

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CUROX<sup>®</sup>M-402

Other means of identification : None

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

Recommended use : Hardener

#### Manufacturer or supplier's details

Company : United Initiators GmbH

Address : Dr.-Gustav-Adolph-Str. 3  
82049 Pullach

Emergency telephone number : +49 / 89 / 74422 – 0 (24 h)

E-mail address : contact@united-in.com

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### 2. HAZARDS IDENTIFICATION

#### GHS Classification

Flammable liquids : Category 4

Organic peroxides : Type D

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 1B

Serious eye damage/eye irritation : Category 1

Reproductive toxicity : Category 2

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

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 3

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
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---

### GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: H227 Combustible liquid.  
H242 Heating may cause a fire.  
H302 + H332 Harmful if swallowed or if inhaled.  
H314 Causes severe skin burns and eye damage.  
H335 May cause respiratory irritation.  
H361 Suspected of damaging fertility or the unborn child.  
H401 Toxic to aquatic life.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

: **Prevention:**  
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/ combustible materials.  
P234 Keep only in original container.  
P261 Avoid breathing mist or vapours.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P308 + P313 IF exposed or concerned: 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.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

### 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 < 30 °C/ < 86 °F. Keep cool.

P420 Store away from other materials.

### Disposal:

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

### Other hazards which do not result in classification

None known.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Organic Peroxide  
Liquid mixture

### Components

Hazardous ingredients	CAS-No.	Concentration (% w/w)
Diacetone alcohol	123-42-2	>= 35 -< 40
2-Butanone, peroxide	1338-23-4	>= 25 -< 30
Trimethylpentanediol isobutyrate	6846-50-0	>= 20 -< 25
hydrogen peroxide	7722-84-1	>= 3 -< 5
Butanone	78-93-3	>= 1 -< 5

## 4. FIRST AID MEASURES

General advice : Take off contaminated clothing and shoes immediately.  
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 safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.  
Symptoms of poisoning may appear several hours later.

### First aid measures for different exposure routes

If inhaled : Administer oxygen if breathing is difficult or cyanosis is observed.  
Call a physician immediately.  
If breathed in, move person into fresh air.  
If not breathing, give artificial respiration.  
Respiratory tract burning possible if aerosols are inhaled.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

- Call a physician or poison control centre immediately.  
If unconscious, place in recovery position and seek medical advice.  
Keep respiratory tract clear.
- In case of skin contact : If symptoms persist, call a physician.  
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.  
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 : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Continue rinsing eyes during transport to hospital.  
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.  
Do NOT induce vomiting.  
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.  
Causes serious eye damage.  
May cause respiratory irritation.  
Suspected of damaging fertility or the unborn child.  
Causes severe burns.
- 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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### 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray jet  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing : High volume water jet

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## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

media

- 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.  
Vapours 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 : 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.
- 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.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.  
Use personal protective equipment.

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Follow safe handling advice and personal protective equipment recommendations.  
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.  
Use personal protective equipment.  
Remove all sources of ignition.  
Never return spills in original containers for re-use.  
Treat recovered material as described in the section "Disposal considerations".

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

- 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/vapours/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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## 7. HANDLING AND STORAGE

### Handling

- 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 vapours).  
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 vapours/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.  
Avoid confinement.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

Smoking, eating and drinking should be prohibited in the application area.  
Wash thoroughly after handling.  
For personal protection see section 8.

### Storage

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 : < 30 °C

Further information on storage stability : Stable under recommended storage conditions.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components 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 238 mg/m <sup>3</sup>	TW OEL
		STEL	75 ppm 297.5 mg/m <sup>3</sup>	TW OEL
		TWA	50 ppm	ACGIH
2-Butanone, peroxide	1338-23-4	CEIL	0.2 ppm 1.5 mg/m <sup>3</sup>	TW OEL
		C	0.2 ppm	ACGIH
hydrogen peroxide	7722-84-1	STEL	2 ppm 2.8 mg/m <sup>3</sup>	TW OEL
		TWA	1 ppm 1.4 mg/m <sup>3</sup>	TW OEL
		TWA	1 ppm	ACGIH
Butanone	78-93-3	TWA	200 ppm 590 mg/m <sup>3</sup>	TW OEL

