according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

# SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : CUROX®M-303R

Unique Formula Identifier : N

(UFI)

: MEP8-E0PW-Y00A-KKAN

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

Use of the Sub- : Curing chemical

stance/Mixture

1.3 Details of the supplier of the safety data sheet

Company : United Initiators GmbH

Dr.-Gustav-Adolph-Str. 3

82049 Pullach

Telephone : +49 / 89 / 74422 - 0

E-mail address of person responsible for the SDS

: contact@united-in.com

#### 1.4 Emergency telephone number

+44 1235 239670

### **SECTION 2: Hazards identification**

#### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Organic peroxides, Type D H242: Heating may cause a fire.

Acute toxicity, Category 4 H302: Harmful if swallowed.

Acute toxicity, Category 4 H332: Harmful if inhaled.

Skin corrosion, Sub-category 1B H314: Causes severe skin burns and eye damage.

Serious eye damage, Category 1 H318: Causes serious eye damage.

# 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

Revision Date: SDS Number: Date of last issue: 10.10.2023 Version 11.06.2024 60000000326 Date of first issue: 02.05.2016 2.1

Hazard pictograms







Signal word Danger

Hazard statements H242 Heating may cause a fire.

> H302 + H332 Harmful if swallowed or if inhaled. H314 Causes severe skin burns and eye damage.

Prevention: Precautionary statements

> Keep away from heat, hot surfaces, sparks, open P210

flames and other ignition sources. No smoking.

Keep only in original packaging.

Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection/ hearing protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immedi-

ately all contaminated clothing. Rinse skin with water.

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 pre-

sent and easy to do. Continue rinsing. Immediately call a

POISON CENTER/ doctor.

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

Hazardous components which must be listed on the label:

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-

2,2-diyl dihydroperoxide (CAS-No. 1338-23-4)

hydrogen peroxide (CAS-No. 7722-84-1)

#### 2.3 Other hazards

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

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

# **SECTION 3: Composition/information on ingredients**

### 3.2 Mixtures

Chemical nature : Organic Peroxide Liquid mixture

Components

Chemical name	CAS-No.	Classification	Concentration
	EC-No.		(% w/w)
	Index-No.		(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Registration number		
2-Butanone peroxide; Reaction	1338-23-4	Org. Perox. D; H242	>= 30 - < 35
mass of butane-2,2-diyl dihydrop-	700-954-4	Acute Tox. 4; H302	
eroxide and dioxydibutane-2,2-diyl	01-2119514691-43-	Acute Tox. 4; H332	
dihydroperoxide	0000	Skin Corr. 1B; H314	
		Eye Dam. 1; H318	
		Acute toxicity esti-	
		mate	
		Acute oral toxicity:	
		500 mg/kg	
		Acute inhalation tox-	
		icity (dust/mist): 1.5	
		mg/l	
		Acute dermal toxicity:	
		2,500 mg/kg	
hydrogen peroxide	7722-84-1	Ox. Liq. 1; H271	>= 1 - < 2.5
	231-765-0	Acute Tox. 4; H302	
	008-003-00-9	Acute Tox. 4; H332	
	01-2119485845-22	Skin Corr. 1A; H314	
		Eye Dam. 1; H318 STOT SE 3; H335	
		1	
		(Respiratory system)	
		Aquatic Chronic 3; H412	
		11412	
		specific concentration	
		limit	
		Ox. Liq. 1; H271	
		>= 70 %	
		Ox. Liq. 2; H272	
		50 - < 70 %	
		Skin Corr. 1A; H314	
		>= 70 %	
		Skin Corr. 1B; H314	
		50 - < 70 %	
		Skin Irrit. 2; H315	
		35 - < 50 %	
		Eye Dam. 1; H318	

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

		8 - < 50 % Eye Irrit. 2; H319 5 - < 8 % STOT SE 3; H335 >= 35 % Aquatic Chronic 3; H412 >= 63 %  Acute toxicity estimate  Acute inhalation toxicity (dust/mist): 1.5	
2-methylpentane-2,4-diol	107-41-5 203-489-0 603-053-00-3 01-2119539582-35	mg/l Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repr. 2; H361d	>= 0.1 - < 1

For explanation of abbreviations see section 16.

