

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name : TRIGONOX 42S

REACH Registration Number : 01-2119498308-25

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Specific use(s): Polymerization initiator

1.3 Details of the supplier of the safety data sheet

Company : Akzo Nobel Functional Chemicals B.V.
Stationsstraat 77
NL 3811 MH Amersfoort
Netherlands

Telephone : +31334676767
Telefax : +31334676100
E-mail address : RegulatoryAffairs@akzonobel.com

1.4 Emergency telephone number

Emergency telephone number : AkzoNobel: +31 57 06 79211

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Organic peroxides, D, H242
Skin sensitisation, 1, H317
Acute aquatic toxicity, 1, H400
Chronic aquatic toxicity, 1, H410

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


Classification (67/548/EEC, 1999/45/EC)

Oxidising, O, R 7
Sensitising, Xi, R43
Dangerous for the environment, N, R50/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Symbol(s)	:	
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, hot surfaces, sparks, open flames and other ignition sources. No smoking. P220 Keep away from dirt, rust, chemicals in particular. P234 Keep only in original container. P273 Avoid release to the environment. P280 Wear protective gloves/ eye protection/ face protection. Response: P302 + P352 IF ON SKIN: Wash with plenty of water.

Hazardous components which must be listed on the label:

tert-Butyl peroxy-3,5,5-trimethylhexanoate 13122-18-4

2.3 Other hazards

No further data available.

PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous substance

Chemical Name	PBT vPvB OEL	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Classification (67/548/EEC)	Concentration [%]
tert-Butylperoxy-3,5,5-trimethylhexanoate		13122-18-4 236-050-7 01- 2119498308- 25	Org. Perox. D; H242 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute): 1	Xi; R43 N; R50/53 O; R 7	90 - 100

Remarks : tert-Butyl peroxy-3,5,5-trimethylhexanoate, neat

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

For the full text of the R-phrases mentioned in this Section, see Section 16.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
- If inhaled : If breathed in, move person into fresh air.
Consult a physician after significant exposure.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water.
If skin irritation persists, call a physician.
- In case of 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.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : The symptoms and effects are as expected from the hazards

as shown in section 2. No specific product related symptoms are known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

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.
Heating may cause decomposition with release of toxic fumes
Do not allow run-off from fire fighting to enter drains or water courses.

Combustion products : Fire will produce smoke containing hazardous combustion products (see section 10).

5.3 Advice for firefighters

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up / : Keep wetted with water.

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

Methods for containment : 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.

6.4 Reference to other sections

Additional advice : For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : For personal protection see section 8.
Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No smoking.
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

Maximum storage temperature: : 25 °C

Other data : No decomposition if stored and applied as directed.

: If product freezes or separates, contact Akzo Nobel

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

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
tert-Butanol	75-65-0, 75-65-0	TWA	100 ppm 308 mg/m ³	2005-04-06		
		STEL	150 ppm 462 mg/m ³	2005-04-06		
Acetone	67-64-1, 67-64-1	TWA	500 ppm 1,210 mg/m ³	2009-12-19		
	Further information	:				
		TWA	500 ppm 1,210 mg/m ³	2005-04-06		
		STEL	1,500 ppm 3,620 mg/m ³	2005-04-06		

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
tert-Butyl peroxy-3,5,5-trimethylhexanoate	Workers	Inhalation	Long-term systemic effects	1.46 mg/m ³
	Workers	Skin contact	Long-term systemic effects	0.83 mg/kg
	Consumers	Ingestion	Long-term systemic effects	0.20 mg/kg
	Consumers	Skin contact	Long-term systemic effects	0.41 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.31 mg/m ³

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
tert-Butyl peroxy-3,5,5-trimethylhexanoate	Fresh water	0.000510 mg/l
	Intermittent water	0.00510 mg/l
	Marine water	0.000051 mg/l
	Oral	3.33 mg/kg food
	Fresh water sediment	0.0563 mg/kg dry weight
	Marine sediment	0.00563 mg/kg dry weight
	Sewage treatment plant	2.6 mg/l
	Soil	0.0456 mg/kg dry weight