# SAFETY DATA SHEET

## CUROX®M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

		STEL	250 ppm 737.5 mg/m <sup>3</sup>	TW OEL
		TWA	75 ppm	ACGIH
		STEL	150 ppm	ACGIH

### Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Butanone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI

**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

ABEK-filter

### Hand protection

Material : Nitrile rubber

Break through time : < 30 min

Glove thickness : 0.40 mm

Material : butyl-rubber

Break through time : 480 min

Glove thickness : 0.47 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.



# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

- 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 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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### 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance** : liquid
- Colour** : colourless
- Odour** : characteristic
- Odour Threshold** : not determined
- pH** : No data available substance/mixture is non-soluble (in water)
- Melting point/ range** : < -25 °C
- Boiling point/boiling range** : Decomposition: Decomposes below the boiling point.
- Flash point** : 72 °C  
Method: ISO 3679, closed cup
- Flammability (solid, gas)** : Not applicable

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Flammability (liquids)	:	Flammable liquid, Organic peroxide
Self-ignition	:	The substance or mixture is not classified as pyrophoric.
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 6.9 %(V) (for a component of this mixture)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1.8 %(V) (for a component of this mixture)
Vapour pressure	:	1.29 hPa (20 °C) (for a component of this mixture)
Relative vapour density	:	not determined
Relative density	:	not determined
Density	:	1.04 g/cm <sup>3</sup> (20 °C)
Solubility(ies)		
Water solubility	:	practically insoluble
Solubility in other solvents	:	Solvent: Phthalates Description: completely miscible
Partition coefficient: n-octanol/water	:	Not applicable
Auto-ignition temperature	:	not determined
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. 22 mPa.s ( 20 °C)
Viscosity, kinematic	:	not determined
Explosive properties	:	Not explosive In use, may form flammable/explosive vapour-air mixture.
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Organic peroxide
Self-heating substances	:	Not applicable  The substance or mixture is not classified as self heating.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Refractive index : 1.434 (20 °C)

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### 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 : Vapours may form explosive mixture with air.

Conditions to avoid : Protect from contamination.  
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

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### 11. TOXICOLOGICAL INFORMATION

Symptoms of Overexposure : None known.

#### **Acute toxicity**

Harmful if swallowed or if inhaled.

#### **Product:**

Acute oral toxicity : Acute toxicity estimate: 1,230 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 4.44 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

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

#### **Components:**

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

Acute oral toxicity : LD50 (Rat): 3,002 mg/kg  
Method: OECD Test Guideline 401

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

Acute inhalation toxicity : LC0 (Rat, male and female):  $\geq 7.6$  mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
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.

### **2-Butanone, peroxide:**

Acute oral toxicity : Acute toxicity estimate: 500 mg/kg  
Method: Expert judgement

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Expert judgement  
Assessment: The component/mixture is moderately toxic after short term inhalation.  
Remarks: Based on data from similar materials

Acute dermal toxicity : Acute toxicity estimate: 2,500 mg/kg  
Method: Expert judgement

### **Trimethylpentanediol isobutyrate:**

Acute oral toxicity : LD50 (Rat):  $> 2,000$  mg/kg  
Method: Expert judgement  
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LCLo (Rat):  $> 0.12$  mg/l  
Exposure time: 6 h  
Test atmosphere: vapour  
Method: Expert judgement  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Guinea pig):  $> 2,000$  mg/kg  
Method: Expert judgement  
Assessment: The substance or mixture has no acute dermal toxicity

### **hydrogen peroxide:**

Acute oral toxicity : LD50 (Rat, male and female): 431 mg/kg

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

Method: Expert judgement  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The component/mixture is moderately toxic after short term inhalation.  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : LD50 (Rabbit): 9,200 mg/kg  
Remarks: No adverse effect has been observed in acute toxicity tests.

