

## SAFETY DATA SHEET

according to the Globally Harmonized System and US regulation

### TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

#### 1. IDENTIFICATION

Product name : TRIGONOX 101-45B-PD

Product Use Description : Specific use(s): Cross-linking agent

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化学事故应急咨询电话: +86 532 8388 9090

#### 2. HAZARDS IDENTIFICATION

##### Emergency Overview

Appearance	powder
Color	white
Odor	Faint.
Hazard Summary	Risk of dust explosion.

##### GHS Classification

Organic peroxides, Type E  
Skin irritation, Category 2

##### GHS label elements

Hazard pictograms :



Signal Word :

Warning

Hazard Statements :

H242 Heating may cause a fire.  
H315 Causes skin irritation.

Precautionary Statements :

**Prevention:**  
P210 Keep away from heat/sparks/open flames/hot surfaces.  
No smoking.

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

P220 Keep/Store away from clothing/ combustible materials.  
P234 Keep only in original container.  
P235 Keep cool.  
P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ eye protection/ face protection.

**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

**Storage:**

P410 Protect from sunlight.

P420 Store away from other materials.

**Disposal:**

P501 Dispose of contents/container in accordance with local regulation.

**Carcinogenicity:**

**IARC**

: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA**

: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP**

: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

### Hazardous ingredients

Chemical name	CAS-No.	Classification	Concentration [% W/W]
2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane	78-63-7	Flam. Liq. 4; H227 Org. Perox. C; H242 Skin Irrit. 2; H315	>= 45 - <= 50
Precipitated synthetic amorphous silica	112926-00-8		>= 25 - <= 35
Calcium carbonate	471-34-1		>= 20 - <= 30

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

### The following substances have multiple CAS-number

Precipitated synthetic amorphous silica : 7631-86-9

## 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.  
Consult a physician.  
Show this material safety data sheet to the doctor in attendance.
- Inhalation : Remove to fresh air.  
Keep patient warm and at rest.  
Rinse nose and mouth with water.
- Skin contact : Take off contaminated clothing and shoes immediately.  
Wash the skin immediately with soap and water.  
If skin irritation persists, call a physician.
- 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.
- Ingestion : Clean mouth with water and drink afterwards plenty of water.  
Never give anything by mouth to an unconscious person.  
Obtain medical attention.

### Notes to physician

Symptoms : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

- Risks : Causes skin irritation.
- Treatment : Treat symptomatically.

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## 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting / 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.  
Do not allow run-off from fire fighting to enter drains or water courses.  
Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.  
Hazardous decomposition products formed under fire conditions.
- Combustion products : Fire will produce smoke containing hazardous combustion products (see section 10).
- Special protective equipment for fire-fighters : 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.

See also Section 9. Physical and chemical properties: Safety data

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

- Personal precautions : Use personal protective equipment.  
Avoid dust formation.  
Avoid breathing dust.  
Ensure adequate ventilation.  
Remove all sources of ignition.
- Emergency measures on accidental release : Evacuate personnel to safe areas.  
Only qualified personnel equipped with suitable protective equipment may intervene.  
Prevent unauthorized persons entering the zone.
- Environmental precautions : Prevent product from entering drains.
- Methods for cleaning up / : Keep wetted with water.

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

Methods for containment                      Confinement must be avoided.  
Pick up and arrange disposal without creating dust.  
Collect in plastic container for disposal as hazardous waste.  
Never return spills in original containers for re-use.

Reference to other sections                : For disposal considerations see section 13.  
  
For personal protection see section 8.

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## 7. HANDLING AND STORAGE

### Handling

Advice on safe handling                    : For personal protection see section 8.  
Avoid formation of respirable particles.  
Avoid contact with skin, eyes and clothing.  
Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Smoking, eating and drinking should be prohibited in the application area.  
Open drum carefully as content may be under pressure.

Advice on protection against fire and explosion        : Use explosion protected equipment.  
Provide appropriate exhaust ventilation at places where dust is formed.  
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.

### Storage

Requirements for storage areas and containers        : No smoking.  
Keep in a well-ventilated place.  
Keep in a dry place.  
Electrical installations / working materials must comply with the technological safety standards.  
Store at room temperature in the original container.  
Keep only in original container.  
Store away from other materials.

