Akzo Nobel Polymer Chemicals LLC
MATERIAL SAFETY DATA SHEET

AKZO NOBEL

Trigonox 101-45S-ps

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name Trigonox 101-45S-ps	**Chemical description** 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane in polydimethylsiloxane
Synonym Peroxide, (1,1,4,4-tetramethyl-1,4-butane- diyl) bis(1,1-dimethylethyl) in silicone oil	**Chemical formula** Mixture
CAS number MIXTURE	**Chemical family** Alkyl peroxide
Supplier Akzo Nobel Polymer Chemicals LLC 300 South Riverside Plaza Chicago, IL 60606 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 09-16-1992	**Date of last issue / Revision #** 08-22-2001 / 3.00

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	Percentage(s)	CAS number
Polydimethylsiloxane	41.00 - 42.00	63148-62-9
Silicon dioxide, amorphous	9.00 - 10.00	7631-86-9
2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane	44.00 - 46.00	78-63-7

3. HAZARDS IDENTIFICATION

Emergency overview
White paste.
WARNING!
ORGANIC PEROXIDE.
HEAT OR CONTAMINATION MAY CAUSE HAZARDOUS DECOMPOSITION.
CAUSES SEVERE SKIN IRRITATION.
MAY CAUSE EYE IRRITATION.
This product is highly reactive and thermally unstable. Containers exposed to heat or fire may bulge and rupture with potentially explosive force.

Health effects
Skin and eye contact are the primary routes of exposure to this product.
Inhalation of fumes or vapors may be irritating to the upper respiratory system.
Skin contact can cause severe irritation with redness and edema.
Eye contact may cause irritation.
If swallowed, this product may cause severe irritation of the mouth, throat, and stomach.

Carcinogenicity	
Description	**Applicable**

MARKETED BY
HARWICK STANDARD
DISTRIBUTION CORPORATION
60 S. Seiberling Street • Akron, Ohio 44305

IARC	no
NTP	no
OSHA	no
ACGIH	no

4. FIRST AID MEASURES

Inhalation
Remove to fresh air. If breathing becomes difficult, oxygen may be given, preferably with a physician's advice. If not breathing, give artificial respiration. Get medical attention.

Skin
Immediately flush skin with plenty of water while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Thoroughly clean or destroy contaminated shoes.

Eye
Immediately flush eyes with plenty of running water. If victim is wearing contact lenses, remove them. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention if irritation persists.

Ingestion
Get medical attention by calling a physician or a poison control center immediately. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head below hips to reduce the risk of aspiration. Never give anything by mouth to an unconscious person.

Note to physician
There is no data available that addresses specific medical conditions that are generally recognized as being aggravated by exposure to this product. However, existing skin conditions, ie: dermatitis, may be aggravated by contact with this material.

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 172.40 °F 78.00 °C Flammability class IIIA (OSHA)	**Autoignition temperature** not determined
Flash Method Setaflash Closed Cup	**Explosion limits** lower: N/D upper: N/D

Extinguishing media
Use water fog, dry chemical, carbon dioxide, or foam extinguishing agents. Extinguish large fires with large amounts of water spray, fog or foam from a safe/protected position.

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. Dike fire control water for later disposal. Do not allow contaminated water to enter waterways.

Fire and explosion hazards
This product is highly reactive and thermally unstable. Containers exposed to heat or fire may bulge and rupture with potentially explosive force.
This product can produce flammable vapors which may travel to a source of ignition and flash back.

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Hazardous products of combustion
Thermal decomposition products may include toxic oxides of carbon, acetone, methane, ethane, tert-butanol, tert amyl alcohol, and 2,5-dimethylhexane diol.

NFPA ratings

Hazard	Rating
Health	3
Flammability	1
Reactivity	1
Other	ND

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, sawdust or kitty litter. Sweep up absorbed material and place in a chemical waste container for disposal.

7. HANDLING AND STORAGE

Handling
Wear protective clothing when handling this product to avoid eye and skin contact. Wash thoroughly after handling.
Electrically grounded tanks and containers should always be used as should non-sparking, electrically grounded hand tools and appliances. Ground or bond to ground all vessels when transferring to prevent the accumulation of static electricity. See National Electric Code. 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 86 degrees F.(30 C.). To insure against possible exothermic self accelerating decomposition, storage temperatures must not exceed 149 F. (65 C.). This emergency temperature is derived from the SADT (see Sect. 11). Keep containers tightly closed. Store away from reducing agents (e.g. amines, acids, alkalis) and heavy metal compounds (e.g. driers metal soaps and accelerators).