### **Butanone:**

Acute oral toxicity : LD50 (Rat): 2,193 mg/kg  
Method: OECD Test Guideline 423

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg  
Method: OECD Test Guideline 402  
Remarks: Based on available data, the classification criteria are not met.

### **Skin corrosion/irritation**

Causes severe burns.

### **Product:**

Remarks : Extremely corrosive and destructive to tissue.

### **Components:**

#### **Diacetone alcohol:**

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

#### **2-Butanone, peroxide:**

Species : Rabbit  
Result : Causes burns.

#### **Trimethylpentanediol isobutyrate:**

Species : Guinea pig  
Exposure time : 24 h  
Result : No skin irritation  
Remarks : Based on available data, the classification criteria are not met.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

### hydrogen peroxide:

Result : Corrosive after 3 minutes or less of exposure

### Butanone:

Species : Rabbit  
Assessment : Repeated exposure may cause skin dryness or cracking.  
Method : OECD Test Guideline 404  
Result : No skin irritation

### Serious eye damage/eye irritation

Causes serious eye damage.

### Product:

Remarks : May cause irreversible eye damage.

### Components:

#### Diacetone alcohol:

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

#### 2-Butanone, peroxide:

Result : Irreversible effects on the eye

#### Trimethylpentanediol isobutyrate:

Species : Rabbit  
Result : No eye irritation  
Exposure time : 24 h

### hydrogen peroxide:

Result : Irreversible effects on the eye  
Remarks : hydrogen peroxide, 35%

### Butanone:

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

### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified due to lack of data.

#### Respiratory sensitisation

Not classified due to lack of data.

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

### Components:

#### **Diacetone alcohol:**

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

#### **2-Butanone, peroxide:**

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

Assessment : Harmful if swallowed., Harmful if inhaled.

#### **Trimethylpentanediol isobutyrate:**

Species : Guinea pig  
Result : Does not cause skin sensitisation.

#### **Butanone:**

Exposure routes : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : Does not cause skin sensitisation.

### **Chronic toxicity**

#### **Germ cell mutagenicity**

Not classified due to lack of data.

### Components:

#### **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.

#### **2-Butanone, peroxide:**

Genotoxicity in vitro : Method: OECD Test Guideline 473  
Result: negative

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Method: OECD Test Guideline 471  
Result: negative

Method: OECD Test Guideline 476  
Result: negative

### **Trimethylpentanediol isobutyrate:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative

Test Type: Ames test  
Method: Regulation (EC) No. 440/2008, Annex, B.13/14  
(Ames test)  
Result: negative

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

### **hydrogen peroxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
positive  
Remarks: Information taken from reference works and the literature.

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: positive  
Remarks: Information taken from reference works and the literature.

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse (male and female)  
Method: OECD Test Guideline 474  
Result: negative  
Remarks: hydrogen peroxide, 35%

Germ cell mutagenicity - Assessment : Based on available data, the classification criteria are not met.

### **Butanone:**

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

Method: OECD Test Guideline 476  
Result: negative



# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Method: OECD Test Guideline 473

Result: negative

Genotoxicity in vivo : Species: Mouse  
Application Route: Intraperitoneal  
Method: OECD Test Guideline 474  
Result: negative

### **Carcinogenicity**

Not classified due to lack of data.

#### **Components:**

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

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

##### **2-Butanone, peroxide:**

Remarks : This information is not available.

##### **hydrogen peroxide:**

Carcinogenicity - Assessment : Carcinogenicity classification not possible from current data.

### **Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

#### **Components:**

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

Effects on fertility : Species: Rat  
Application Route: oral (gavage)  
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 foetal development : Species: Rat  
Application Route: inhalation (vapour)  
General Toxicity Maternal: NOAEL: 4.106  
Embryo-foetal 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.

