

# SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



## NOROX<sup>®</sup> SHP-40

Version	Revision Date:	SDS Number:	Date of last issue: 04/14/2022
2.0	07/08/2024	600000001005	Date of first issue: 04/14/2022

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### SECTION 1. IDENTIFICATION

Trade name : NOROX<sup>®</sup> SHP-40

#### Manufacturer or supplier's details

Company name of supplier : United Initiators, Inc.

Address : 555 Garden Street  
Elyria OH 44035 USA

Telephone : +1-440-323-3112

Telefax : +1-440-323-2659

Emergency telephone : CHEMTREC US (24h): +1-800-424-9300  
CHEMTREC WORLD (24h): +1-703-527-3887

E-mail address of person responsible for the SDS : cs-initiators.nafta@united-in.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Curing chemical  
polymerization initiators

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 4

Organic peroxides : Type C

Eye irritation : Category 2A

Skin sensitization : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity : Category 3 (Respiratory system)  
- single exposure

Short-term (acute) aquatic hazard : Category 2

#### GHS label elements

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Hazard pictograms	:	
Signal Word	:	Danger
Hazard Statements	:	H227 Combustible liquid. H242 Heating may cause a fire. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H361 Suspected of damaging fertility or the unborn child. H401 Toxic to aquatic life.
Precautionary Statements	:	<b>Prevention:</b> P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. P220 Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials. P234 Keep only in original container. P261 Avoid breathing mist or vapors. P264 Wash skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P272 Contaminated work clothing must not be allowed out of the workplace. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. <b>Response:</b> P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P337 + P313 If eye irritation persists: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. P370 + P378 In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

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### Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P410 Protect from sunlight.

P411 + P235 Store at temperatures not exceeding 25 °C/ 77 °F. Keep cool.

P420 Store away from other materials.

### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Organic Peroxide  
Liquid mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
2,4-Pentanedione, peroxide	37187-22-7	>= 20 - < 25
Diacetone alcohol	123-42-2	>= 20 - < 25
dimethyl phthalate	131-11-3	>= 20 - < 25
Polyethylene glycol	25322-68-3	>= 15 - < 20
tert-Butyl perbenzoate	614-45-9	>= 7.5 - < 10
Acetylacetone	123-54-6	>= 1 - < 5

Actual concentration is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

General advice : Take off contaminated clothing and shoes immediately.

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- Call a physician immediately.  
Never give anything by mouth to an unconscious person.  
If unconscious, place in recovery position and seek medical advice.  
Move out of dangerous area.  
Show this material safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.
- If inhaled : Administer oxygen if breathing is difficult or cyanosis is observed.  
If breathed in, move person into fresh air.  
If not breathing, give artificial respiration.  
If unconscious, place in recovery position and seek medical advice.  
Keep respiratory tract clear.  
If symptoms persist, call a physician.
- In case of skin contact : If symptoms persist, call a physician.  
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Wash contaminated clothing before re-use.  
If on skin, rinse well with water.  
If on clothes, remove clothes.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Remove contact lenses.  
Protect unharmed eye.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Call a physician immediately.  
Rinse mouth thoroughly with water.  
Keep respiratory tract clear.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause respiratory irritation.  
Suspected of damaging fertility or the unborn child.  
sensitizing effects
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
- Notes to physician : Treat symptomatically and supportively.

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## SECTION 5. FIRE-FIGHTING MEASURES

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- Suitable extinguishing media : Water spray jet  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Risk of explosion if heated under confinement.  
Possible emission of gaseous decomposition products may lead to a dangerous pressure build-up.  
Avoid confinement.  
Contact with incompatible materials or exposure to temperatures exceeding SADT may result in a self-accelerating decomposition reaction with release of flammable vapors which may auto-ignite.
- The product burns violently.  
Flash back possible over considerable distance.  
Do not allow run-off from fire fighting to enter drains or water courses.  
Vapors may form explosive mixtures with air.  
The product will float on water and can be reignited on surface water.  
Cool closed containers exposed to fire with water spray.
- Specific extinguishing methods : Do not use a solid water stream as it may scatter and spread fire.  
Remove undamaged containers from fire area if it is safe to do so.  
Use water spray to cool unopened containers.
- Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use a water spray to cool fully closed 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.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.  
Use personal protective equipment.

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Follow safe handling advice and personal protective equipment recommendations.  
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.  
Use personal protective equipment.