# **SECTION 4: First aid measures**

#### 4.1 Description of 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.

Protection of first-aiders : First Aid responders should pay attention to self-protection

and use the recommended protective clothing

If inhaled : Administer oxygen if breathing is difficult or cyanosis is ob-

served.

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. Call a physician or poison control centre immediately. If unconscious, place in recovery position and seek medical

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

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 difficul-

ty.

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 tis-

sue 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.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Harmful if swallowed or if inhaled.

Causes serious eye damage.

Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

# **SECTION 5: Firefighting measures**

## 5.1 Extinguishing media

Suitable extinguishing media : Water spray jet

Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

High volume water jet

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

#### 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting 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.

#### 5.3 Advice for firefighters

Special protective equipment

for firefighters

Wear self-contained breathing apparatus for firefighting if nec-

essary. Use personal protective equipment.

Specific extinguishing meth-

ods

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 cir-

cumstances 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.

## SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Follow safe handling advice and personal protective equip-

ment recommendations.

Beware of vapours accumulating to form explosive concentra-

tions. 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

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

considerations".

#### 6.2 Environmental precautions

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.

#### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contact with incompatible substances can cause decomposi-

tion 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 materi-

al, 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 deter-

mine which regulations are applicable.

#### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

#### **SECTION 7: Handling and storage**

#### 7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

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 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.

Smoking, eating and drinking should be prohibited in the ap-

plication area.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Wash thoroughly after handling. For personal protection see section 8.

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.

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.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Store in cool place. Keep in a well-ventilated 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.

Advice on common storage

Keep away from combustible materials.

Keep away from strong acids, bases, heavy metal salts and

other reducing substances.

Recommended storage tem-

perature

< 30 °C

Further information on stor-

age stability

: Stable under recommended storage conditions.

7.3 Specific end use(s)

Specific use(s) : For further information, refer to the product technical data

sheet.

#### **SECTION 8: Exposure controls/personal protection**

# 8.1 Control parameters

# **Occupational Exposure Limits**

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
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according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

dimethyl phthalate	131-11-3	OELV - 8 hrs (TWA)	5 mg/m3	IE OEL
		OELV - 15 min (STEL)	10 mg/m3	IE OEL
2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide	1338-23-4	OELV - 15 min (STEL)	0.2 ppm 1.5 mg/m3	IE OEL
hydrogen peroxide	7722-84-1	OELV - 8 hrs (TWA)	1 ppm 1.5 mg/m3	IE OEL
		OELV - 15 min (STEL)	2 ppm 3 mg/m3	IE OEL
2-methylpentane- 2,4-diol	107-41-5	OELV - 15 min (STEL)	25 ppm 125 mg/m3	IE OEL

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

Substance name	End Use	Exposure routes	Potential health effects	Value
dimethyl phthalate	Workers	Inhalation	Long-term systemic effects	66.1 mg/m3
	Workers	Skin contact	Long-term systemic effects	135 mg/kg bw/day
2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihy- droperoxide and diox- ydibutane-2,2-diyl dihydroperoxide	Workers	Inhalation	Long-term systemic effects	2.35 mg/m3
	Workers	Skin contact	Long-term systemic effects	1.33 mg/kg bw/day
	Workers	Inhalation	Acute systemic effects	7.05 mg/m3
hydrogen peroxide	Workers	Inhalation	Acute local effects	3 mg/m3
	Workers	Inhalation	Long-term local ef- fects	1.4 mg/m3
2-methylpentane-2,4- diol	Workers	Inhalation	Long-term systemic effects	44.43 mg/m3
	Workers	Inhalation	Long-term local ef- fects	49 mg/m3
	Workers	Inhalation	Acute local effects	98 mg/m3
	Workers	Skin contact	Long-term systemic effects	63 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
dimethyl phthalate	Fresh water	0.192 mg/l
	Marine water	0.0192 mg/l