##### **2-Butanone, peroxide:**

Effects on fertility : Species: Rat  
Application Route: oral (gavage)  
General Toxicity - Parent: NOAEL: 50 mg/kg body weight  
Method: OECD Test Guideline 421

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Result: negative

### **Trimethylpentanediol isobutyrate:**

Effects on foetal development : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative

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

### **hydrogen peroxide:**

Reproductive toxicity - Assessment : No data available

### **Butanone:**

Effects on fertility : Species: Rat  
Application Route: oral (drinking water)  
General Toxicity - Parent: NOAEL: 10,000 mg/l  
General Toxicity F1: NOAEL: 10,000 mg/l  
Method: OECD Test Guideline 416  
Remarks: Based on data from similar materials

Species: Rat  
Application Route: oral (drinking water)  
General Toxicity - Parent: LOAEL: 20,000 mg/l  
Method: OECD Test Guideline 416  
Remarks: Based on data from similar materials

Effects on foetal development : Species: Rat  
Application Route: Inhalation  
General Toxicity Maternal: NOAEC: ca. 1,002 mg/kg body weight  
Teratogenicity: NOAEC Parent: ca. 1,002 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: negative

### **STOT - single exposure**

May cause respiratory irritation.

### **Components:**

#### **Diacetone alcohol:**

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

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

### hydrogen peroxide:

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

### Butanone:

Assessment : May cause drowsiness or dizziness.

### STOT - repeated exposure

Not classified due to lack of data.

### Components:

#### hydrogen peroxide:

Remarks : No data available

### Repeated dose toxicity

#### Components:

##### Diacetone alcohol:

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

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

##### 2-Butanone, peroxide:

Species : Rat  
NOAEL : 200 mg/kg  
Application Route : oral (gavage)  
Exposure time : 28 d  
Method : OECD Test Guideline 407

Repeated dose toxicity - Assessment : Harmful if swallowed., Harmful if inhaled.

### hydrogen peroxide:

Species : Mouse, female  
NOAEL : 37 mg/kg  
Application Route : oral (drinking water)  
Exposure time : 90 d  
Remarks : hydrogen peroxide, 35%

Species : Mouse, males

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

NOAEL : 26 mg/kg  
Application Route : oral (drinking water)  
Exposure time : 90  
Remarks : hydrogen peroxide, 35%

### Aspiration toxicity

Not classified due to lack of data.

### Components:

#### Trimethylpentanediol isobutyrate:

Not classified due to data which are conclusive although insufficient for classification.

#### hydrogen peroxide:

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

### Further information

#### Product:

Remarks : No data available

#### Components:

#### Trimethylpentanediol isobutyrate:

Remarks : No data available

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## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### 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

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Method: OECD Test Guideline 201

### **2-Butanone, peroxide:**

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 44.2 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

NOEC (Poecilia reticulata (guppy)): 18 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 39 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 26.7 mg/l  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 5.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 2.1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (Bacteria): 48 mg/l  
Exposure time: 0.5 h  
Method: OECD Test Guideline 209

### **Trimethylpentanediol isobutyrate:**

Toxicity to fish : NOEC (Fish):  $\geq$  6 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia (water flea)):  $\geq$  1.46 mg/l  
Exposure time: 48 h

NOEC (Daphnia (water flea)): 0.7 mg/l  
Exposure time: 21 d

Toxicity to algae/aquatic plants : EC50 (Chlorella pyrenoidosa (algae)):  $>$  7.49 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : LOEC (Daphnia magna (Water flea)): 0.7 mg/l  
Exposure time: 21 d

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

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### Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

### hydrogen peroxide:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 16.4 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia pulex (Water flea)): 2.4 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 1.38 mg/l  
Exposure time: 72 h

NOEC (Skeletonema costatum (marine diatom)): 0.63 mg/l  
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.63 mg/l  
Exposure time: 21 d

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

### Butanone:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2,993 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 308 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 2,029 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 1,150 mg/l  
Exposure time: 16 h  
Method: DIN 38 412 Part 8

### Persistence and degradability

#### Components:

#### **Diacetone alcohol:**

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

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version 3.1      Revision Date: 2025/01/03      SDS Number: 600000000263      Date of last issue: 2022/07/27  
Date of first issue: 2016/10/21

---

### **2-Butanone, peroxide:**

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

### **Trimethylpentanediol isobutyrate:**

Biodegradability : Result: rapidly biodegradable  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

### **hydrogen peroxide:**

Biodegradability : Result: Readily biodegradable.

