

Material safety data sheet



AkzoNobel
Tomorrow's Answers Today

TRIGONOX 42S

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product label name tert-Butyl peroxy-3,5,5-trimethylhexanoate	
Supplier Akzo Nobel Polymer Chemicals LLC 525 West Van Buren Street Chicago, IL 60607-3823 www.akzonobel.com/polymer	
Emergency telephone +1-914-693-6946 Chicago, IL USA	transportation emergency CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-998-6666
Relevant identified uses of the substance or mixture polymerization initiator	
Date of last issue / Revision number 2013-05-14 / 6.00	
Chemical family peroxides	

2. HAZARDS IDENTIFICATION

Emergency overview DANGER! ORGANIC PEROXIDE HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION COMBUSTIBLE LIQUID AND VAPOR MAY CAUSE ALLERGIC SKIN REACTION VERY TOXIC TO AQUATIC ORGANISMS, MAY CAUSE LONG TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT Peroxides and peroxide decomposition products are flammable and can ignite with explosive force if confined.	
Appearance colorless clear liquid with characteristic odor.	
Health effects Skin and eye contact are the primary routes of exposure to this product. May cause sensitization by skin contact.	
Carcinogenicity	
Description	Applicable
IARC	no
NTP	no
OSHA	no
ACGIH	no

3. COMPOSITION/INFORMATION ON INGREDIENTS

Information on hazardous ingredients			
Chemical description tert-Butyl peroxy-3,5,5-trimethylhexanoate			
Composition / information on ingredients			
Number	% w/w	CAS-number	Chemical name

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Other information

This material is classified as hazardous under OSHA regulations. Technical pure substance.

4. FIRST AID MEASURES

Most important symptoms and effects

May cause sensitization by skin contact

Description of first aid measures:

General

In all cases of doubt, or when symptoms persist, seek medical attention.

Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Oxygen may additionally be given, by trained personnel, if it is available. Get medical attention if symptoms occur.

Skin

Immediately wash skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Eye

Immediately flush eyes with plenty of water. If easy to do, contact lenses should be removed during the flushing, by trained personnel. Occasionally hold the eyelids apart during the flushing to ensure rinsing the entire surface of the eye and lids with water. Get medical attention if irritation develops and persists.

Ingestion

Call a physician or a poison control center immediately. Induce vomiting only if directed by medical personnel. The patient should lie on their left side while vomiting to reduce the risk of aspiration. Never give anything by mouth to an unconscious or convulsing person.

Indication of any immediate medical attention and special treatment needed

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material.

Attending physician should treat exposed patients symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing media

waterspray, foam, sand, dry chemical powder, CO₂.

Unsuitable extinguishing media

halons

Hazardous decomposition / combustion products

CO₂, Carbon monoxide.

Methane, tert-Butanol, Acetone, 2-tert-Butyloxy-2,4,4-trimethylpentane.

Protective equipment

Firefighters must wear fire resistant protective equipment. Wear approved respirator and protective gloves.

Other information

Evacuate all non-essential personnel. Extinguish a small fire with powder or carbon dioxide then apply water to prevent re-ignition. Cool closed containers with water. Water used to extinguish a fire should not be allowed to enter the drainage system or water courses. After a fire, ventilate thoroughly the area and soak with water, clean the walls and metallic surfaces.

Fire and explosion hazard

CAUTION: reignition may occur. Decomposition under effect of heating (See also Section Hazardous decomposition products). If involved in a fire, it will support combustion. Vapors may form explosive mixtures with air. In case of fire and/or explosion do not breathe fumes.

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NFPA ratings	
Hazard classes	Rating
Health	2
Flammability	2
Reactivity	3

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Do not breathe fumes/vapor . Avoid contact with skin. For personal protection see Section 8.
Environmental precautions Do not allow to enter drains or water courses.
Methods and material for containment and cleaning up Stop leakage if possible. Eliminate all sources of ignition, and do not generate flames or sparks. Take precautionary measures against static discharges. Transfer remaining product from leaking container to a clean and suitable container. Cover the remainder with inert absorbent (e.g. vermiculite) for disposal. Keep contents moist. The waste should NOT be confined. Flush surroundings with large amounts of water and soap.
Other information CAUTION: reignition may occur. Vapors are heavier than air and may spread along floors . Vapors may travel to a source of ignition and flash back . Evacuate personnel to safe area.

