Cure It Extra Slow Hardener

Safety Data Sheet

Commercial Product Name:	Cure It Extra Slow Hardener
Compilation Date:	9th January 2018
Revision Date:	9th January 2018
Version:	1.0

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the product

Identification of the mixture: Extra Slow Hardener

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

Use of the Substance/Mixture :

SECTOR OF USE:	PRODUCT CATEGORY:
Formulation of organic peroxides SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	PC32: Polymer preparations and compounds
Formulation of organic peroxides SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	PC32: Polymer preparations and compounds
Use of organic peroxide as polymerisation initiator, cross-linking agent SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	PC32: Polymer preparations and compounds
Formulation of the substance SU10: Formulation	
Polymers processing (industrial) SU3: Industrial Manufacturing (all)	
Industrial use in chemical synthesis or processes and formulation SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites, SU4: Manufacture of food products, SU 8,9: Manufacture of bulk, large scale substances (including petroleum products); manufacture of fine chemicals, SU 10: Formulation, SU11: Manufacture of rubber products, SU12: Manufacture of plastics products, including compounding and conversion, SU14: Manufacture of basic metals, including alloys, SU15: Manufacture of fabricated metal products, except machinery and equipment, SU16: Manufacture of computer, electronic and optical products, electrical equipment, SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment	
Loading and unloading oprerations, distribution covering all identified uses. SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites, SU4: Manufacture of food products, SU6a: Manufacture of wood and wood products, SU 8,9: Manufacture of bulk, large scale substances (including petroleum products); manufacture of fine chemicals, SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys), SU11: Manufacture of rubber products, SU12: Manufacture of plastics products, including compounding and conversion, SU14: Manufacture of basic metals, including alloys, SU15: Manufacture of fabricated metal products, except machinery and equipment, SU16: Manufacture of computer, electronic and optical products, electrical equipment, SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment, SU 21: Consumer uses: Private households (= general public = consumers), SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	

1.3. Details of the supplier of the safety data sheet

G & B Northwest Ltd

Willow Road,

Beech Hill,

Wigan,

Greater Manchester,

Telephone: 01942 518150

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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

Organic peroxides, D, H242

Flammable liquid, 3, H226

Serious eye damage, 1, H318

Skin corrosion, 1B, H314

Oral: Acute toxicity, 4, H302

Inhalation: Acute toxicity, 4, H332

Specific target organ toxicity - single exposure, 3, H335

Chronic aquatic toxicity, 3, H412

Classification according to EU Directives 1999/45/EC :

O; R 7

C; R34

Xn; R22

R52/53

R10

Additional information:

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

2.2. Label elements

Label elements (REGULATION (EC) No 1272/2008):

Hazardous components which must be listed on the label:

Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide

hydrogen peroxide solution

Tributylamine

4-hydroxy-4-methylpentan-2-one; diacetone alcohol

Hazard pictograms:

Signal word: Danger

Hazard statements:

H226 : Flammable liquid and vapour.

H242 : Heating may cause a fire.

H314 : Causes severe skin burns and eye damage.

H302 : Harmful if swallowed.

H332 : Harmful if inhaled.

H335 : May cause respiratory irritation.

H412 : Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention:

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

P260 : Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.

P273 : Avoid release to the environment.

Response:

P303 + P361 + P353 : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

P310 : Immediately call a POISON CENTER or doctor/ physician.

Storage:

P403 + P235 : Store in a well-ventilated place. Keep cool.

2.3. Other hazards

Potential health effects:

Inhalation: Inhalation of vapours due to thermal decomposition : Toxic effects can not be excluded Irritating to respiratory system.

Ingestion: Liver damage Difficulty in breathing Abdominal pain Causes severe digestive tract burns.

Environmental Effects:

Toxic to algae. Harmful to aquatic fauna. Inherently biodegradable. Not bioaccumulable.

Physical and chemical hazards:

Flammable liquid Heating may cause a fire. Thermal decomposition giving flammable and toxic products.