### **Butanone:**

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

### **Bioaccumulative potential**

#### **Components:**

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

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

##### **2-Butanone, peroxide:**

Partition coefficient: n-octanol/water : log Pow: < 0.3 (25 °C)

##### **Trimethylpentanediol isobutyrate:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 1.95

Partition coefficient: n-octanol/water : log Pow: 4.91 (25 °C)

##### **hydrogen peroxide:**

Partition coefficient: n-octanol/water : log Pow: -1.57 (20 °C)  
Remarks: Information refers to the main component.  
Calculation

##### **Butanone:**

Partition coefficient: n-octanol/water : log Pow: 0.3 (40 °C)

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

### Mobility in soil

No data available

### Other adverse effects

#### Product:

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

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## 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.

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## 14. TRANSPORT INFORMATION

### International Regulations

#### **UNRTDG**

UN number : UN 3105  
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S))  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : 5.2  
Environmentally hazardous : no

#### **IATA-DGR**

UN/ID No. : UN 3105  
Proper shipping name : Organic peroxide type D, liquid (Methyl ethyl ketone peroxide(s))  
Class : 5.2  
Packing group : Not assigned by regulation  
Labels : Organic Peroxides, Keep Away From Heat  
Packing instruction (cargo aircraft) : 570

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# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

Packing instruction (passenger aircraft) : 570

### IMDG-Code

UN number : UN 3105  
Proper shipping name : ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S))  
Class : 5.2  
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.

### 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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## 15. REGULATORY INFORMATION

### National regulatory information

Gefahrgruppe nach TRGS 741: II (German regulatory requirements)

Regulations on Occupational Safety and Health Facilities : applicable  
Standards for the Storage, Cleanup, Handling and Disposal of Industrial Waste : applicable  
Regulations on Labelling and Hazard Communication of Hazardous Chemicals : applicable  
Rules on Road Traffic Safety : applicable  
Standards of Permissible Exposure Limits in Workplace : applicable  
Rules on the Prevention of Poisoning from Organic Solvents. : Not applicable  
Standard for the Control of Designated Hazardous and Dangerous Chemicals : Not applicable  
Establishment Standards and Safety Control Regulations for Manufacturing, Storing, Processing Public Hazardous Substances and Flammable Pressurized Gases Places : Quantity subject to control  
Toxic and Concerned Chemical Substances Control Act  
Toxic chemical substances : Not applicable  
Concerned chemical substances : Not applicable  
Regulations for Governing Designating and Handling of Priority Management Chemicals : applicable

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

TCSI (TW) : On the inventory, or in compliance with the inventory

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

TSCA (US)	:	All substances listed as active on the TSCA inventory
AIIC (AU)	:	On the inventory, or in compliance with the inventory
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
IECSC (CN)	:	On the inventory, or in compliance with the inventory
TECI (TH)	:	On the inventory, or in compliance with the inventory

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### 16. OTHER INFORMATION

#### Further information

Sources of key data used to compile the Safety Data Sheet	:	Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>
Revision Date	:	2025/01/03
Other information	:	This 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.
Date format	:	yyyy/mm/dd

#### Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
TW OEL	:	Standards of Permissible Exposure Limits in Workplace
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
ACGIH / C	:	Ceiling limit
TW OEL / TWA	:	8-hour time weighted average
TW OEL / STEL	:	time weighted average for short term exposure

# SAFETY DATA SHEET

## CUROX<sup>®</sup>M-402



Version	Revision Date:	SDS Number:	Date of last issue: 2022/07/27
3.1	2025/01/03	600000000263	Date of first issue: 2016/10/21

---

TW OEL / CEIL : Ceiling Permissible Density

AIIIC - Australian Inventory of Industrial Chemicals; 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; 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; WHMIS - Workplace Hazardous Materials Information System

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TW / EN