
Combustion products	:	Fire will produce smoke containing hazardous combustion products (see section 10).
Special protective equipment for firefighters	:	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. Wear respiratory protection. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours 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. Avoid formation of aerosol. Do not breathe vapours or spray mist.

Avoid contact with skin.
Smoking, eating and drinking should be prohibited in the application area.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

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 : No smoking.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.
Keep only in original container.
Store away from other materials.

Minimum storage temperature: : Avoid temperatures below:
-20 °C (-4 °F)

Maximum storage temperature: : 5 °C (41 °F)

Other data : If product freezes or separates, contact Akzo Nobel

No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Decomposition products	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Heptane	142-82-5, 142-82-5	TWA	85 ppm 350 mg/m3	2013-10-08	NIOSH REL	
		C	440 ppm 1,800 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	15 minute ceiling value			

		TWA	500 ppm 2,000 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	400 ppm 1,600 mg/m3	1989-01-19	OSHA P0	
		STEL	500 ppm 2,000 mg/m3	1989-01-19	OSHA P0	
		TWA	400 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation			
		STEL	500 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation			
		PEL	400 ppm 1,600 mg/m3	2014-11-26	CAL PEL	
		STEL	500 ppm 2,000 mg/m3	2014-11-26	CAL PEL	
Acetone	67-64-1, 67-64-1	TWA	250 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation *: 2016 Adoption BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) A4: Not classifiable as a human carcinogen			
		STEL	500 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation *: 2016 Adoption BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) A4: Not classifiable as a human carcinogen			
		TWA	250 ppm 590 mg/m3	2013-10-08	NIOSH REL	
		TWA	1,000 ppm 2,400 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	750 ppm 1,800 mg/m3	1989-01-19	OSHA P0	
		STEL	1,000 ppm 2,400 mg/m3	1989-01-19	OSHA P0	
	Further information	:	h: The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.			
		STEL	750 ppm 1,780 mg/m3	2014-11-26	CAL PEL	
		C	3,000 ppm	2014-11-26	CAL PEL	
		PEL	500 ppm 1,200 mg/m3	2014-11-26	CAL PEL	

Engineering measures
Explosion proof ventilation recommended.
Effective exhaust ventilation system

Personal protective equipment
Eye/face protection : Tightly fitting safety goggles

Hand protection	:	Glove material: butyl-rubber
	:	Glove material: Neoprene
Skin and body protection	:	Protective suit
Respiratory protection	:	In the case of vapour or aerosol formation use a respirator with an approved filter. Filter A
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.

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
Colour	:	clear colourless
Odour	:	Faint.
Odour Threshold	:	No data available

Safety data

pH	:	Weakly acidic
Melting point	:	<= -20 °C
Boiling point/boiling range	:	Decomposes below the boiling point.
Flash point	:	Above the SADT value
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	Decomposition products may be flammable.
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Vapour pressure	:	< 1.1 hPa at 75 °C

Relative vapour density	:	No data available
Relative density	:	0.914 at 0 °C
Bulk density	:	Not applicable
Water solubility	:	immiscible
Solubility in other solvents	:	miscible with most organic solvents
Partition coefficient: n-octanol/water	:	log Pow: 4.56 at 25 °C Method: OECD Test Guideline 123
Auto-ignition 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)	:	35 °C
Viscosity, dynamic	:	9 mPa.s at 0 °C
Viscosity, kinematic	:	9.85 mm2/s at 0 °C
Explosive properties	:	Not explosive
Oxidizing properties	:	Not classified as oxidising.
Active Oxygen Content	:	6.6 %
Organic peroxides	:	95 %

This 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.
Materials to avoid	:	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	:	tert-Amyl alcohol Methane Heptane Acetone Carbon oxides Ethane 3-(1,1-Dimethylpropoxy)heptane
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 decomposition temperature (SADT)	:	35 °C (95 °F)

11. TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION:

Toxicology Assessment

Further information : No further data available.

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.

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 component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Component: tert-Amyl peroxy-2-ethylhexanoate

Sensitisation	:	May cause an allergic skin reaction.

Component: tert-Amyl peroxy-2-ethylhexanoate

Acute oral toxicity	:	LD50: > 5,000 mg/kg Species: Rat Method: OECD Test Guideline 401 Test substance: yes
Acute inhalation toxicity	:	LC50 (Rat, male and female): 42.2 mg/l Exposure time: 4 h Test atmosphere: aerosol Method: OECD Test Guideline 403 Read-across from supporting substance (structural analogue or surrogate). Test substance: no
Acute dermal toxicity	:	LD0: > 2,000 mg/kg Species: Rabbit Method: OECD Test Guideline 402 Test substance: yes
Skin irritation	:	Species: Rabbit Result: No skin irritation Classification: No skin irritation Exposure time: 24 h Test substance:yes
Eye irritation	:	Species: Rabbit Result: No eye irritation Classification: No eye irritation Exposure time: 24 h Test substance: yes
Sensitisation	:	Maximisation Test Species: Guinea pig Classification: May cause sensitisation by skin contact. Result: Causes sensitisation. Method: OECD Test Guideline 406 Test substance: yes