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

	Sewage treatment plant	4 mg/l
	Fresh water sediment	1.3 mg/kg dry
		weight (d.w.)
	Soil	3.16 mg/kg dry
		weight (d.w.)
	Marine sediment	0.13 mg/kg dry
		weight (d.w.)
2-Butanone peroxide; Reaction	Fresh water	0.0056 mg/l
mass of butane-2,2-diyl dihy-		
droperoxide and dioxydibutane-		
2,2-diyl dihydroperoxide		
	Marine water	0.00056 mg/l
	Intermittent use/release	0.056 mg/l
	Sewage treatment plant	1.2 mg/l
	Fresh water sediment	0.0876 mg/kg
	Marine sediment	0.00876 mg/kg
	Soil	0.0142 mg/kg
hydrogen peroxide	Sewage treatment plant	4.66 mg/l
	Fresh water	0.0126 mg/l
	Marine sediment	0.047 mg/l
	Fresh water sediment	0.047 mg/l
	Marine water	0.0126 mg/l
	Soil	0.0023 mg/l
2-methylpentane-2,4-diol	Fresh water	0.429 mg/l
	Marine water	0.043 mg/l
	Intermittent use/release	4.29 mg/l
	Sewage treatment plant	20 mg/l
	Fresh water sediment	1.59 mg/kg dry
		weight (d.w.)
	Marine sediment	0.159 mg/kg dry
		weight (d.w.)
	Soil	0.066 mg/kg dry
		weight (d.w.)
	Secondary poisoning	
	Remarks:No bioaccumulation is to be ex	xpected (log Pow <= 4).

#### 8.2 Exposure controls

## **Engineering measures**

Minimize workplace exposure concentrations.

# Personal protective equipment

Eye/face 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 pro-

tection if there is a splash hazard.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Equipment should conform to EN 166

Hand protection

Material : Nitrile rubber
Break through time : < 30 min
Glove thickness : 0.40 mm

Directive : Equipment should conform to EN 374

Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.47 mm

Directive : Equipment should conform to EN 374

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.

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, dis-

posable suits) to avoid exposed skin surfaces.

Wear as appropriate:

Flame retardant antistatic protective clothing.

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

approved filter.

Respirator with combination filter for vapour/particulate (EN

141)

Filter type : ABEK-filter

Protective measures : The type of protective equipment must be selected according

to the concentration and amount of the dangerous substance

at the specific workplace.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

# **SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : red

Odour : mint-like

Odour Threshold : not determined

Melting point/freezing point : not determined

Initial boiling point and boiling

range

Decomposition: Decomposes below the boiling point.

Flammability : Not applicable

Upper explosion limit / Upper

flammability limit

Upper explosion limit

not determined

Lower explosion limit / Lower

flammability limit

Lower explosion limit

not determined

Flash point : > 80 °C

Method: closed cup

Auto-ignition temperature : not determined

Self-Accelerating decomposi-

tion 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.

pH : not determined

Viscosity

Viscosity, dynamic : ca. 20 mPa.s (20 °C)

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Viscosity, kinematic : not determined

Solubility(ies)

Water solubility : slightly soluble

Solubility in other solvents : Solvent: Alcohol

Description: soluble

Solvent: Phthalates Description: soluble

Partition coefficient: n-

octanol/water

Not applicable

Vapour pressure : not determined

Relative density : not determined

Density : ca. 1.1 g/cm3 (20  $^{\circ}$ C)

Relative vapour density : not determined

9.2 Other information

Explosives : Not explosive

In use, may form flammable/explosive vapour-air mixture.

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Organic peroxide

Flammability (liquids) : Flammable liquid, Organic peroxide

Self-ignition : The substance or mixture is not classified as pyrophoric.

Self-heating substances : The substance or mixture is not classified as self heating.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

# **SECTION 10: Stability and reactivity**

### 10.1 Reactivity

Stable under recommended storage conditions. Heating may cause a fire or explosion.

#### 10.2 Chemical stability

Stable under recommended storage conditions.

No decomposition if stored normally.

## 10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

#### 10.4 Conditions to avoid

Conditions to avoid : Protect from contamination.

Contact with incompatible substances can cause decomposi-

tion at or below SADT. Heat, flames and sparks. Avoid confinement.

#### 10.5 Incompatible materials

Materials to avoid : Accelerators, strong acids and bases, heavy metals and

heavy metal salts, reducing agents

#### 10.6 Hazardous decomposition products

Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition

# **SECTION 11: Toxicological information**

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

Harmful if swallowed or if inhaled.