Maximum storage temperature:                : 30 °C (86 °F)

Other data                                        : Maximum storage temperature is for quality only.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

## Ingredients with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Precipitated synthetic amorphous silica	112926-00-8	TWA	6 mg/m3	1989-01-19	OSHA P0	
		TWA	20 Million particles per cubic foot	2012-07-01	OSHA Z-3	Dust
	Further information	:	a: Based on impinger samples counted by light-field techniques. mppcf X 35.3 = million particles per cubic meter = particles per c.c Silica			
		TWA	80 mg/m3 / %SiO2	2012-07-01	OSHA Z-3	Dust
	Further information	:	Silica			
		TWA	6 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	Silica			
		PEL	6 mg/m3	2014-11-26	CAL PEL	
	Further information	:	(3): See table Z-3			
Calcium carbonate	471-34-1	PEL	10 mg/m3	2014-11-26	CAL PEL	Total dust
		PEL	5 mg/m3	2014-11-26	CAL PEL	respirable dust fraction
	Further information	:	(n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere)..... Percent Passing Selector 0 ..... 100 1 ..... 97 2 ..... 91 3 ..... 74 4 ..... 50 5 ..... 30 6 ..... 17 7 ..... 9 8 ..... 5 10 ..... 1			
		TWA	5 mg/m3	2013-10-08	NIOSH REL	Respirable
	Further information	:	Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite & oyster shells. Calcium carbonate			
		TWA	10 mg/m3	2013-10-08	NIOSH REL	total
	Further information	:	Occurs in nature as as limestone, chalk, marble, dolomite, aragonite, calcite & oyster shells. Calcium carbonate			
Dust		TWA	50 Million particles per cubic foot	2012-07-01	OSHA Z-3	total dust
	Further information	:	a: Based on impinger samples counted by light-field techniques. d: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. mppcf X 35.3 = million particles per cubic meter = particles per c.c			
Dust		TWA	15 mg/m3	2012-07-01	OSHA Z-3	total dust
	Further information	:	d: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.			
Dust		TWA	5 mg/m3	2012-07-01	OSHA Z-3	respirable fraction
	Further information	:	d: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1.			

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

Dust		TWA	15 Million particles per cubic foot	2012-07-01	OSHA Z-3	respirable fraction
	Further information	:	a: Based on impinger samples counted by light-field techniques. d: All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by this limit, which is the same as the Particulates Not Otherwise Regulated (PNOR) limit in Table Z-1. mppcf X 35.3 = million particles per cubic meter = particles per c.c			
Dust		PEL	10 mg/m3	2014-11-26	CAL PEL	Total dust
Dust		PEL	5 mg/m3	2014-11-26	CAL PEL	respirable dust fraction
	Further information	:	(n): The concentration and percentage of the particulate used for this limit are determined from the fraction passing a size selector with the following characteristics: Aerodynamic Diameter in Micrometers (unit density sphere)..... Percent Passing Selector 0 ..... 100 1 ..... 97 2 ..... 91 3 ..... 74 4 ..... 50 5 ..... 30 6 ..... 17 7 ..... 9 8 ..... 5 10 ..... 1			

- ACGIH: American Conference of Governmental Industrial Hygienists
- BEI: Biological Exposure Index
- MAC: Maximum Allowable Concentration
- NIOSH: National Institute for Occupational Safety and Health
- OEL: OEL: Occupational exposure limit.
- STEL: Short term exposure limit
- TWA: Time Weighted Average

## 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	2007-01-01	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment A4: Not classifiable as a human carcinogen			
		TWA	100 ppm 300 mg/m3	2013-10-08	NIOSH REL	
		ST	150 ppm 450 mg/m3	2013-10-08	NIOSH REL	
		TWA	100 ppm 300 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	100 ppm 300 mg/m3	1989-01-19	OSHA P0	
		STEL	150 ppm 450 mg/m3	1989-01-19	OSHA P0	
		PEL	100 ppm 300 mg/m3	2014-11-26	CAL PEL	
		STEL	150 ppm 450 mg/m3	2014-11-26	CAL PEL	
Acetone	67-64-1, 67-64-1	TWA	250 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation *: 2018 Adoption BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) A4: Not classifiable as a human carcinogen			
		STEL	500 ppm	2015-04-10	ACGIH	
	Further information	:	CNS impair: Central Nervous System impairment			