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Remove all sources of ignition.  
Never return spills in original containers for re-use.  
Treat recovered material as described in the section "Disposal considerations".

Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Contact with incompatible substances can cause decomposition at or below SADT.  
Clear spills immediately.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
To clean the floor and all objects contaminated by this material, use plenty of water.  
Soak up with inert absorbent material.  
Isolate waste and do not reuse.  
Non-sparking tools should be used.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.

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### SECTION 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).  
Keep away from heat and sources of ignition.  
Use only explosion-proof equipment.  
Keep away from open flames, hot surfaces and sources of ignition.  
Keep away from combustible material.  
Do not spray on a naked flame or any incandescent material.

Advice on safe handling : Open drum carefully as content may be under pressure.  
Protect from contamination.  
Do not swallow.  
Do not breathe vapors/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
Avoid formation of aerosol.  
Take precautionary measures against static discharges.  
Never return any product to the container from which it was originally removed.  
Provide sufficient air exchange and/or exhaust in work rooms.

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Avoid confinement.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.  
For personal protection see section 8.  
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

- Conditions for safe storage : Store in original container.  
Keep containers tightly closed in a cool, well-ventilated place.  
Store in cool place.  
Contamination may result in dangerous pressure increases - closed containers may rupture.  
Observe label precautions.  
Store in accordance with the particular national regulations.  
Avoid impurities (e.g. rust, dust, ash), risk of decomposition.  
Electrical installations / working materials must comply with the technological safety standards.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Materials to avoid : Keep away from combustible materials.  
Keep away from strong acids, bases, heavy metal salts and other reducing substances.
- Recommended storage temperature : 0 - 25 °C  
32 - 77 °F
- Further information on storage stability : Stable under recommended storage conditions.

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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Diacetone alcohol	123-42-2	TWA	50 ppm	ACGIH
		TWA	50 ppm 240 mg/m <sup>3</sup>	NIOSH REL

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		TWA	50 ppm 240 mg/m3	OSHA Z-1
		TWA	50 ppm 240 mg/m3	OSHA P0
dimethyl phthalate	131-11-3	TWA	5 mg/m3	ACGIH
		TWA	5 mg/m3	NIOSH REL
		TWA	5 mg/m3	OSHA Z-1
		TWA	5 mg/m3	OSHA P0
Polyethylene glycol	25322-68-3	TWA (aero- sol)	10 mg/m3	US WEEL
Acetylacetone	123-54-6	TWA	25 ppm	ACGIH

**Engineering measures** : Minimize workplace exposure concentrations.

### Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : ABEK-filter

Use NIOSH approved respiratory protection.

### Hand protection

Material : butyl-rubber  
Break through time : 480 min  
Glove thickness : 0.5 mm

Material : Nitrile rubber  
Break through time : < 30 min  
Glove thickness : 0.4 mm

Remarks : The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove. Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.  
For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection : Ensure that eyewash stations and safety showers are close to the workstation location.  
Please follow all applicable local/national requirements when selecting protective measures for a specific workplace.  
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.  
Tightly fitting safety goggles  
Please wear suitable protective goggles. Also wear face



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- protection if there is a splash hazard.
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
- Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.  
Wear as appropriate:  
Flame retardant antistatic protective clothing.
- Protective measures : The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- Hygiene measures : Avoid contact with skin, eyes and clothing.  
Keep away from food and drink.  
When using do not eat or drink.  
When using do not smoke.  
Wash hands before breaks and immediately after handling the product.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Color : light yellow
- Odor : mild
- pH : Not applicable
- Melting point/range : No data available
- Boiling point/boiling range : No data available
- Flash point : > 65 °C  
Method: closed cup
- Flammability (solid, gas) : Not applicable

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Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Density	:	ca. 1.15 g/cm <sup>3</sup>
Solubility(ies) Water solubility	:	slightly soluble
Partition coefficient: n-octanol/water	:	No data available
Self-Accelerating decomposition temperature (SADT)	:	> 60 °C Method: UN-Test H.4 SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.
Viscosity Viscosity, dynamic	:	ca. 30 mPa.s
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Organic peroxide

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### SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable under recommended storage conditions. Heating may cause a fire or explosion.
Chemical stability	:	Stable under recommended storage conditions. No decomposition if stored normally.
Possibility of hazardous reactions	:	Vapors may form explosive mixture with air.
Conditions to avoid	:	Protect from contamination.

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Contact with incompatible substances can cause decomposition at or below SADT.  
Heat, flames and sparks.  
Avoid confinement.