#### **Product:**

Acute oral toxicity : Acute toxicity estimate: 1,407 mg/kg

Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 4.25 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: Calculation method

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

# **Components:**

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

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

hydrogen peroxide:

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

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 tox-

icity tests.

2-methylpentane-2,4-diol:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Method: OECD Test Guideline 420

Assessment: The substance or mixture has no acute oral tox-

icity

Remarks: No mortality observed at this dose.

Acute inhalation toxicity : LC50 (Rat, male): > 55 mg/l

Exposure time: 8 h
Test atmosphere: vapour

Assessment: The substance or mixture has no acute inhala-

ion toxicity

Remarks: No mortality observed at this dose.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Method: OECD Test Guideline 402

Assessment: The substance or mixture has no acute dermal

toxicity

Remarks: No mortality observed at this dose.

Skin corrosion/irritation

Causes severe burns.

**Product:** 

Remarks : Extremely corrosive and destructive to tissue.

**Components:** 

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Species : Rabbit

Result : Causes burns.

hydrogen peroxide:

Result : Corrosive

2-methylpentane-2,4-diol:

Species : Rabbit

Method : OECD Test Guideline 404

Result : Skin irritation

Remarks : Based on harmonised classification in EU regulation

1272/2008, Annex VI

Serious eye damage/eye irritation

Causes serious eye damage.

**Product:** 

Remarks : May cause irreversible eye damage.

Components:

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Result : Irreversible effects on the eye

hydrogen peroxide:

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

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

### 2-methylpentane-2,4-diol:

Species : Rabbit

Method : OECD Test Guideline 405

Result : irritating

Remarks : Based on harmonised classification in EU regulation

1272/2008, Annex VI

#### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified due to lack of data.

#### Respiratory sensitisation

Not classified due to lack of data.

#### **Components:**

# 2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Species : Guinea pig

Method : OECD Test Guideline 406

Result : Does not cause skin sensitisation.

Assessment : Harmful if swallowed., Harmful if inhaled.

#### 2-methylpentane-2,4-diol:

Test Type : Maximisation Test Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Result : Does not cause skin sensitisation.

#### Germ cell mutagenicity

Not classified due to lack of data.

#### **Components:**

# 2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Genotoxicity in vitro : Method: OECD Test Guideline 473

Result: negative

Method: OECD Test Guideline 471

Result: negative

Method: OECD Test Guideline 476

Result: negative

## hydrogen peroxide:

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

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- As-

sessment

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

#### 2-methylpentane-2,4-diol:

Genotoxicity in vitro : Test Type: Ames test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Germ cell mutagenicity- As-

sessment

: In vitro tests did not show mutagenic effects

#### Carcinogenicity

Not classified due to lack of data.

#### **Components:**

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Remarks : This information is not available.

hydrogen peroxide:

Carcinogenicity - Assess-

ment

Carcinogenicity classification not possible from current data.

2-methylpentane-2,4-diol:

Remarks : This information is not available.

Carcinogenicity - Assess-

ment

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

Reproductive toxicity

Not classified due to lack of data.

**Components:** 

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Effects on fertility : Species: Rat

Application Route: oral (gavage)

General Toxicity - Parent: NOAEL: 50 mg/kg body weight

Method: OECD Test Guideline 421

Result: negative

hydrogen peroxide:

Reproductive toxicity - As-

sessment

No data available

2-methylpentane-2,4-diol:

Effects on fertility : Species: Rat

Strain: wistar

Application Route: oral (gavage) Method: OECD Test Guideline 443

Result: negative

Reproductive toxicity - As-

sessment

Some evidence of adverse effects on development, based on

animal experiments., Suspected of damaging the unborn

child.

STOT - single exposure

Not classified due to lack of data.

**Components:** 

hydrogen peroxide:

Target Organs : Respiratory Tract

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Assessment : May cause respiratory irritation.

2-methylpentane-2,4-diol:

Assessment : The substance or mixture is not classified as specific target

organ toxicant, single exposure.

STOT - repeated exposure

Not classified due to lack of data.

**Components:** 

hydrogen peroxide:

Remarks : No data available

2-methylpentane-2,4-diol:

Assessment : The substance or mixture is not classified as specific target

organ toxicant, repeated exposure.

