AKZO NOBEL

Trigonox C

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name Trigonox C	**Chemical description** tert-Butyl peroxybenzoate
Synonym(s) Benzenecarboperoxoic acid, 1,1-dimethylethyl ester	**Chemical formula** C11 H14 O3
CAS number 614-45-9	**Chemical family** Organic Peroxides/peroxyesters
Supplier Akzo Nobel Polymer Chemicals LLC 525 West Van Buren Street Chicago, IL 60607-3823 USA	
Medical/Handling Emergency + 1-914-693-6946 Dobbs Ferry, NY USA	**Transportation Emergency** CHEMTREC - USA: 1-800-424-9300 CANUTEC - CANADA: 1-613-996-6666
Product use Polymerization initiator	**Product/technical Information** 1-800-828-7929
Date of first issue 1994-03-31	**Date of last issue / Revision** 2003-11-06 / 9.00

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percentage(s)	CAS number
	98.00	614-45-9

3. HAZARDS IDENTIFICATION

Emergency overview

Clear, white-to-pale yellow liquid with an aromatic odor.
DANGER!
ORGANIC PEROXIDE.
HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION.
COMBUSTIBLE LIQUID AND VAPOR.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
This product is a combustible liquid. Peroxides and decomposition products are flammable and can ignite with explosive force if confined.

Health effects

Skin or eye contact and inhalation of vapor or mists are the principal routes of exposure to this product.
Inhalation of vapors and/or mists may cause irritation of the nose, throat and lungs.
Skin contact may cause irritation and redness.
Eye contact may cause slight irritation.
Irritation to the mouth, throat, esophagus and stomach may be caused by ingestion of this material. Ingestion may result in nausea and/or vomiting.

Carcinogenicity	
Description	**Applicable**
IARC	no
NTP	no
OSHA	no

ACGIH	no

4. FIRST AID MEASURES

Inhalation
Remove to fresh air. If not breathing, clear victim's airway and start artificial respiration. If victim is breathing, supplemental oxygen may be given from a demand-type or continuous-flow inhaler, preferably with a physician's advice. Get medical attention immediately.

Skin
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention if indicated. Wash clothing before reuse.

Eye
Immediately flush eyes with large quantities of running water for a minimum of 15 minutes. If the victim is wearing contact lenses, remove them. Take care not to contaminate the victim's healthy skin and eyes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids. DO NOT let victim rub eye(s). Do not attempt to neutralize with chemical agents. Get medical attention immediately. Oils or ointments should not be used at this time. Continue flushing for an additional 15 minutes if a physician is not immediately available.

Ingestion
Do NOT induce vomiting. Call a physician or a poison control center immediately. Give victim plenty of water to drink. Never give anything by mouth to an unconscious or convulsing person. Get medical attention immediately.

Note to physician
There are no data available that address medical conditions that are generally recognized as being aggravated by exposure to this product.

No specific antidote is known. Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical conditions.

5. FIRE-FIGHTING MEASURES

Flash point Above the SADT value	**Autoignition temperature** not determined
Flash Method Setaflash Closed Cup	**Explosion limits** lower: N/D upper: N/D

Extinguishing media
Use water fog or spray, dry chemical, foam or carbon dioxide extinguishing agents.

Fire fighting procedures
As in any fire, prevent human exposure to fire, smoke, fumes or products of combustion. Evacuate non-essential personnel from the fire area. Firefighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. If possible, move containers from the fire area. If not leaking, keep fire exposed containers cool with a water fog or spray to prevent rupture due to excessive heat. High pressure water may spread product from broken containers increasing contamination or fire hazard.
Contaminated buildings, areas and equipment must not be used until they are properly decontaminated. Dike fire water for later disposal. Do not allow contaminated water to enter waterways.

Fire and explosion hazard
This product is a combustible liquid. Peroxides and decomposition products are flammable and can ignite with explosive force if confined.
This product can produce flammable vapors which may travel to a source of ignition and flash back.

Hazardous products of combustion
Thermal decomposition produces oxides of carbon and/or hazardous fumes, vapors and/or gasses.