Incompatible materials	:	Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents
Hazardous decomposition products	:	Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

Not classified due to lack of data.

#### Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 20 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

#### Components:

##### **2,4-Pentanedione, peroxide:**

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat, male): > 13.1 mg/l Exposure time: 1 h Test atmosphere: dust/mist Method: Expert judgment Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg Method: Expert judgment Assessment: The substance or mixture has no acute dermal toxicity

##### **Diacetone alcohol:**

Acute oral toxicity	:	LD50 (Rat): 3,002 mg/kg Method: OECD Test Guideline 401
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Acute inhalation toxicity : LC0 (Rat, male and female):  $\geq 7.6$  mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD0 (Rat):  $> 1,875$  mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: No mortality observed at this dose.

### dimethyl phthalate:

Acute oral toxicity : LD50 (Rat):  $> 5,000$  mg/kg

Acute inhalation toxicity : (Rat):  $> 10.4$  mg/l  
Exposure time: 6 h  
Test atmosphere: vapor  
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rabbit):  $> 12,000$  mg/kg

### Polyethylene glycol:

Acute oral toxicity : LD50 (Rat):  $> 10,000$  mg/kg

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

### tert-Butyl perbenzoate:

Acute oral toxicity : LD0 (Rat):  $> 2,000$  mg/kg  
Method: OECD Test Guideline 423  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): 1.01 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 436

Acute dermal toxicity : LD0 (Rat):  $> 2,000$  mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity

### Acetylacetone:

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Acute oral toxicity : LD50 (Rat): 570 mg/kg

Acute inhalation toxicity : LC50 (Rat): 5.1 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, female): 790 mg/kg

### Skin corrosion/irritation

Based on available data, the classification criteria are not met.

#### Product:

Remarks : May cause skin irritation and/or dermatitis.

#### Components:

##### **2,4-Pentanedione, peroxide:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

##### **Diacetone alcohol:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

##### **dimethyl phthalate:**

Species : Rabbit  
Method : Draize Test  
Result : No skin irritation

##### **Polyethylene glycol:**

Result : No skin irritation

##### **tert-Butyl perbenzoate:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation

##### **Acetylacetone:**

Species : Rabbit  
Result : No skin irritation

### Serious eye damage/eye irritation

Causes serious eye irritation.

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### **Product:**

Remarks : May cause irreversible eye damage.

### **Components:**

#### **2,4-Pentanedione, peroxide:**

Species : Rabbit  
Result : Eye irritation  
Method : OECD Test Guideline 405

#### **Diacetone alcohol:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days  
Method : OECD Test Guideline 405

#### **dimethyl phthalate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

#### **Polyethylene glycol:**

Result : No eye irritation

#### **tert-Butyl perbenzoate:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

#### **Acetylacetone:**

Species : Rabbit  
Result : No eye irritation

### **Respiratory or skin sensitization**

#### **Skin sensitization**

May cause an allergic skin reaction.

#### **Respiratory sensitization**

Not classified due to lack of data.

### **Product:**

Remarks : Causes sensitization.

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### Components:

#### **2,4-Pentanedione, peroxide:**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Probability or evidence of skin sensitization in humans

Remarks : Causes sensitization.

#### **Diacetone alcohol:**

Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Does not cause skin sensitization.

#### **dimethyl phthalate:**

Species : Mouse  
Method : OECD Test Guideline 429  
Result : Does not cause skin sensitization.

#### **Polyethylene glycol:**

Result : Does not cause skin sensitization.

#### **tert-Butyl perbenzoate:**

Species : Mouse  
Method : OECD Test Guideline 429  
Result : May cause sensitization by skin contact.

#### **Acetylacetone:**

Routes of exposure : Skin contact  
Species : Mouse  
Method : OECD Test Guideline 429  
Result : Does not cause skin sensitization.

#### **Germ cell mutagenicity**

Not classified due to lack of data.