Maximum storage temperature
86.00 °F 30.00 °C
(to maintain product quality)

General comments
Containers should not be opened until ready for use. Use clean equipment and tools of inert material such as stainless steel, polyethylene, polypropylene or glass.
Avoid contact with rust.

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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.

Eye protection
Because eye contact with this product may cause irritation, chemical goggles and/or a face shield should be worn when handling this product.

Ventilation protection
Local exhaust ventilation, enclosed system design, continuous moni- toring devices, process isolation and remote control are traditional exposure control techniques which may be used to effectively minimize employee exposure.

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
Other than any exposure limits which may be displayed in Section 8, there are no other known exposure limits applicable to this product or its components.

Agency	Value/Unit of measurement
Silicon dioxide, amorphous	
OSHA PEL/TWA	2.667 mg/m³
ACGIH TLV/TWA	10.000 mg/m³
NIOSH REL/TWA	6.000 mg/m³

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 White paste.	**pH value** not determined
Odor threshold (ppm) not determined	**Relative vapor density (air=1)** not determined
Volatile % not determined	**Vapor pressure (mm Hg)** 15 @ 25 C (for active component)
Boiling point/range not determined	**Evaporation rate** not determined

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Melting point/range not determined.	
Cloud point N/D	**Pour point** not determined
Flash point 172.40 °F 78.00 °C Flammability class IIIA (OSHA)	**Solubility in water** < 1 % solubility
Flash method Setaflash Closed Cup	**Solubility in other solvents** Miscible in organic solvents.
Autoignition temperature not determined	
Specific Gravity/Density not determined	**Partition coefficient n-octanol/water** not determined
Bulk density 940 kg/m3	
Other information SADT > 158 F (70 C) see Sect.10	**Explosion limits** 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 158 F.(70 C.).

Incompatibilities
This product reacts violently with acids, alkalis, heavy metals and reducing agents.
A dangerous exothermal self accelerating decomposition may occur if product is exposed to temperatures above 158 degrees F.(70 C.).

Polymerization
Hazardous polymerization is not expected to occur under normal temperatures and pressures..

Decomposition
Decomposition products are carbon dioxide, carbon monoxide, ethane, methane, acetone, tert butanol, tert amyl alcohol and 2,5-dimethyl-hexane diol.

Conditions to avoid
The SADT for this product is 158 F (70 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 149 F (65 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	Ingestion toxicity data is not available for this product. However, the acute oral LD50 for the technically pure peroxide is greater than 10 g/kg in rats.
Dermal LD50	Dermal LD50 data is not available for this product. However, the following data is available for the technically pure peroxide: The acute dermal LD50 in rabbits is greater than 2000 mg/kg. It has been shown to be a severe irritant to rabbit skin.

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Inhalation LC50	Inhalation toxicity data are not available for this product.
Skin	Prolonged or repeated skin contact may cause severe irritation with redness, swelling, blistering, and dermatitis.
Eye	The acute eye effects of this product have not been determined. However, the technically pure peroxide has been shown to be slightly irritating to rabbit eyes.
Chronic toxicity/carcinogenicity	Chronic ingestion effects of this product are not known. Prolonged and/or repeated inhalation may cause respiratory tract irritation. While this product has not been evaluated for mutagenicity, the technically pure peroxide was not mutagenic in the Ames Test. 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 and eyes.
Other toxicological information	No other toxic effects for this product are known.

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 characteristic of 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 drained 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 E, SOLID (2,5-DIMETHYL-2,5-DI-(TERT-BUTYLPEROXY)HEXA NE, 46%) 5.2, UN3108, PG II NORTH AMERICAN EMERGENCY RESPONSE GUIDE NO: 145 IMO: UN3108 IATA: UN3108

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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:	
Polydimethylsiloxane	
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes
Silicon dioxide, amorphous	
Massachusetts Substance List	yes
New Jersey R-T-K Hazard. Sub.	yes
Penn. Hazardous Substance list	yes
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes
2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane	
New Jersey R-T-K Hazard. Sub.	yes
Toxic Subst. Cont. Act -listed	yes
Domestic Substance List-Canada	yes

Hazard classes	
Description	**Applicable**
HMIS Hazard Rating Source	HMIS
HMIS Health	3
HMIS Flammability	1
HMIS Reactivity	1
WHMIS Hazard Class	B-3; C; D-2B; F

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

16. OTHER INFORMATION

Other information
TRIGONOX is a registered trademark of Akzo Nobel Chemicals Inc.

Created by
PRODUCT SAFETY 914 674-5000

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