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NFPA ratings	
Hazard	**Rating**
Flammability	3
Reactivity	3

6. ACCIDENTAL RELEASE MEASURES

Methods for cleaning up
Remove all sources of ignition from the spill area. Stop source of spill. If tools are needed, they should be non-sparking. Dike area to prevent spill from spreading. If permitted to enter sewers, this material may create a fire or explosion hazard. Ventilate enclosed areas to prevent formation of flammable or oxygen deficient atmosphere. A water fog, fine spray or blanket of fire-fighting foam can be used to reduce vapors.
Evacuate all non-essential personnel upwind. Any person entering an area of a significant spill or of an unknown concentration of a gas or a vapor should use a NIOSH-approved, positive-pressure/pressuredemand, self-contained breathing apparatus. Protective equipment to prevent skin and eye contact should be worn.
Soak up liquid with a suitable absorbent such as clay, vermiculite, sand or earth. Sweep up absorbed material and place in a chemical waste container for disposal.
Contaminated areas, buildings and equipment must not be used until they are properly decontaminated. Generously cover contaminated area with a slurry of common household, powdered laundry detergent and water. Using a stiff brush, work the slurry into cracks and crevices. Allow to stand for 2-3 minutes. Then flush with water. Repeat if necessary. Dike water for later disposal. Do not allow contaminated water to enter waterways.

7. HANDLING AND STORAGE

Handling
Containers should be located in an area where they can be rotated regularly (first in, first out) and visually inspected for damage or bulging on a regular basis.
Use approved equipment for transport of containers to avoid puncturing or rupturing containers. Do not use air pressure to empty containers.
Protective equipment should be worn when handling this product to avoid eye and skin contact.
Emptied container may retain product residues. Follow all warnings and precautions even after container is emptied.

Storage
To insure product quality, storage temperatures should not exceed 77 F (25 C). To insure against possible exothermic self-accelerating decomposition, storage temperatures must not exceed 131 F (55 C). This storage temperature is derived from the SADT (see Section 10). Keep containers tightly closed. Store away from reducing agents, strong oxidizers, acids, alkalis and accelerators.

General comments
Containers should not be opened until ready for use. Use clean non-sparking equipment and tools when handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory protection
Use a NIOSH-approved organic vapor respirator with dust, mist and fume filters to reduce potential for inhalation exposure if use conditions generate vapor, mist or aerosol and adequate ventilation (e.g., outdoor or well-ventilated area) is not available. Where exposure potential necessitates a higher level of protection, use a NIOSH-approved, positive-pressure/pressure-demand, air-supplied respirator.
When using respirator cartridges or canisters, they must be changed frequently (following each use or at the end of the workshift) to assure breakthrough exposure does not occur.

Skin protection
Skin contact with this product should be prevented through the use of suitable protective clothing, gloves, and footwear selected with regard for use condition exposure potential.

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Eye protection Eye contact with liquid or aerosol must be prevented through the use of chemical safety goggles or a face shield selected with regard for use condition exposure potential. Eye wash fountains or other means of washing the eyes with a gentle flow of water should be readily available in all areas where this product is handled or stored. Water should be supplied through insulated and/or heat-traced pipes to prevent freeze-up in winter.
ventilation protection Sufficient good general ventilation should be provided to keep concentration below the exposure limit. All work with laboratory samples should be conducted in a hood.
Other information Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water, should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freezeups in cold weather.
Applicable exposure limits There are no available exposure limits for this product.

Agency	Value/Unit of measurement
PEL = Permissible Exposure Limit TLV = Threshold Limit Value TWA = Time Weighted Average STEL = Short Term Exposure Limit CEIL = Ceiling Exposure Limit REL = Recommended Exposure Limit WEEL = Workplace Environmental Exposure Limit IDLH = Immediate Dangerous to Life and Health	

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor Clear, white-to-pale yellow liquid with an aromatic odor.	**pH value** not determined
Odor threshold (ppm) not determined	**Relative vapor density (air=1)** > 6
Volatile % not determined	**Vapor pressure (mm Hg)** 0.33 @ 50 deg C
Boiling point/range not determined	**Evaporation rate** not determined
Melting point/range 46.40 °F 8.00 °C	
Cloud point not determined	**Pour point** not determined
Flash point Above the SADT value	**Solubility in water** Insoluble
Flash method Setaflash Closed Cup	**Solubility in other solvents** not determined
Autoignition temperature not determined	
Specific Gravity/Density 1.02 @ 20 deg C	**Partition coefficient n-octanol/water** not determined
Bulk density not determined	