7. HANDLING AND STORAGE

Precautions for safe handling Never weigh out in the storage room. When using do not eat, drink or smoke. Do not pipet by mouth. Do not breathe fumes/vapor . Handle in well ventilated areas. Eliminate all sources of ignition, and do not generate flames or sparks. Take precautionary measures against static discharges. Apply grounding when transferring from one container to another. Keep away from reducing agents (e.g. amines), acids, alkalies and heavy metal compounds (e.g. accelerators, driers, metal soaps). Keep product and emptied container away from heat and sources of ignition. Confinement must be avoided. Avoid contact with skin. Avoid incompatible materials (See Section 10).
Fire and explosion prevention Use explosion protected equipment. Keep away from sources of ignition - No smoking. Use non-sparking tools in areas where explosive vapor/air mixtures may occur . Do not cut or weld on or near this container even when empty.
Conditions for safe storage Store in accordance with local/national regulations. Keep away from food, drink and animal feedingstuffs. Store in a dry well ventilated place away from sources of heat and direct sunlight. Store separate from other chemicals. Keep only in the original container. Keep container upright to prevent leakage.
Storage For maximum quality store below: 25 °C. Avoid temperatures below -20 °C. If product freezes or separates, contact Akzo Nobel.
Other information It is recommended to use electrical equipment of temperature group T3. However, autoignition can never be excluded. Wash hands thoroughly after handling or contact. Keep work clothes separate and do not take them home .

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters Ensure good ventilation and local exhaustion of the working area. Explosion proof ventilation recommended.
Personal protection Respiratory The usual precautionary measures for handling chemicals should be observed.

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Hand	Wear suitable protective gloves of neoprene or synthetic rubber.
Eye	Wear eye/face protection.
Skin and body	Wear suitable protective clothing.
Other information	Emergency-shower and facilities for rinsing eyes must be accessible. Launder clothes before reuse.

In this country no exposure limit has been established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	clear liquid
Color	colorless
Odor	characteristic
Boiling point/range	not applicable (Decomposes)
Melting point/freezing point	Solidifies at or below -20°C / -4°F
Flash point	Above the SADT value
Flammability	Decomposition products may be flammable.
Explosive properties	no
Oxidizing properties	not applicable
Vapor pressure	0.05 kPa (59°C / 138°F)
Density	900 kg/m ³ (20°C / 68°F) Specific gravity = 0.900 (20°C / 68°F)
Bulk density	not applicable
Solubility in water	immiscible (20°C / 68°F)
Solubility in other solvents	not determined
pH value	slightly acidic
Partition coefficient n-octanol/water	not determined
Relative vapor density (air=1)	not determined

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Viscosity 5 mPa.s (20°C / 68°F)
Active oxygen content 6.74%
Peroxide content >=97%
Autoignition temperature Test method not applicable (See Section 7)
SADT 55 °C. See also Section 10.
Upper/lower flammability or explosive limits not determined
Volatile % not determined

10. STABILITY AND REACTIVITY

Chemical stability 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 following temperature: 55 °C. Contact with incompatible substances can cause decomposition at or below the SADT 55 °C.
Conditions to avoid Avoid temperatures below -20 °C. To maintain quality store in original closed container below: 25 °C. Confinement must be avoided.
Incompatible materials Avoid contact with rust, iron and Copper. Contact with incompatible materials such as acids, alkalies, heavy metals and reducing agents will result in hazardous decomposition. Do not mix with peroxide accelerators. Use only Stainless steel 316, PP, polyethylene or glass-lined equipment. Contact Akzo Nobel for more information.
Possibility of hazardous reactions Polymerization does not occur.
Hazardous decomposition products Hazardous decomposition products: Methane, tert-Butanol, Acetone, 2-tert-Butyloxy-2,4,4-trimethylpentane.
Other information Emergency procedures will vary depending on conditions. The customer must have an emergency response plan in place. Contact Akzo Nobel for assistance with developing an emergency response plan.