### Components:

#### **2,4-Pentanedione, peroxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: positive

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476

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- Genotoxicity in vivo : Result: negative
- Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Mouse (male and female)  
Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative
- Diacetone alcohol:**
- Genotoxicity in vitro : Method: OECD Test Guideline 476  
Result: negative
- Method: OECD Test Guideline 471  
Result: negative
- Method: OECD Test Guideline 473  
Result: negative
- Genotoxicity in vivo : Remarks: Not classified due to data which are conclusive although insufficient for classification.
- Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- dimethyl phthalate:**
- Genotoxicity in vitro : Method: OECD Test Guideline 471  
Result: negative
- Method: OECD Test Guideline 473  
Result: negative
- Method: OECD Test Guideline 476  
Result: positive
- Genotoxicity in vivo : Test Type: Chromosomal aberration  
Species: Rat  
Application Route: Intraperitoneal  
Result: negative
- Test Type: Micronucleus test  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative
- Polyethylene glycol:**
- Genotoxicity in vitro : Test Type: Ames test  
Result: negative
- tert-Butyl perbenzoate:**



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Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: positive

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: positive

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: positive

Test Type: Mouse Lymphoma  
Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test  
Species: Mouse (male and female)  
Application Route: Oral  
Result: negative

### Acetylacetone:

Genotoxicity in vitro : Method: OECD Test Guideline 471  
Result: negative

Method: OECD Test Guideline 479  
Result: positive

Method: OECD Test Guideline 473  
Result: positive

Method: OECD Test Guideline 476  
Result: negative

Genotoxicity in vivo : Method: OECD Test Guideline 474  
Result: positive

Method: OECD Test Guideline 483  
Result: negative

Method: OECD Test Guideline 475  
Result: negative

Method: OECD Test Guideline 478  
Result: Equivocal

Test Type: DNA Repair  
Species: Rat  
Application Route: Oral  
Result: negative

Species: Rat

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Application Route: inhalation (vapor)  
Method: OPPTS 870.5395  
Result: negative

### **Carcinogenicity**

Not classified due to lack of data.

### **Components:**

#### **2,4-Pentanedione, peroxide:**

Remarks : This information is not available.

#### **Diacetone alcohol:**

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

#### **dimethyl phthalate:**

Species : Rat  
Application Route : Skin contact  
Method : OECD Test Guideline 451  
Result : negative  
Remarks : Based on data from similar materials

#### **tert-Butyl perbenzoate:**

Remarks : This information is not available.

**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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### **Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

### **Components:**

#### **2,4-Pentanedione, peroxide:**

Effects on fertility : Remarks: No data available

Effects on fetal development : Remarks: No data available

#### **Diacetone alcohol:**

Effects on fertility : Species: Rat  
Application Route: oral (gavage)

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General Toxicity Parent: NOAEL: 300 mg/kg body weight  
General Toxicity F1: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 422

Effects on fetal development : Species: Rat  
Application Route: inhalation (vapor)  
General Toxicity Maternal: NOAEL: 4.106  
Embryo-fetal toxicity.: NOAEL: 12,292  
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### **dimethyl phthalate:**

Effects on fertility : Species: Rat  
Application Route: oral (gavage)  
Method: OECD Test Guideline 440  
Result: negative

Effects on fetal development : Species: Rat  
Application Route: Ingestion  
General Toxicity Maternal: NOAEL: 840 mg/kg body weight  
Developmental Toxicity: NOAEL: 3,570 mg/kg body weight  
Method: OECD Test Guideline 414

### **Polyethylene glycol:**

#### **tert-Butyl perbenzoate:**

Effects on fertility : Species: Rat  
Application Route: Oral  
General Toxicity Parent: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 421

Effects on fetal development : Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 300 mg/kg body weight  
Method: OECD Test Guideline 414

### **Acetylacetone:**

Effects on fetal development : Species: Rat  
Application Route: inhalation (vapor)  
Duration of Single Treatment: 13 d  
General Toxicity Maternal: NOAEC: 200  
Teratogenicity: NOAEC Parent: 400  
Embryo-fetal toxicity.: NOAEC F1: 50  
Method: OECD Test Guideline 414

Species: Rat  
Application Route: inhalation (vapor)  
Duration of Single Treatment: 13 d

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General Toxicity Maternal: LOAEC: 400  
Embryo-fetal toxicity.: LOAEC F1: 200  
Method: OECD Test Guideline 414

### STOT-single exposure

May cause respiratory irritation.

#### Components:

##### **Diacetone alcohol:**

Target Organs : Respiratory system  
Assessment : May cause respiratory irritation.

### STOT-repeated exposure

Not classified due to lack of data.

