

SAFETY DATA SHEET

Revision Date 19-Dec-2025

Revision Number 6

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name 1,1-Di(tert-butylperoxy)cyclohexane, 50% solution in mineral oil

Cat No. : AC361310000; AC361310100; AC361312500

Synonyms Trigonox[®]4 22

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Organic peroxides
Aspiration Toxicity

Type D
Category 1

Label Elements

Signal Word

Danger

Hazard Statements

Heating may cause a fire

May be fatal if swallowed and enters airways



Precautionary Statements

Prevention

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep away from clothing and other combustible materials

Keep only in original packaging

Wear protective gloves/protective clothing/eye protection/face protection

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor

Do NOT induce vomiting

Storage

Store locked up

Store at temperatures not exceeding 25 °C/ 77 °F. Keep cool

Protect from sunlight

Store separately

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

May cause long lasting harmful effects to aquatic life

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

3. Composition/information on Ingredients

Component	CAS No	Weight %
White mineral oil	8042-47-5	50
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	50

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.
Inhalation	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention. Risk of serious damage to the lungs (by aspiration).
Ingestion	Do NOT induce vomiting. Clean mouth with water. Get medical attention. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
Most important symptoms and effects	No information available.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO₂). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 350 °C / 662 °F

Explosion Limits

Upper No data available

Lower No data available

Oxidizing Properties Oxidizer

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO₂). Acetone.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
3

Flammability
3

Instability
3

Physical hazards
OX

6. Accidental release measures

Personal Precautions

Ensure adequate ventilation. Use personal protective equipment as required.

Environmental Precautions

See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal.

7. Handling and Storage

Handling

Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Do not subject to grinding/shock/friction. Keep away from clothing and other combustible materials.

Storage.

Do not store near combustible materials. Keep refrigerated. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Acids. Bases. Metals. Reducing Agent. Strong reducing agents. Combustible material.

8. Exposure controls / personal protection

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures

Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended Filter type:	Organic gases and vapours filter. Type A. Brown. conforming to EN14387.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Physical State	Liquid
Color	Clear
Odor	Slight
Odor Threshold	No information available
Property	Values
Melting Point/Range	No data available
Softening Point	No data available
Boiling Point/Range	52 - 54 °C / 125.6 - 129.2 °F
Flash Point	No information available
Flammability (liquid)	No data available
Flammability (solid,gas)	Not applicable
Explosion Limits	No data available

Remarks

• Method

@ 0.1 mmHg
Method - No information available
 Liquid

Autoignition Temperature	350 °C / 662 °F
Decomposition Temperature	No data available
pH	No information available
Viscosity	No data available
Water Solubility	No information available
Solubility in other solvents	No information available
Partition Coefficient (n-octanol/water)	
Component	log Pow
White mineral oil	6
1,1-Di(tert-butylperoxy)-cyclohexane	7.2
Vapor Pressure	No data available
Density / Specific Gravity	0.95
Bulk Density	Not applicable
Vapor Density	No data available
Particle characteristics	Not applicable (liquid)

Liquid
 (Air = 1.0)

Other Information

Molecular Formula	C14H28O4
Molecular Weight	260.37
Oxidizing Properties	Oxidizer

10. Stability and reactivity

Reactive Hazard	Yes
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Stability	Oxidizer: Contact with combustible/organic material may cause fire.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Combustible material. Excess heat.
Incompatible Materials	Acids, Bases, Metals, Reducing Agent, Strong reducing agents, Combustible material
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Acetone
Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Information on expected route of exposure

Inhalation	Not an expected route of exposure.
Ingestion	Harmful if swallowed. Potential for aspiration if swallowed.
Eyes	Avoid contact with eyes.
Skin	Avoid contact with skin.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
White mineral oil	>5000 mg/kg (Rat)	>3000 mg/kg (Rabbit)	-
1,1-Di(tert-butylperoxy)-cyclohexane	>5000 mg/kg (Rat)	>2000 mg/kg (Rat)	-

Toxicologically Synergistic Products	No information available
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(b) skin corrosion/irritation;	No data available
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(c) serious eye damage/irritation;	No data available
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(d) respiratory or skin sensitization;	
Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity;	No data available
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(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
White mineral oil	8042-47-5	Not listed	Not listed	Not listed	Not listed	Not listed
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	Not listed	Not listed	Not listed	Not listed	Not listed

(g) reproductive toxicity;	No data available
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(h) STOT-single exposure;	No data available
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(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Category 1

Other Adverse Effects The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed No information available.

Other Adverse Effects The toxicological properties have not been fully investigated.

Endocrine Disrupting Properties This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
White mineral oil	Not listed	LC50: > 10000 mg/L, 96h (Lepomis macrochirus)	Not listed	Not listed
1,1-Di(tert-butylperoxy)-cyclohexane	Not listed	LC50: > 0.64 mg/L, 96h semi-static (Danio rerio)	Not listed	Not listed

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
White mineral oil	6
1,1-Di(tert-butylperoxy)-cyclohexane	7.2

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No 3105
Proper Shipping Name ORGANIC PEROXIDE TYPE D, LIQUID
Hazard Class 5.2

TDG

UN-No 3105
Proper Shipping Name ORGANIC PEROXIDE TYPE D, LIQUID
Hazard Class 5.2

IATA

UN-No UN3105
Proper Shipping Name ORGANIC PEROXIDE TYPE D, LIQUID
Hazard Class 5.2

IMDG/IMO

UN-No UN3105

Proper Shipping Name ORGANIC PEROXIDE TYPE D, LIQUID
Hazard Class 5.2

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
White mineral oil	8042-47-5	X	ACTIVE	-
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
White mineral oil	8042-47-5	X	-	232-455-8	X	X	X	X	X	KE-35412
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	X	-	221-111-2	X	X	X	X	X	2004-3-2858

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
White mineral oil	8042-47-5	-	-	-
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	-	-	-

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
White mineral oil	8042-47-5	Listed	Not applicable	Not applicable	Not applicable
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	Not applicable	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
White mineral oil	8042-47-5	Not applicable	Not applicable	Not applicable	Not applicable
1,1-Di(tert-butylperoxy)-cyclohexane	3006-86-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other Information

Prepared By Product stewardship (Regulatory Affairs)
Thermo Fisher Scientific
email - begel.sdsdesk@thermofisher.com

Revision Date	19-Dec-2025
Print Date	19-Dec-2025
Revision Summary	Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

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

End of SDS