8.2 Exposure controls

Engineering Controls

Explosion proof ventilation recommended.
Effective exhaust ventilation system

Personal protective equipment

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

- Form : liquid
- Colour : colourless
- Odour : characteristic
- 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) :
- Lower explosion limit : No data available
- Upper explosion limit : No data available

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

Vapour pressure	: 0.5 hPa at 59 °C
Relative vapour density	: No data available
Relative density	: 0.900 at 20 °C
Bulk density	: Not applicable
Water solubility	: at 20 °C immiscible
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: log Pow: 5.16 at 20 °C
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)	: 55 °C
Viscosity, dynamic	: 5 mPa.s at 20 °C
Viscosity, kinematic	: 5.56 mm ² /s at 20 °C
Explosive properties	: Not explosive
Oxidizing properties	: Not classified as oxidising.

9.2 Other information

Active Oxygen Content	: 6.74 %
Organic peroxides	: > 97 %

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : Confinement must be avoided.
Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Contact with incompatible materials will result in hazardous decomposition.
For queries regarding the suitability of other materials please contact the supplier.
Do not mix with peroxide accelerators, unless under controlled processing.
Use only stainless steel 316, PP, polyethylene or glass-lined equipment.
Acids and bases
Iron
Copper
Reducing agents
Heavy metals
Rust

10.6 Hazardous decomposition products

Hazardous decomposition products : tert-Butanol
Acetone
Methane
Carbon oxides
2-tert-Butoxy-2,4,4-trimethylpentane

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.

Self-Accelerating decomposition temperature (SADT) : 55 °C

SECTION 11: TOXICOLOGICAL INFORMATION

Product information:

Hazard Summary

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.

Toxicology Assessment

Further information : No further data available.

11.1 Information on toxicological effects

Toxicology data for the components:

Test result

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

Acute oral toxicity	: LD50: 12,905 mg/kg Species: Rat
Acute inhalation toxicity	: LC50 (Rat): > 800 mg/m ³ Exposure time: 4 h Saturated vapour concentration
Acute dermal toxicity	: LD50: > 2,000 mg/kg Species: Rat
Skin irritation	: Result: No skin irritation
Eye irritation	: Result: No eye irritation
Repeated dose toxicity	: Species: Rat Application Route: Oral Exposure time: 28 d () NOEL: 50 mg/kg
Germ cell mutagenicity	
Genotoxicity in vitro	: Result: No evidence of genotoxic effects in vitro.
Reproductive toxicity/Fertility	: Species: Rat, females Strain: wistar Application Route: Oral Dose: 0, 50, 160, 500 milligram per kilogram General Toxicity - Parent: No observed adverse effect level: 50 mg/kg bw/day General Toxicity F1: No observed adverse effect level F1: 50 mg/kg bw/day Fertility: No observed adverse effect level Parent: 50 mg/kg bw/day Method: OECD Test Guideline 421 Species: Rat, males Strain: wistar Application Route: Oral Dose: 0, 50, 160, 500 milligram per kilogram General Toxicity - Parent: No observed adverse effect level: 50 mg/kg bw/day General Toxicity F1: No observed adverse effect level F1: 50 mg/kg bw/day Fertility: No observed adverse effect level Parent: 400 mg/kg bw/day Method: OECD Test Guideline 421
Target Organ Systemic Toxicant - Single exposure	: Exposure routes: Inhalation Target Organs: Respiratory system The substance or mixture is not classified as specific target organ toxicant, single exposure.
Target Organ Systemic Toxicant - Repeated	: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

exposure

Aspiration toxicity : No aspiration toxicity classification

SECTION 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.

12.1 Toxicity

Components:

Ecotoxicology Assessment

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

Acute aquatic toxicity : Very toxic to aquatic life.

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

Test result

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

Toxicity to fish : LC50: 7.0 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50: > 100 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae : ErC50: 0.5098 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Test Type: Growth inhibition
Method: OECD Test Guideline 201

NOEC: 0.125 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)
Test Type: Growth inhibition
Method: OECD Test Guideline 201

M-Factor : 1

Toxicity to bacteria : NOEC: 26.3 mg/l
Exposure time: 3 h
Species: activated sludge
Test Type: Respiration inhibition
Method: Domestic OECD Guideline 209

12.2 Persistence and degradability

Product information : No information available.