Repeated dose toxicity

**Components:** 

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Species : Rat

NOAEL : 200 mg/kg Application Route : oral (gavage)

Exposure time : 28 d

Method : OECD Test Guideline 407

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 NOAEL : 26 mg/kg

Application Route : oral (drinking water)

Exposure time : 90

Remarks : hydrogen peroxide, 35%

2-methylpentane-2,4-diol:

Species : Rat, male and female NOAEL : 450 mg/kg bw/day

Application Route : Ingestion

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Exposure time : 90

Method : OECD Test Guideline 408

#### **Aspiration toxicity**

Not classified due to lack of data.

#### **Components:**

#### hydrogen peroxide:

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

# 2-methylpentane-2,4-diol:

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

#### 11.2 Information on other hazards

# **Endocrine disrupting properties**

#### **Product:**

Assessment : The substance/mixture does not contain components consid-

ered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

levels of 0.1% or higher.

#### **Further information**

**Product:** 

Remarks : No data available

# **SECTION 12: Ecological information**

# 12.1 Toxicity

#### **Components:**

# 2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

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

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

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

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 microorganisms : EC50 (activated sludge): > 1,000 mg/l

Exposure time: 3 h

Method: OECD Test Guideline 209

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

NOEC: 0.63 mg/l

Exposure time: 21 d

ic toxicity) Species: Daphnia magna (Water flea)

2-methylpentane-2,4-diol:

Toxicity to fish : LC50 (Gambusia affinis (Mosquito fish)): 8,510 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 5,410 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic : EC50 (Pseudokirchneriella subcapitata (green algae)): 429

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

plants mg/l

End point: Growth rate Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201

NOEC (Raphidocelis subcapitata (freshwater green alga)):

729 mg/l

End point: Growth rate Exposure time: 72 h Test Type: static test

Method: OECD Test Guideline 201

Toxicity to microorganisms

Remarks: No data available

# 12.2 Persistence and degradability

#### **Components:**

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Biodegradability : Result: Readily biodegradable.

Method: OECD Test Guideline 301D

hydrogen peroxide:

Biodegradability : Result: Readily biodegradable.

2-methylpentane-2,4-diol:

Biodegradability : Test Type: aerobic

Inoculum: activated sludge Result: Readily biodegradable.

Biodegradation: 81 %

Method: OECD Test Guideline 301F

#### 12.3 Bioaccumulative potential

## **Components:**

2-Butanone peroxide; Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide:

Partition coefficient: n-

octanol/water

: log Pow: < 0.3 (25 °C)

hydrogen peroxide:

Partition coefficient: n- : log Pow: -1.57 (20 °C)

octanol/water Remarks: Information refers to the main component.

Calculation

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

2-methylpentane-2,4-diol:

Partition coefficient: n-

octanol/water

: log Pow: -0.14

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

**Product:** 

Assessment : This substance/mixture contains no components considered

to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of

0.1% or higher.

12.6 Endocrine disrupting properties

**Product:** 

Assessment : The substance/mixture does not contain components consid-

ered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at

levels of 0.1% or higher.

12.7 Other adverse effects

**Product:** 

Additional ecological infor-

mation

An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Toxic to aquatic life.

**SECTION 13: Disposal considerations** 

13.1 Waste treatment methods

Product : 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 chemi-

cal or used container.

According to the European Waste Catalogue, Waste Codes

are not product specific, but application specific.

Waste codes should be assigned by the user, preferably in

discussion with the waste disposal authorities.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

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**

#### 14.1 UN number or ID number

ADR : UN 3105
RID : UN 3105
IMDG : UN 3105
IATA : UN 3105

14.2 UN proper shipping name

ADR : ORGANIC PEROXIDE TYPE D, LIQUID

(METHYL ETHYL KETONE PEROXIDE(S))

RID : ORGANIC PEROXIDE TYPE D, LIQUID

(METHYL ETHYL KETONE PEROXIDE(S))

IMDG : ORGANIC PEROXIDE TYPE D, LIQUID

(METHYL ETHYL KETONE PEROXIDE(S))

IATA : Organic peroxide type D, liquid

(Methyl ethyl ketone peroxide(s))