11. TOXICOLOGICAL INFORMATION

tert-Butyl peroxy-3,5,5-trimethylhexanoate
Acute toxicity
Oral LD50 12905 mg/kg (rat)
Dermal LD50 > 2000 mg/kg (rat)
Inhalation LC50 4 hours exposure time: >800 mg/m ³ (max. attainable concentration) (rat)

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Germ cell mutagenicity Not mutagenic (in vitro)
Irritation
Skin Non-irritating
Eye Non-irritating
Respiratory Non-irritating
Sensitization Sensitizing
Chronic toxicity / Carcinogenicity 28 days, No Observed Adverse Effect Level (NOAEL); 50 mg/kg/day (rat) No Observed Adverse Effect Level (NOAEL); 50 mg/kg/day (oral)

12. ECOLOGICAL INFORMATION

tert-Butyl peroxy-3,5,5-trimethylhexanoate

Ecotoxicity

fish 96h-LC50: 7.0 mg/l 96 hours No Observed Effect Concentration (NOEC): 3 mg/l
daphnia 48h-EC50: >0.52 mg/l
algae 72h-EC50: 0.51 mg/l 72 hours No Observed Effect Concentration (NOEC): 0.125 mg/l
bacteria Activated sludge respiration inhibition test EC50 (3h): 327.02 hours 3 hours No Observed Effect Concentration (NOEC): 26.3 mg/l
Fate
Degradation Biotic Inherently biodegradable (Closed bottle test).
Bioaccumulation Not expected to bioaccumulate.
Fate Koc = 3.29

13. DISPOSAL CONSIDERATIONS

Product

Due to the high risk of contamination recycling/recovery is not recommended. Waste disposal in accordance with regulations (most probably controlled incineration).

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Contaminated packaging According to local regulations. Emptied container might retain product residues. Follow all warnings even after the container is emptied. Do not shred containers before they are thoroughly cleaned from product residues. Do not wash residues into drains or other waterways.
Other information For further advice contact manufacturer.

14. TRANSPORT INFORMATION

<i>Land transport</i>
Transport hazard class 5.2
TREM-Card or ERG number NA ERG No. 145
UN number 3105
Proper Shipping Name Organic peroxide, type D, liquid (tert-Butyl peroxy-3,5,5-trimethylhexanoate, >=97%)
Other information This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.
Required labels 5.2

<i>Sea transport (IMO / IMDG-code)</i>
Transport hazard class 5.2
UN number 3105
EMS F-J, S-R
Marine pollutant yes
Proper Shipping Name Organic peroxide type D, liquid (tert-Butyl peroxy-3,5,5-trimethylhexanoate)
Other information Label(s): 5.2

<i>Air transport (ICAO-TI / IATA-DGR)</i>
UN number 3105
Transport hazard class 5.2
Proper Shipping Name Organic peroxide type D, liquid (tert-Butyl peroxy-3,5,5-trimethylhexanoate)
Other information Label(s): 5.2

15. REGULATORY INFORMATION





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Product and or components listed below are subject to the following	
New Jersey R-T-K Hazard. Sub.	yes
US Toxic Subst. Cont. Act (TSCA)	yes
Non-Domestic Subst. List-Canada	no
Domestic Substance List-Canada	yes
Connecticut Hazardous Material Survey	yes

Hazard classes	
Description	Applicable
EPA Immediate health	yes
EPA Delayed health	no
EPA Fire	yes
EPA Pressure	no
EPA Reactive	yes
EHS Material	no
Hazard Rating Source	HMIS
HMIS Health	2
HMIS Flammability	2
HMIS Reactivity	3
WHMIS Hazard classes	B-3,C,D-2B,F

				
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Other regulatory information
 This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

History	
Other information	TRIGONOX: This is a registered trademark of Akzo Nobel Chemicals BV or any of its affiliated companies in one or more territories in the world.
Date of printing/ pdf file generated	2013-05-16
Revision	6.00
Composed by	Regulatory Affairs- Europe. Regulatory Affairs - North America , T +1-312-544-7000.
Changes were made in section	All (Classification)

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. All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable as of the date of publication. However, no warranty is made as to the accuracy of and/or sufficiency of such information and/or suggestions as to the merchantability or fitness of the product for any particular purpose, or that any suggested use will not infringe any patent. Nothing in here shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. 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.