Decomposition products: See chapter 10

Other:

Results of PBT and vPvB assessment : According to REACH regulation, annex XIII, this mixture contains no substance meeting PBT and vPvB criteria.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Chemical nature of the mixture1:

Organic peroxide Preparation based on :

Hazardous components (according to Regulation (EC) No. 1907/2006) :

Chemical Name1 & REACH Registration Number2 EC-No. CAS-No. Concentration

Classification

Directive

67/548/EEC

CHEMICAL NAME[1] & REACH REGISTRATION NUMBER[2]	EC-NO.	CAS-NO.	CONCENTRATION	CLASSIFICATION DIRECTIVE 67/548/EEC	CLASSIFICATION REGULATION (EC) NO 1272/2008
1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate (01-2119451093-47)	229-934-9	6846-50-0	35 - 45%	R52/53	Aquatic Chronic 3; H412
Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide (01-2119514691-43)	700-954-4	1338-23-4	35 - 45%	O; R 7 Xn; R22 C; R34	Org. Perox. D; H242 Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Inhalation); H332 Skin Corr. 1B; H314 Eye Dam. 1; H318
4-Hydroxy-4-methylpentan-2-one (01-2119473975-21)	204-626-7	123-42-2	8 - 10%	Xi; R36/37	Eye Irrit. 2; H319 STOT SE 3; H335
Hydrogen peroxide (01-2119485845-22)	231-765-0	7722-84-1	< 2 %	R 5 O; R 8 Xn; R20/22 C; R35	Ox. Liq. 1; H271 Acute Tox. 4 (Oral); H302 Acute Tox. 4 (Inhalation); H332 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Chronic 3; H412

1: See chapter 14 for Proper Shipping Name

2 :See the text of the regulation for applicable exceptions or provisions : The transition time according to REACH Regulation, Article 23, is still not expired.

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

4. FIRST AID MEASURES

4.1. & 4.2. Description of necessary first-aid measures & Most important symptoms/effects, acute and delayed:

General advice:

Under the shower: Take off immediately all contaminated clothing. including shoes. Risk of ignition. In case of splashes, remove contaminated

clothing and plunge it into water immediately.

Inhalation:

Move to fresh air. Oxygen or artificial respiration if needed. Keep under medical surveillance. In case of problems : Hospitalise.

Skin contact:

Wash immediately, abundantly and thoroughly with water. Consult a doctor quickly. In case of extensive burns, hospitalize.

Eye contact:

Wash open eyes immediately, abundantly and thoroughly for at least 15 minutes. Consult an ophthalmologist immediately.

Ingestion:

Do not induce vomiting, rinse mouth and lips with plenty of water if the subject is conscious, then hospitalize.

Protection of first-aiders:

For any intervention, wear appropriate breathing apparatus. Protective suit

4.3.Indication of immediate medical attention and special treatment needed, if necessary: No data available.

5. FIREFIGHTING MEASURES

5.1.Extinguishing media

Suitable extinguishing media: Water spray, Foam

5.2. Special hazards arising from the substance or mixture:

Heating may cause a fire.

The product burns violently (protect people from possible projections).

Through thermal decomposition, formation of very reactive free radicals.

Thermal decomposition giving flammable and toxic products:

Ethane - Methane - Ethylene, Carbon oxides

5.3. Advice for firefighters:

Specific methods:

Fight fire from a distance (more than 15 m). Cool containers/tanks with water spray. In case of fire, remove exposed containers. Prohibit all sources of sparks and ignition - Do not smoke. Do not allow run-off from fire fighting to enter drains or water courses.

Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Evacuate non-essential staff and those not equipped with individual protection apparatus. Prohibit all sources of sparks and ignition - Do not smoke. Prohibit contact with skin and eyes and inhalation of vapours. Use personal protective equipment. In case of insufficient ventilation, wear suitable respiratory equipment.

6.2. Environmental precautions:

Do not release into the environment. Do not let product enter drains.

6.3. Methods and materials for containment and cleaning up:

Methods for cleaning up:

After cleaning, flush away traces with water. Recover waste water for processing later.

Recovery:

Never return spills in original containers for re-use. Shovel into suitable container for disposal.

For small leaks : Soak up with inert absorbent material. Do not use vermiculite.

Do not confine. No sparking tools should be used.

Elimination: See chapter 13

6.4. Reference to other sections: None.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:

Storage and handling precautions applicable to products:

Organic peroxides. Liquid. Flammable. Harmful. Corrosive.

Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths. Provide water supplies near the point of use. Provide selfcontained breathing apparatus nearby. Provide fire-blanket nearby. Provide electrical earthing of equipment.

Safe handling advice:

Strictly limit the quantities of product in the work area to those which are absolutely necessary for the work in hand. Great cleanliness in work areas is a necessary and important factor for safety. Handle and open container with care (risk of overpressurization in containers). Prohibit all sources of sparks and ignition - Do not smoke. Protect from contamination. Never return any product to the container from which it was originally removed (risk of decomposition). Never mix peroxides directly with accelerators (risk of explosion). Add each component separately to the resin. In case of insufficient ventilation, wear suitable respiratory equipment. Handling of this product must be in accordance with HSE

Hygiene measures:

Take off immediately all contaminated clothing. Prohibit contact with skin and eyes and inhalation of vapours. When using do not eat, drink or smoke.

Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Store in well insulated area (peroxide area) away from other substances. Storage buildings must be built and equipped so as not to exceed the maximum proscribed temperature limit. Use non-combustible construction materials. Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Do not smoke. Store in original container. Use only very clean containers and equipment free from traces of impurities. Never return unused material to storage receptacle. Do not reuse empty packaging to store other products.

Provide earthing and safe electrical equipment. Provide a catch-tank in a bunded area. Provide impermeable floor. storage design.

Storage of this product must be in accordance with HSE Guidance Note CS21 The Storage and Handling of Organic Peroxides.

Storage of this product must be in accordance with HSE Guidance Note CS21 The Storage and Handling of Organic Peroxides.

Storage period: < 6 Months, Storage temperature: < 30 °C (to maintain the technical properties of the product).

Incompatible products:

Strong oxidizing agents, Powerful reducers, Acids, Bases, Amines, transition metal salts, Sulphur compounds, Rust, ash, dusts (risk of self-accelerating exothermic decomposition)

Packaging material:

Recommended: High density polyethylene (HDPE), Polytetrafluoroethylene (PTFE), Stainless steel

To be avoided: Ordinary metals (ordinary steel), copper, rubber (natural or synthetic), Glass -

7.3. Specific end use(s): None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure Limit Values

Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
EH40 WEL	12 2011	STEL	0,2	1,5	-
ACGIH (US)	02 2012	Ceiling	0,2	-	-

4-Hydroxy-4-methylpentan-2-one

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
EH40 WEL	12 2011	STEL	75	362	-
EH40 WEL	12 2011	TWA	50	241	-
ACGIH (US)	02 2012	TWA	50	-	-

Butanone

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
EH40 WEL	12 2011	SKIN	-	-	Can be absorbed through the skin.
EH40 WEL	12 2011	TWA	200	600	-
EH40 WEL	12 2011	STEL	300	899	-
EU ELV	12 2009	TWA	200	600	Indicative value
EU ELV	12 2009	STEL	300	900	Indicative value
ACGIH (US)	02 2012	TWA	200	-	-
ACGIH (US)	02 2012	STEL	300	-	-

Hydrogen peroxide

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
EH40 WEL	12 2011	STEL	2	2.8	-
EH40 WEL	12 2011	TWA	1	1.4	-
ACGIH (US)	02 2012	TWA	1	-	-

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Update

Derived No Effect Level (DNEL): REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

End Use	Inhalation	Ingestion	Skin contact
Workers	3,08 mg/m³ (LT, SE)		12,5 mg/kg bw/day (LT, SE)
Consumers	0,91 mg/m³ (LT, SE)	0,26 mg/kg bw/day (LT, SE)	7,5 mg/kg bw/day (LT, SE)

LE : Local effects, SE : Systemic effects, LT : Long term, ST : Short term

Derived No Effect Level (DNEL): 4-HYDROXY-4-METHYLPENTAN-2-ONE :

End Use	Inhalation	Ingestion	Skin contact
Workers	240 mg/m³ (ST, LE) 66,4 mg/m³ (LT, SE, LE)		9,4 mg/kg bw/day (LT, SE)
Consumers	120 mg/m³ (ST, LE) 11,8 mg/m³ (LT, SE, LE)	3,4 mg/kg bw/day (LT, SE)	3,4 mg/kg bw/day (LT, SE)

LE : Local effects, SE : Systemic effects, LT : Long term, ST : Short term

Derived No Effect Level (DNEL): HYDROGEN PEROXIDE:

End Use	Inhalation	Ingestion	Skin contact
Workers	3 mg/m³ (LE, ST) 1,4 mg/m³ (LE, LT)		
Consumers	1,93 mg/m³ (LE, ST) 0,21 mg/m³ (LE, LT)		

Predicted No Effect Concentration: REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE:

Compartment:	Value:
Fresh water	0,0056 mg/l
Marine water	0,00056 mg/l
Water (Intermittent release)	0,056 mg/l
Effects on waste water treatment plants	1,2 mg/l
Fresh water sediment	0,019 mg/kg dw
Marine sediment	0,0019 mg/kg dw
Soil	0,00231 mg/kg dw

Predicted No Effect Concentration: REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE:

Compartment:	Value:
Fresh water	0,0056 mg/l
Marine water	0,00056 mg/l
Water (Intermittent release)	0,056 mg/l
Effects on waste water treatment plants	1,2 mg/l
Fresh water sediment	0,019 mg/kg dw
Marine sediment	0,0019 mg/kg dw
Soil	0,00231 mg/kg dw