Components:

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

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

Biodegradability : Result: Inherently biodegradable.
Method: Closed Bottle test

12.3 Bioaccumulative potential

Product information : No information available.

Components:

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

Bioaccumulation : No bioaccumulation is expected.

12.4 Mobility in soil

Product information : No information available.

Components : No information available.

12.5 Results of PBT and vPvB assessment

Product information:

PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components : No information available.

12.6 Other adverse effects

Product information : No information available.

Components : No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR : UN 3105
RID : UN 3105
IMDG-Code : UN 3105
IATA-DGR : UN 3105

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

14.2 Proper shipping name

ADR	: ORGANIC PEROXIDE TYPE D, LIQUID (tert-Butyl peroxy-3,5,5-trimethylhexanoate)
RID	: ORGANIC PEROXIDE TYPE D, LIQUID (tert-Butyl peroxy-3,5,5-trimethylhexanoate)
IMDG-Code	: ORGANIC PEROXIDE TYPE D, LIQUID (tert-Butyl peroxy-3,5,5-trimethylhexanoate)
IATA-DGR	: Organic peroxide type D, liquid (tert-Butyl peroxy-3,5,5-trimethylhexanoate)

14.3 Transport hazard class

ADR	: 5.2
RID	: 5.2
IMDG-Code	: 5.2
IATA-DGR	: 5.2 (HEAT)

14.4 Packing group

ADR	
Packing group	: Not Assigned
Classification Code	: P1
Labels	: 5.2
Tunnel restriction code	: (D)

RID	
Packing group	: Not Assigned
Classification Code	: P1
Hazard Identification Number	: 539
Labels	: 5.2

IMDG-Code	
Packing group	: Not Assigned
Labels	: 5.2
EmS Code	: F-J, S-R

IATA-DGR	
Packing instruction (cargo aircraft)	: 570
Packing instruction (passenger aircraft)	: 570
Packing group	: Not Assigned
Labels	: 5.2 (HEAT)

14.5 Environmental hazards

ADR	
Environmentally hazardous	: yes

RID	
Environmentally hazardous	: yes

IMDG-Code	
Marine pollutant	: yes (tert-Butyl peroxy-3,5,5-trimethylhexanoate)

IATA-DGR	
Environmentally hazardous	: yes

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

SECTION 15: REGULATORY INFORMATION

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

Major Accident Hazard Legislation : ZEU_SEVES3
SELF-REACTIVE SUBSTANCES AND MIXTURES and
ORGANIC PEROXIDES
P6b
Quantity 1: 50 t
Quantity 2: 200 t

: ZEU_SEVES3
ENVIRONMENTAL HAZARDS
E1
Quantity 1: 100 t
Quantity 2: 200 t

Water contaminating class (Germany) : WGK 2 water endangering

Notification status

CH INV : 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.
DSL : YES. All components of this product are on the Canadian DSL.
AICS : YES. On the inventory, or in compliance with the inventory
NZIoC : YES. On the inventory, or 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

For explanation of abbreviation see section 16.

Further information

This product is to be considered as a substance according to EU-legislation.

15.2 Chemical Safety Assessment

tert-Butyl peroxy-3,5,5-trimethylhexanoate : A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

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 R-phrases referred to under sections 2 and 3

R 7 May cause fire.

TRIGONOX 42S

Version 1

Revision Date 01.05.2015

Print Date 20.10.2015

GB / EN

R43 May cause sensitisation by skin contact.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Explanations for possible abbreviations mentioned in section 2

PBT : PBT: Persistent, bioaccumulative and toxic.
vPvB : vPvB: Very persistent and very bioaccumulative.
OEL : OEL: Occupational exposure limit.

Notification status explanation

CH INV Switzerland. New notified substances and declared preparations
TSCA United States TSCA Inventory
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)

Further information

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.