Germ cell mutagenicity

Genotoxicity in vitro	:	Ames test Salmonella typhimurium Result: negative Method: OECD Test Guideline 471 Test substance: yes In vitro gene mutation study in mammalian cells mouse lymphoma cells Result: negative Method: OECD Test Guideline 476 Test substance: yes
Genotoxicity in vivo	:	In vivo micronucleus test Species: Mouse

Method: OECD Test Guideline 474
Dose: 500, 1000, 2000 mg/kg
Exposure time: 24 h
Result: negative
Test substance: yes

Reproductive toxicity/Fertility : Test Type: Fertility/early embryonic development
Species: Rat, male and female
Strain: wistar
Application Route: Oral
Dose: 0 100, 300, 1000 mg/kg bw/day
Frequency of Treatment: 1 daily
General Toxicity - Parent: No observed adverse effect level: 300 mg/kg bw/day
Fertility: No observed adverse effect level: 1,000 mg/kg bw/day
Early Embryonic Development: No observed adverse effect level: 300 mg/kg body weight
Method: OECD Test Guideline 421
GLP: yes
Result: Animal testing did not show any effects on fertility., No effects on fertility and early embryonic development were detected.
Read-across from supporting substance (structural analogue or surrogate).

12. ECOLOGICAL INFORMATION

PRODUCT INFORMATION:

Ecotoxicology Assessment

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

Component: tert-Amyl peroxy-2-ethylhexanoate

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Component: tert-Amyl peroxy-2-ethylhexanoate

Ecotoxicity effects

Toxicity to daphnia and other aquatic invertebrates	:	EC50: 3.7 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Test Type: Immobilization Analytical monitoring: yes Method: OECD Test Guideline 202 Test substance: yes
Toxicity to algae	:	ErC50: 0.28 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test Type: Growth inhibition Analytical monitoring: yes Method: OECD Test Guideline 201 Test substance: yes EC10: 0.023 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test Type: Growth inhibition Analytical monitoring: yes Method: OECD Test Guideline 201 Test substance: yes
M-Factor (Acute)	:	1
Toxicity to bacteria	:	EC50: > 1,000 mg/l Exposure time: 3 h Species: activated sludge Test Type: Respiration inhibition Analytical monitoring: not required Method: OECD Test Guideline 209 Test substance: yes

Elimination information (persistence and degradability)

Bioaccumulation	:	Bioconcentration factor (BCF): 59 Method: QSAR No bioaccumulation is expected.
Mobility	:	No data available
Biodegradability	:	Test Type: Ready biodegradability Inoculum: activated sludge Concentration: 2 mg/l Result: Readily biodegradable. Biodegradation: 62 % Exposure time: 28 d Method: OECD Test Guideline 301D GLP: yes The 10 day time window criterion is not fulfilled. Test substance: yes

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 Regulations

IATA-DGR

UN/ID No.	:	UN 3115
Class	:	5.2 Not permitted for transport

IMDG-Code

UN number	:	UN 3115
Proper shipping name	:	ORGANIC PEROXIDE TYPE D, LIQUID, TEMPERATURE CONTROLLED (tert-Amyl peroxy-2-ethylhexanoate)
Class	:	5.2
Packing group	:	Not Assigned
Labels	:	5.2
EmS Code	:	F-F, S-R
Marine pollutant	:	yes (tert-Amyl peroxy-2-ethylhexanoate)

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

Not applicable for product as supplied.

Further information for transport

Control temperature : 20 °C (68 °F)

Emergency temperature : 25 °C (77 °F)

National Regulations

49 CFR

UN/ID/NA number	:	UN 3115
Class	:	5.2
	:	Not permitted for transport

15. REGULATORY INFORMATION

Notification status

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. Not 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
TCSI	:	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.

For explanation of abbreviation see section 16.

TSCA list

TSCA 5(a)(2)	:	No substances are subject to a Significant New Use Rule.
TSCA 12(b)	:	No substances are subject to TSCA 12(b) export notification requirements.

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

CERCLA Reportable Quantity

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

SARA 304 Extremely Hazardous Substances Reportable Quantity

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

SARA 311/312 Hazards	:	Reactivity Hazard Acute Health Hazard
SARA 302	:	This material does not contain any components with a section 302 EHS TPQ.
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 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).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Pennsylvania Right To Know

tert-Amyl peroxy-2-ethylhexanoate	686-31-7	90 - 100 %

New Jersey Right To Know

tert-Amyl peroxy-2-ethylhexanoate	686-31-7	90 - 100 %

California Prop. 65

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

16. OTHER INFORMATION

Full text of H-Statements

H242	:	Heating may cause a fire.
H317	:	May cause an allergic skin reaction.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

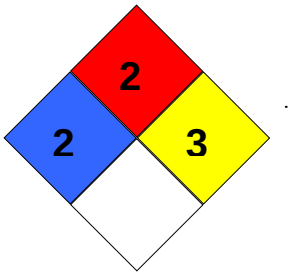
AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

Further information

HMIS Classification : Health hazard: 2
Flammability: 2
Physical hazards: 3

NFPA Classification : Health hazard: 2
Fire Hazard: 2
Reactivity Hazard: 3



Notification status explanation

REACH	1907/2006 (EU)
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)
TCSI	Taiwan Chemical Substance Inventory (TCSI)
TSCA	United States TSCA Inventory

Further information

Revision Date	10/10/2017

The information in this material safety data sheet should be provided 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 context 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 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.