Predicted No Effect Concentration: 4-HYDROXY-4-METHYLPENTAN-2-ONE:

Compartment:	Value:
Fresh water	2 mg/l
Marine water	0,2 mg/l
Water (Intermittent release)	1 mg/l
Effects on waste water treatment plants	10 mg/l
Fresh water sediment	9,06 mg/kg dw
Marine sediment	0,91 mg/kg dw
Soil	0,63 mg/kg dw

Predicted No Effect Concentration: HYDROGEN PEROXIDE:

Compartment:	Value:
Fresh water	0,0126 mg/l
Marine water	0,0126 mg/l
Water (Intermittent release)	0,0138 mg/l
Effects on waste water treatment plants	4,66 mg/l
Fresh water sediment	0,047 mg/kg dw
Marine sediment	0,047 mg/kg dw
Soil	0,0023 mg/kg dw

8.2. Exposure controls:

General protective measures: Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment:

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

In the case of hazardous fumes, wear self contained breathing apparatus.

Hand protection: Gloves (PVC, neoprene, nitrile rubber)

Eye/face protection: Safety glasses/goggles and face-mask (during discharge)

Skin and body protection: Protective suit

Environmental exposure controls: See chapter 6

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:

Physical state (20°C): liquid

Colour: colourless

Odour: pungent

Olfactory threshold: No data available.

pH: No data available.

Melting point/range : < -20 °C

Boiling point/boiling range : > 100 °C

Flash point: closed cup: 42 °C (ISO 3680)

Evaporation rate: No data available.

Flammability (solid, gas):

Flammability: Not applicable

Vapour pressure: 20 hPa , at 20 °C

Vapour density: No data available.

Density: 997,3 kg/m3 , at 20 °C

Water solubility: < 10 g/l at 20 °C

Partition coefficient: n-octanol/water: REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE : log Kow : < 0,3 (OECD Test Guideline 117)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE : log Kow : = 4,04 - 4,91

(calculated)

4-HYDROXY-4-METHYLPENTAN-2-ONE : log Kow : = -0,09 (calculated)

HYDROGEN PEROXIDE : log Kow : = -1,57 , at 20 °C (calculated)

Auto-ignition temperature: > 200 °C

Decomposition temperature: No data available.

Self-Accelerating decomposition

temperature (SADT):

55 °C

Viscosity, dynamic: 11 mPa.s , at 20 °C

Explosive properties:

Explosivity: The substance or mixture is an organic peroxide classified as type D.

Oxidizing properties: Organic peroxide

9.2. Other data:

Solubility in other solvents: Hexane and Chloroform < 10 g/l

Methanol and Ethyl Acetate > 500 g/l

Active oxygen content: 8,5 %

10. STABILITY AND REACTIVITY

10.1. & 10.2. Reactivity & Chemical stability:

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions:

Organic peroxides. At high temperature : risk of violent reaction (decomposition)

10.4. Conditions to avoid:

Temperatures above 30 °C

Keep away from heat and sources of ignition (risk of exothermic decomposition).

10.5. Incompatible materials to avoid:

Strong oxidizing agents, Powerful reducers, Acids, Bases, Amines, transition metal salts, Sulphur compounds, Rust, ash, dusts (risk of selfaccelerating

exothermic decomposition)

Follow conditions of use with : accelerators (amines, metallic salts).

10.6. Hazardous decomposition products:

Through thermal decomposition, formation of very reactive free radicals.

Thermal decomposition giving flammable and toxic products:

Ethane - Methane - Ethylene, Carbon oxides

11. TOXICOLOGICAL INFORMATION

All available and relevant data on this product and/or the components quoted in section 3 and/or the analogue substances/ metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:

Acute toxicity:

Inhalation: From its composition, it must be considered as: Harmful if inhaled. Inhalation of vapours due

to thermal decomposition: Toxic effects can not be excluded Irritating to respiratory system.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In animals : LC50/4,00 h/Rat: 17 mg/l (Method: OECD Test Guideline 403), Respiratory irritation, Eye irritation (In solution in Dimethyl phthalate, 35 - 39 %)

(vapour)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In animals : No mortality/6 h/Rat: 5,3 mg/l, No specific toxic effects (vapour saturated atmosphere)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In man : At high vapour/mist concentrations headache, Central nervous system depression, Dizziness, Difficulty in breathing

• In animals : No mortality/4 h/Rat: 7,6 mg/l (Method: OECD Test Guideline 403) (vapour saturated atmosphere)

BUTANONE :

• In man : Effects of excessive exposure may include :

> 300 ppm headache

> 400 - 500 ppm Nausea, Cardiovascular problems, confusion, Possible loss of consciousness,

Convulsions

• In animals : LC50/4 h/Rat: 34,5 mg/l (11700 ppm) (vapour)

Ingestion: From its composition, it must be considered as: Harmful if swallowed.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In man : Liver damage, Difficulty in breathing, Abdominal pain, Causes severe digestive tract burns.