### Repeated dose toxicity

#### Components:

##### **Diacetone alcohol:**

Species : Rat  
NOAEL : 1.04 mg/l  
LOAEL : 4.685 mg/l  
Application Route : inhalation (vapor)  
Exposure time : 6 w  
Method : OECD Test Guideline 412

Species : Rat  
NOAEL : 100 mg/kg  
Application Route : oral (gavage)  
Method : OECD Test Guideline 422

##### **dimethyl phthalate:**

Species : Rat  
NOAEL : 770 mg/kg  
Application Route : Oral  
Exposure time : 16 w  
Method : OECD Test Guideline 408

##### **Polyethylene glycol:**

Species : Dog  
NOAEL : 500 mg/kg  
Application Route : Oral

##### **Acetylacetone:**

Species : Rat  
NOAEL : 200 mg/kg  
LOAEL : 805 mg/kg

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Application Route	:	inhalation (vapor)
Exposure time	:	9 d
Species	:	Rat
NOAEL	:	100 mg/kg
Application Route	:	inhalation (vapor)
Exposure time	:	90 d
Method	:	OECD Test Guideline 413
Species	:	Rabbit
NOAEL	:	244 mg/kg
LOAEL	:	975 mg/kg
Application Route	:	Dermal
Exposure time	:	9 d

### Aspiration toxicity

Not classified due to lack of data.

#### Components:

##### **dimethyl phthalate:**

No aspiration toxicity classification

##### **Acetylacetone:**

No aspiration toxicity classification

### Further information

#### Product:

Remarks : No data available

#### Components:

##### **dimethyl phthalate:**

Remarks : No data available

##### **Acetylacetone:**

Remarks : Solvents may degrease the skin.

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **2,4-Pentanedione, peroxide:**

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Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 67.6 mg/l  
Exposure time: 96 h  
Test Type: semi-static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7.05 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 5.36 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: 614 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### **Diacetone alcohol:**

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 1,000 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

### **dimethyl phthalate:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 39 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 52 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 260 mg/l  
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 11 mg/l  
Exposure time: 102 d  
Method: OECD Test Guideline 210

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- LOEC (Oncorhynchus mykiss (rainbow trout)): 24 mg/l  
Exposure time: 102 d  
Method: OECD Test Guideline 210
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 9.6 mg/l  
Exposure time: 21 d
- LOEC (Daphnia magna (Water flea)): 23 mg/l  
Exposure time: 21 d
- Toxicity to microorganisms : EC50: 4,100 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209
- Polyethylene glycol:**
- Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,000 mg/l  
Exposure time: 48 h  
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l  
Exposure time: 72 h  
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
- Toxicity to microorganisms : IC50: 1,651,512 mg/l  
Exposure time: 46 h  
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
- tert-Butyl perbenzoate:**
- Toxicity to fish : LC50 (Danio rerio (zebra fish)): 1.6 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 11 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic : EC50 (Pseudokirchneriella subcapitata (green algae)): 0.8

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plants : mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.72 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): 0.49 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: 43 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209

### Acetylacetone:

Toxicity to fish : LC50 (Fish): 104 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 25.9 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 83.22 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 3.2 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 10 mg/l  
Exposure time: 34 d  
Method: OECD Test Guideline 210

LOEC (Pimephales promelas (fathead minnow)): 22 mg/l  
Exposure time: 34 d  
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 18 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: 107.6 mg/l



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Exposure time: 3 h  
Method: OECD Test Guideline 209

EC10: 13.2 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### Persistence and degradability

#### Components:

##### **2,4-Pentanedione, peroxide:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301D

##### **Diacetone alcohol:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301

##### **dimethyl phthalate:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301E

##### **Polyethylene glycol:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301F

##### **tert-Butyl perbenzoate:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301D

##### **Acetylacetone:**

Biodegradability : Result: Readily biodegradable.  
Method: OECD Test Guideline 301C

### Bioaccumulative potential

#### Components:

##### **2,4-Pentanedione, peroxide:**

Partition coefficient: n-  
octanol/water : log Pow: 1.1 (25 °C / 25 °C)  
Method: OECD Test Guideline 117

##### **Diacetone alcohol:**

Partition coefficient: n-  
octanol/water : log Pow: -0.09 (20 °C / 20 °C)

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### dimethyl phthalate:

Bioaccumulation : Bioconcentration factor (BCF): 57  
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 1.54

### Polyethylene glycol:

Bioaccumulation : Bioconcentration factor (BCF): 3.2

Partition coefficient: n-octanol/water : log Pow: -2.3 (25 °C / 25 °C)

### tert-Butyl perbenzoate:

Partition coefficient: n-octanol/water : log Pow: 2.89 (25 °C / 25 °C)

### Acetylacetone:

Bioaccumulation : Bioconcentration factor (BCF): 3.16  
Remarks: Calculation

Partition coefficient: n-octanol/water : log Pow: 0.68 (40 °C / 40 °C)

### Mobility in soil

No data available

### Other adverse effects

#### Product:

Ozone-Depletion Potential : 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).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life.