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

	information		URT irr: Upper Respiratory Tract irritation eye irr: Eye irritation *: 2018 Adoption BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section) A4: Not classifiable as a human carcinogen			
		TWA	250 ppm 590 mg/m3	2013-10-08	NIOSH REL	
		TWA	1,000 ppm 2,400 mg/m3	1997-08-04	OSHA Z-1	
	Further information	:	(b): The value in mg/m3 is approximate.			
		TWA	750 ppm 1,800 mg/m3	1989-01-19	OSHA P0	
		STEL	1,000 ppm 2,400 mg/m3	1989-01-19	OSHA P0	
	Further information	:	h: The acetone STEL does not apply to the cellulose acetate fiber industry. It is in effect for all other sectors.			
		STEL	750 ppm 1,780 mg/m3	2014-11-26	CAL PEL	
		C	3,000 ppm	2014-11-26	CAL PEL	
		PEL	500 ppm 1,200 mg/m3	2014-11-26	CAL PEL	
Ethane	74-84-0, 74-84-0			2018-03-20	ACGIH	
	Further information	:	See Appendix F: Minimal Oxygen Content EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit. asphyxia: Asphyxia D: Simple asphyxiant; see discussion covering Minimal Oxygen Content found in the 'Definitions and Notations' section following the NIC tables			
	Further information	:	(h): A number of gases and vapors, when present in high concentrations, act primarily as asphyxiants without other adverse effects. A concentration limit is not included for each material because the limiting factor is the available oxygen. (Several of these materials present fire or explosion hazards.)			
		TWA	0.1 mg/m3	1989-01-19	OSHA P0	
	Further information	:	Formaldehyde			
		TWA	0.1 mg/m3	2013-10-08	NIOSH REL	
	Further information	:	'Ca' in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).  Formaldehyde			

## Appropriate engineering controls

Explosion proof ventilation recommended.

Provide appropriate exhaust ventilation at places where dust is formed.

## Personal protective equipment

Eye/face protection : Tightly fitting safety goggles

Hand protection : Glove material: Neoprene

: Glove material: Nitrile rubber

Skin and body protection : Protective suit

Respiratory protection : Half mask with a particle filter P2 (EN 143)

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.



# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and at the end of workday.

## Environmental exposure controls

General advice : Prevent product from entering drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form : powder  
Color : white  
Odor : Faint.  
Odor Threshold : No data available

### Safety data

pH : Not applicable  
Melting point : Decomposes before melting.  
Boiling point/boiling range : Decomposes below the boiling point.  
Flash point : Not applicable  
Evaporation rate : Not applicable  
Flammability (solid, gas) : Decomposition products may be flammable.  
Flammability (liquids) : Not applicable  
Lower explosion limit : No data available  
Upper explosion limit : No data available  
Vapor pressure : 20 hPa at 25 °C  
Active ingredient  
Relative vapor density : Not applicable  
Relative density : 1.50 at 20 °C  
Bulk density : 510 kg/m<sup>3</sup> at 20 °C  
Water solubility : at 20 °C  
insoluble  
Solubility in other solvents : No data available  
Partition coefficient: n-  
octanol/water : No data available  
Autoignition temperature : Test method not applicable

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

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)	: 80 °C
Viscosity, dynamic	: Not applicable
Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: Not classified as oxidizing.
Active Oxygen Content	: 5 %
Organic peroxides	: 45 %

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

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## 10. STABILITY AND REACTIVITY

Conditions to avoid	: A high degree of confinement must be avoided. Heat, flames and sparks.
Materials to avoid	: Contact with the following incompatible materials will result in hazardous decomposition: Acids and bases Iron Copper Reducing agents Heavy metals Rust Do not mix with peroxide accelerators, unless under controlled processing. Use only stainless steel 316, PP, polyethylene or glass-lined equipment. For queries regarding the suitability of other materials please contact the supplier.
Hazardous decomposition products	: Carbon oxides tert-Butanol tert-Amyl alcohol Acetone Methane Ethane