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Other information	Explosion limits
SADT = 140 F (60 C) (See Sect. 10).	lower: N/D upper: N/D

10. STABILITY AND REACTIVITY

Stability This product is stable at ambient temperatures but may decompose if exposed to temperatures above 131 F (55 C).
Incompatibilities Avoid contact with strong acids, strong alkalis, strong oxidizers, accelerators and reducing agents.
Polymerization Hazardous polymerization will not occur.
Decomposition Burning may produce carbon dioxide and/or carbon monoxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiant.
Conditions to avoid The SADT for this product is 140 F (60 C). The SADT (self accelerating decomposition temperature) is an experimentally derived temperature at which a typical package of the product will undergo self accelerating decomposition. Decomposition can be expected to be hazardous and uncontrollable. Under no circumstances should this product be exposed to temperatures near or above the emergency temperature of 131 F (55 C). Such an exposure could initiate hazardous decomposition. Contact with incompatible materials such as acids, alkalis, heavy metals and reducing agents will also result in hazardous decomposition.

11. TOXICOLOGICAL INFORMATION

Oral LD50	The oral LD50 (rat) is 4838 mg/kg and 2500 mg/kg (mouse).
Dermal LD50	The acute dermal LD50 for this product is 3817 mg/kg (rat). This product was a moderate skin irritant based on tests with rabbits. It was not found to be a sensitizer.
Inhalation LC50	The acute LC50 (rats; 4 hour exposure) is greater than 200 mg/L.
Skin	Chronic dermal exposure effects are not known. However, prolonged skin contact may result in irritation and blistering.
Eye	The Draize score is unknown. The peroxide was reported to be a slight irritant when tested in the rabbit.
Chronic toxicity/carcinogenicity	If swallowed, this product may cause severe irritation of the mouth, throat, and stomach. In a 90 day NTP study, toxicity was noted in the forestomach of both rats and mice. The toxicity, which was limited to the slight of contact, consisted of an increase in stomach weight and hyperplasia. No other toxicity was noted. Chronic inhalation data is not available for this product. However, prolonged inhalation of vapors can cause headache and throat irritation. The peroxide has been found to be genetically active in the Mouse Lymphoma Forward Mutation Assay. Inconclusive results have been obtained in the Ames Test. It did not induce the formation of micronuclia when tested in mice.

	The reproductive toxicity of this product is not known. The neurotoxic effects of this product are not known. Overexposure to this product may affect the skin, eyes and respiratory system.
Other toxicological information	Prolonged contact with clothing saturated with tert-butyl peroxy benzoate may cause skin irritation and blistering.

12. ECOLOGICAL INFORMATION

Ecotoxicological information	The ecological toxicity of this product is not known.
Bioaccumulation	Chemical fate information on this product is not known.
Other information	Other ecological information on this product is not known.

13. DISPOSAL CONSIDERATIONS

Waste disposal in accordance with regulations
The characteristics of Ignitability (D001) and Reactivity (D003) as per RCRA, would be exhibited by unused product if it becomes a waste material. It is the responsibility of the waste generator to evaluate whether his wastes are hazardous by characteristic or listing. All waste should be disposed of in accord with federal, state and local regulations. Note: State and/or local regulations may be more stringent than federal regulations.

Container disposal
Containers should be cleaned of residual product before disposal. Empty containers should be disposed of in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

Shipping description	ORGANIC PEROXIDE TYPE C, LIQUID (TERT-BUTYL PEROXYBENZOATE, 98%) 5.2, UN3103, PG II NORTH AMERICAN ERG NO:146
Required labels	ORGANIC PEROXIDE.
Environmentally hazardous substance	This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.

15. REGULATORY INFORMATION

Products and/or components listed below are subject to the following:	
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes

Other regulatory information
No other regulatory information is available on this product.

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16. OTHER INFORMATION

Other information TRIGONOX is a registered trademark of Akzo Nobel Chemicals Inc.
Created by PRODUCT SAFETY 914-674-5000