#### 14.3 Transport hazard class(es)

Class Subsidiary risks

ADR : 5.2 RID : 5.2 IMDG : 5.2

IATA : 5.2 HEAT

# 14.4 Packing group

ADR

Packing group : Not assigned by regulation

Classification Code : P1 Labels : 5.2 Tunnel restriction code : (D)

**RID** 

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

Packing group : Not assigned by regulation

Classification Code : P1 Hazard Identification Number : 539 Labels : 5.2

**IMDG** 

Packing group : Not assigned by regulation

Labels : 5.2 EmS Code : F-J, S-R

IATA (Cargo)

Packing instruction (cargo : 570

aircraft)

Packing group : Not assigned by regulation

Labels : Organic Peroxides, Keep Away From Heat

IATA (Passenger)

Packing instruction (passen: 570

ger aircraft)

Packing group : Not assigned by regulation

Labels : Organic Peroxides, Keep Away From Heat

14.5 Environmental hazards

**ADR** 

Environmentally hazardous : no

RID

Environmentally hazardous : no

**IMDG** 

Marine pollutant : no

#### 14.6 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.

#### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

# **SECTION 15: Regulatory information**

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances,

Conditions of restriction for the following entries should be considered:

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

mixtures and articles (Annex XVII)

Number on list 75, 3

If you intend to use this product as tattoo ink, please contact your ven-

dor.

REACH - Candidate List of Substances of Very High

Concern for Authorisation (Article 59).

Not applicable

Regulation (EC) No 1005/2009 on substances that de-

plete the ozone layer

Not applicable

Regulation (EU) 2019/1021 on persistent organic pollu-

tants (recast)

Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import

of dangerous chemicals

Not applicable

REACH - List of substances subject to authorisation

(Annex XIV)

: Not applicable

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors

This product is regulated by Regulation (EU) 2019/1148: all suspi- hydrogen peroxide (ANNEX I) cious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P6b SELF-REACTIVE SUBSTANCES AND MIXTURES and ORGANIC

PEROXIDES

# Other regulations:

Gefahrgruppe nach TRGS 741: lb (German regulatory requirements)

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

# The components 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

AllC (AU) : All components are listed on the inventory, regulatory obliga-

tions/restrictions apply

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

DSL (CA) : All components of this product are on the Canadian DSL

KECI (KR) : On the inventory, or in compliance with the inventory

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

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

For further information see eSDS.

#### **SECTION 16: Other information**

#### **Further information**

Other information : This safety datasheet only contains information relating to

safety and does not replace any product information or prod-

uct 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 con-

tainer.

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 Agen-

cy, http://echa.europa.eu/

#### Classification of the mixture: Classification procedure:

Org. Perox. D	H242	Based on product data or assessment
Acute Tox. 4	H302	Calculation method
Acute Tox. 4	H332	Calculation method
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method

# **Full text of H-Statements**

H242 : Heating may cause a fire.

H271 : May cause fire or explosion; strong oxidizer.

H302 : Harmful if swallowed.

H314 : Causes severe skin burns and eye damage.

H315 : Causes skin irritation.

H318 : Causes serious eye damage. H319 : Causes serious eye irritation.

H332 : Harmful if inhaled.

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

H335 : May cause respiratory irritation.

H361d : Suspected of damaging the unborn child.
H412 : Harmful to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox. : Acute toxicity

Aquatic Chronic : Long-term (chronic) aquatic hazard

Eye Dam. : Serious eye damage

Eye Irrit. : Eye irritation
Org. Perox. : Organic peroxides
Ox. Liq. : Oxidizing liquids
Repr. : Reproductive toxicity

Skin Corr. : Skin corrosion Skin Irrit. : Skin irritation

STOT SE : Specific target organ toxicity - single exposure

IE OEL : List of Chemical Agents and Carcinogens with Occupational

Exposure Limit Values - Code of Practice, Schedule 1 and 2

IE OEL / OELV - 8 hrs (TWA) : Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min : Occupational exposure limit value (15-minute reference period)

(STEL) od)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road: AIIC - Australian Inventory of Industrial Chemicals: ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA -European Chemicals Agency; EC-Number - European Community number; 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; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI -Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878



# CUROX®M-303R

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 10.10.2023

 2.1
 11.06.2024
 600000000326
 Date of first issue: 02.05.2016

- Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

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IE / EN