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

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.
Reactivity	: Stable under normal conditions.
Chemical stability	: Stable under recommended storage conditions.
Hazardous reactions	: Dust may form explosive mixture in air.
Self-Accelerating decomposition temperature (SADT)	: 80 °C (176 °F)

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## 11. TOXICOLOGICAL INFORMATION

### PRODUCT INFORMATION:

#### Hazard Summary

Acute toxicity	: Not classified based on available information.
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/eye irritation	: Not classified based on available information.
Respiratory or skin sensitization	: Respiratory sensitization: Not classified based on available information. Skin sensitization: Not classified based on available information.
Germ cell mutagenicity	: Not classified based on available information.
Carcinogenicity	: Not classified based on available information.
Reproductive toxicity	: Not classified based on available information.
STOT-single exposure	: Not classified based on available information.
STOT-repeated exposure	: Not classified based on available information.
Aspiration hazard	: Not classified based on available information.
<b>Potential Health Effects</b>	
Inhalation	: Thermal decomposition can lead to release of irritating gases and vapors. Product dust may be irritating to respiratory system.
Skin	: Product dust may be irritating to skin. Causes skin irritation.
Eyes	: Product dust may be irritating to eyes.

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

May cause eye irritation.

Ingestion : May cause irritation of the mucous membranes.

Aggravated Medical Condition : None known.

Symptoms of Overexposure : The symptoms and effects are as expected from the hazards as shown in section 2. No specific product related symptoms are known.

## Toxicology Assessment

Further information : No further data available.

## Test result

Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

## Carcinogenicity:

IARC : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA : No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP : No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

## TOXICOLOGY DATA FOR THE INGREDIENTS:

### Test result

#### Component: 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane

Acute oral toxicity : LD50: > 2,000 mg/kg  
Species: Rat  
Method: OECD Test Guideline 401

LD50: > 32,000 mg/kg  
Species: Rat  
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50: 2,800 - 5,400 mg/kg  
Species: Rat  
Method: OECD Test Guideline 402

Skin irritation : Species: Rabbit  
Result: Severe skin irritation  
Method: OECD Test Guideline 404  
Exposure time: 4 h

Eye irritation : Species: Rabbit

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

	Result: No eye irritation Method: OECD Test Guideline 405
Sensitization	: Maximization Test Species: Guinea pig Classification: Does not cause skin sensitization. Method: OECD Test Guideline 406
Repeated dose toxicity	: Species: Rat, male and female NOAEL: mg/kg bw/day, 150 Application Route: Oral Exposure time: 90 d Method: OECD Test Guideline 408 GLP: yes  Species: Rat, male and female NOAEL: mg/kg bw/day, 200 Application Route: Oral Exposure time: 28 d Method: OECD Test Guideline 407 GLP: yes
Germ cell mutagenicity Genotoxicity in vitro	: Chromosome aberration test in vitro mouse lymphoma cells Result: negative Method: OECD Test Guideline 476
Genotoxicity in vivo	: In vivo micronucleus test Species: Mouse Method: OECD Test Guideline 474 Result: negative
Reproductive toxicity/Development/Teratog enicity	: Species: Rat Strain: Sprague-Dawley Application Route: Oral General Toxicity Maternal: NOAEL (No observed adverse effect level): 300 mg/kg bw/day Developmental Toxicity: No observed adverse effect level F1: 300 mg/kg bw/day Method: OECD Test Guideline 414 GLP: yes

## **Component: Calcium carbonate**

Acute oral toxicity	: LD50: > 2,000 mg/kg Species: Rat No mortality observed at this dose.
Acute inhalation toxicity	: LC50 (Rat): > 3 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: yes Saturated vapor concentration
Acute dermal toxicity	: LD50: > 2,000 mg/kg