#### Components:

##### dimethyl phthalate:

Additional ecological information : No data available

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### SECTION 13. DISPOSAL CONSIDERATIONS

#### Disposal methods

- Waste from residues : Dispose of wastes in an approved waste disposal facility. 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.
- Contaminated packaging : Dispose of in accordance with local regulations. Clean container with water. Dispose of contents/ container to an approved waste disposal plant. Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

---

### SECTION 14. TRANSPORT INFORMATION

#### International Regulations

##### UNRTDG

- UN number : UN 3103
- Proper shipping name : ORGANIC PEROXIDE TYPE C, LIQUID (ACETYL ACETONE PEROXIDE, tert-BUTYL PEROXYBENZOATE)
- Class : 5.2
- Packing group : Not assigned by regulation
- Labels : 5.2
- Environmentally hazardous : no

##### IATA-DGR

- UN/ID No. : UN 3103
- Proper shipping name : Organic peroxide type C, liquid (Acetyl acetone peroxide, tert-Butyl peroxybenzoate)
- Class : 5.2
- Packing group : Not assigned by regulation
- Labels : Organic Peroxides, Keep Away From Heat
- Packing instruction (cargo aircraft) : 570
- Packing instruction (passenger aircraft) : 570

##### IMDG-Code

- UN number : UN 3103
- Proper shipping name : ORGANIC PEROXIDE TYPE C, LIQUID (ACETYL ACETONE PEROXIDE, tert-BUTYL PEROXYBENZOATE)
- Class : 5.2

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Packing group : Not assigned by regulation  
Labels : 5.2  
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 3103  
Proper shipping name : Organic peroxide type C, liquid  
(tert-Butyl peroxybenzoate <=10%, Acetyl acetone peroxide <=30%)  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : ORGANIC PEROXIDE  
ERG Code : 146  
Marine pollutant : no

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 304 Extremely Hazardous Substances Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

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

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Organic peroxides  
Respiratory or skin sensitization  
Reproductive toxicity  
Serious eye damage or eye irritation  
Specific target organ toxicity (single or repeated exposure)

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

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dimethyl  
phthalate 131-11-3

### Clean Air Act

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).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

dimethyl phthalate 131-11-3

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

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Diacetone alcohol 123-42-2  
Polyethylene glycol 25322-68-3

### 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 contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

dimethyl phthalate 131-11-3

This product contains the following priority pollutants related to the U.S. Clean Water Act:

dimethyl phthalate 131-11-3

### 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.

### International Regulations

Gefahrgruppe nach TRGS 741: II (German regulatory requirements)

### The ingredients of this product are reported in the following inventories:

- |            |   |
|------------|---|
| TCSI (TW)  | : On the inventory, or in compliance with the inventory                                 |
| TSCA (US)  | : All substances listed as active on the TSCA inventory                                 |
| AIIC (AU)  | : All components are listed on the inventory, regulatory obligations/restrictions apply |
| DSL (CA)   | : All components of this product are on the Canadian DSL                                |
| ENCS (JP)  | : On the inventory, or in compliance with the inventory                                 |
| ISHL (JP)  | : On the inventory, or in compliance with the inventory                                 |
| KECI (KR)  | : On the inventory, or in compliance with the inventory                                 |
| PICCS (PH) | : On the inventory, or in compliance with the inventory                                 |

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IECSC (CN) : On the inventory, or in compliance with the inventory

### TSCA list

No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:  
Acetylacetone 123-54-6

## SECTION 16. OTHER INFORMATION

### Further information

This material safety datasheet only contains information relating to safety and does not replace any product information or product specification.  
These safety instructions also apply to empty packaging which may still contain product residues.  
The hazards on the label also apply to residues in the container.

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
NIOSH REL : USA. NIOSH Recommended Exposure Limits  
OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)  
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants  
US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)  
ACGIH / TWA : 8-hour, time-weighted average  
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek  
OSHA P0 / TWA : 8-hour time weighted average  
OSHA Z-1 / TWA : 8-hour time weighted average  
US WEEL / TWA : 8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule;

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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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECl - Thailand Existing Chemicals Inventory; 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

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.

US / Z8