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

---

	Species: Rat
Skin irritation	: Species: Rabbit Result: No skin irritation Method: OECD Test Guideline 404 Exposure time: 4 h
Eye irritation	: Species: Rabbit Result: No eye irritation Method: OECD Test Guideline 405
Sensitization	: Species: Mouse Classification: Does not cause skin sensitization. Method: OECD Test Guideline 429
Repeated dose toxicity	: Species: Rat NOAEL: 1,000 mg/kg Application Route: Oral Exposure time: 48 d Method: OECD Test Guideline 422 GLP: yes
Germ cell mutagenicity Genotoxicity in vitro	: Chromosome aberration test in vitro Human lymphocytes Result: negative Method: OECD Test Guideline 473  Ames test Result: negative Method: OECD Test Guideline 471  In vitro gene mutation study in mammalian cells mouse lymphoma cells Result: negative Method: OECD Test Guideline 476
Genotoxicity in vivo	: Result: Not mutagenic.
Reproductive toxicity/Fertility	: Test Type: Fertility/early embryonic development Species: Rat Application Route: Oral General Toxicity Parent: NOAEL (No observed adverse effect level): 1,000 mg/kg bw/day Symptoms: Not observed Method: OECD Test Guideline 422 GLP: yes Result: Animal testing did not show any effects on fertility.
Target Organ Systemic Toxicant - Single exposure	: Routes of exposure: Inhalation Target Organs: Respiratory system The substance or mixture is not classified as specific target organ toxicant, single exposure.
Target Organ Systemic Toxicant - Repeated	: Routes of exposure: Ingestion The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

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# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

exposure

Aspiration toxicity : No aspiration toxicity classification

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## 12. ECOLOGICAL INFORMATION

### PRODUCT INFORMATION:

#### Ecotoxicology Assessment

Additional ecological information : None known.

#### Test result

#### Elimination information (persistence and degradability)

Mobility : No data available

#### Further information on ecology

Biochemical Oxygen Demand (BOD) : No data available

#### Hazardous to the ozone layer

Regulation : 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

### COMPONENTS:

#### Ecotoxicology Assessment

##### Component: 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane

Short-term (acute) aquatic hazard : This product has no known ecotoxicological effects.

Long-term (chronic) aquatic hazard : This product has no known ecotoxicological effects.

##### Component: Calcium carbonate

Long-term (chronic) aquatic hazard : This product has no known ecotoxicological effects.

#### Test result

##### Component: 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane

#### Ecotoxicity effects

Toxicity to fish : LC50: 4.5 mg/l  
Exposure time: 96 h  
Species: Oryzias latipes (Japanese medaka)  
Test Type: semi-static test  
Method: OECD Test Guideline 203

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

- No toxicity at the limit of solubility.
- Toxicity to algae : EC50: > 236 µg/l  
Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (green algae)  
Test Type: Growth inhibition  
Analytical monitoring: yes  
Method: OECD Test Guideline 201  
No toxicity at the limit of solubility.
- Toxicity to bacteria : NOEC: > 1,000 mg/l  
Exposure time: 3 h  
Species: activated sludge  
Test Type: Respiration inhibition  
Method: OECD Test Guideline 209  
No toxicity at the limit of solubility.
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 6.5  
Exposure time: 21 d  
reproduction rate  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 211  
No toxicity at the limit of solubility.

## **Elimination information (persistence and degradability)**

- Bioaccumulation : Bioconcentration factor (BCF): 521 - 839
- Biodegradability : Test Type: Ready biodegradability  
Inoculum: activated sludge, non-adapted  
Concentration: 1 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

## **Component: Calcium carbonate**

### **Ecotoxicity effects**

- Toxicity to fish : Species: Danio rerio (zebra fish)  
Test Type: semi-static test  
Method: OECD Test Guideline 203  
No toxicity at the limit of solubility.
- Toxicity to daphnia and other aquatic invertebrates : Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 202  
No toxicity at the limit of solubility.
- Toxicity to algae : NOEC: 14 mg/l  
Exposure time: 72 h  
Species: Desmodesmus subspicatus (green algae)  
Test Type: Growth inhibition  
Method: OECD Test Guideline 201



# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

Toxicity to bacteria : NOEC: 1,000 mg/l  
Exposure time: 3 h  
Species: activated sludge  
Test Type: Respiration inhibition  
Method: Domestic OECD Guideline 209  
Information given is based on data obtained from similar substances.

## Elimination information (persistence and degradability)

Bioaccumulation : Bioaccumulation is unlikely.

Biodegradability : inorganic

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## 13. DISPOSAL CONSIDERATIONS

Product : Do not dispose of waste into sewer.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
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.

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## 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 3108  
Proper shipping name : Organic peroxide type E, solid  
(2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane)  
Class : 5.2  
Subsidiary risk : HEAT  
Packing group : Not Assigned  
Labels : 5.2 (HEAT)  
Packing instruction (cargo aircraft) : 570  
Packing instruction (passenger aircraft) : 570  
Environmentally hazardous : no

#### IMDG-Code

UN number : UN 3108  
Proper shipping name : ORGANIC PEROXIDE TYPE E, SOLID  
(2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane)  
Class : 5.2  
Packing group : Not Assigned  
Labels : 5.2

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

EmS Code : F-J, S-R  
Marine pollutant : no

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

Not applicable for product as supplied.

## Domestic regulation

### 49 CFR

UN/ID/NA number : UN 3108  
Proper shipping name : Organic peroxide type E, solid  
(2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane, 45%)  
Class : 5.2  
Packing group : Not Assigned  
Labels : 5.2  
ERG Code : 145  
Marine pollutant : no  
Reportable Quantity : This product does not contain an environmentally hazardous substance per 49 CFR 172.101, Appendix A.

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## 15. REGULATORY INFORMATION

### Notification status

TCSI : YES. On the inventory, or in compliance with the inventory  
TSCA : YES. All substances listed as active on the TSCA inventory  
AICS : YES. On the inventory, or in compliance with the inventory  
DSL : YES. All components of this product are on the Canadian DSL  
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  
NZIoC : YES. On the inventory, or in compliance with the inventory

For explanation of abbreviations, see section 16.

### TSCA list

TSCA 5(a)(2) : No substances are subject to a Significant New Use Rule.  
TSCA 12(b) : No substances are subject to TSCA 12(b) export notification requirements.

### EPCRA - Emergency Planning and Community Right-to-Know

#### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Organic peroxides  
Skin corrosion or irritation

**SARA 302** : This material does not contain any components with a section 302 EHS TPQ.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### Clean Air Act

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals subject to disclosure and listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

## Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

## US State Regulations

### Massachusetts Right To Know

Precipitated synthetic amorphous silica 112926-00-8

### Pennsylvania Right To Know

2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane 78-63-7

Precipitated synthetic amorphous silica 112926-00-8

Calcium carbonate 471-34-1

### California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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## 16. OTHER INFORMATION

### Full text of H-Statements

H227 : Combustible liquid.  
H242 : Heating may cause a fire.  
H315 : Causes skin irritation.

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
CAL PEL : California permissible exposure limits for chemical contaminants (Title 8, Article 107)  
NIOSH REL : USA. NIOSH Recommended Exposure Limits  
OSHA P0 : USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
OSHA Z-3 : USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts  
  
ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
CAL PEL / STEL : Short term exposure limit

# TRIGONOX 101-45B-PD

Version 1

Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

CAL PEL / PEL	:	Permissible exposure limit
CAL PEL / C	:	Ceiling
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA Z-1 / TWA	:	8-hour time weighted average
OSHA Z-3 / TWA	:	8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

## Further information

**HMIS Classification** : Health Hazard: 2  
Chronic Health Hazard: /  
Flammability: 2  
Physical hazards: 1

# TRIGONOX 101-45B-PD

Version 1

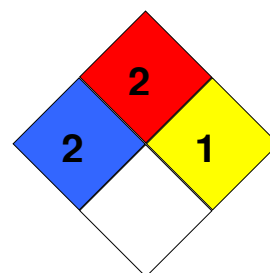
Revision Date 07/24/2020

Print Date 08/20/2023

US / Z8

## NFPA Classification

: Health Hazard: 2  
Fire Hazard: 2  
Reactivity Hazard: 1



## Notification status explanation

TCSI	Taiwan Chemical Substance Inventory (TCSI)
TSCA	United States TSCA Inventory
AICS	Australia Inventory of Chemical Substances (AICS)
DSL	Canadian Domestic Substances List (DSL)
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)
NZIoC	New Zealand. Inventory of Chemical Substances

## Further information

Revision Date 07/24/2020

The information in this safety data sheet should be provided to all who will use, handle, store, transport or otherwise be exposed to this product. The user must determine the appropriate measures that need to be implemented for the use and handling of this product in the context of the user's operations and use of this product. 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. No warranty is made as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. User must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes, including mixing with other products. Nothing contained herein shall be construed as granting or extending any license under any patent.

The information provided in this Material 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.