At high concentrations, Lethal cases reported in man

• In animals : LD50/Rat: 1.017 mg/kg (Method: OECD Test Guideline 401) (In solution in Dimethyl phthalate, 35 -39 %)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In animals : No mortality/Rat: 2.000 mg/kg (Method: OECD Test Guideline 425) No specific toxic effects

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In animals : LD50/Rat: 3.002 mg/kg (Method: OECD Test Guideline 401)

BUTANONE :

• In man : The effects of ingesting a large dose can include :, Metabolic problems, Difficulty in breathing, Loss of consciousness

• In animals : LD50/Rat: 2.800 - 5.600 mg/kg

Dermal: According to its composition : May be harmful in contact with skin.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In animals : LD50/Rabbit: 4.000 mg/kg (Method: OECD Test Guideline 402) (In solution in Dimethyl phthalate, 60%)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In animals : No mortality/Rabbit: 2.000 mg/kg (Method: OECD Test Guideline 402)Local irritation

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In animals : No mortality/Rat: 1.875 mg/kg (Method: OECD Test Guideline 402)

LD50/Rabbit: 13.750 mg/kg

BUTANONE :

• In animals : LD50/Rabbit: 5.000 - 13.000 mg/kg

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact: According to its composition : Causes severe skin burns.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In animals : Corrosive to skin (after occlusive contact, Rabbit, Exposure time: 24 h)

(In solution in Dimethyl phthalate, 30 %)

Eye contact: From its composition, it must be considered as: May cause irreversible eye damage.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In man : May cause irreversible eye damage.

• In animals : Severe eye irritation (OECD Test Guideline 405, Rabbit)

(In solution in Dimethyl phthalate, 40 - 60 %)

Respiratory or skin sensitisation:

Inhalation: No data available.

Skin contact: According to its composition, can be considered as : Not a skin sensitizer

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In man : Some cases of cutaneous sensitization reported

• In animals : Not a skin sensitizer (Method : OECD Test Guideline 406 Guinea pig maximization test, Guinea pig)

(tested with its impurities, 40 %)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In man : Not a skin sensitizer

CMR effects :

Mutagenicity: According to its composition, can be considered as : Not genotoxic

In vitro

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

Ames test in vitro: Inactive (Method: OECD Test Guideline 471) (30 %)

In vitro test for chromosomal abnormalities on CHO cells: Inactive (Method: OECD Test Guideline 473)

(30 %)

In vitro gene mutations test on mammalian cells: Inactive (Method: OECD Test Guideline 473) (30 %)

Carcinogenicity: No data available.

Reproductive toxicity:

Fertility: Based on the available data, the substance is not suspected of having reprotoxic potential.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In animals : Reproductive/Developmental Effects Screening Assay: Absence of toxic effects on fertility, Effects on newborn, Side effects due to maternal toxicity.

NOAEL (Parental toxicity): 50 mg/kg bw/day

NOAEL (Fertility): = 75 mg/kg bw/day

NOAEL (Developmental Toxicity): = 50 mg/kg bw/day

(Method: OECD Test Guideline 421, Rat, By oral route) (In solution in Dimethyl phthalate, 32 %)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In animals : Reproductive/Developmental Effects Screening Assay: No toxic effects for reproduction

NOAEL (Parental toxicity): 750 mg/kg bw/day

NOAEL (Fertility): 750 mg/kg bw/day

NOAEL (Developmental Toxicity): 750 mg/kg bw/day

(Method: OECD Test Guideline 422, Rat, By oral route)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In animals : Reproductive/Developmental Effects Screening Assay: At high dose :, Effects on fertility and offspring, Side effects due to maternal toxicity.

NOAEL (Parental toxicity): 30 - 100 mg/kg bw/day

NOAEL (Fertility): = 300 mg/kg bw/day

NOAEL (Developmental Toxicity): = 300 mg/kg bw/day

(Method: OECD Test Guideline 422, Rat, By oral route)

BUTANONE :

• In animals : Must be regarded as assimilable to its principal metabolite in vivo:, Absence of toxic effects upon the reproductive system (Rat, drinking water)

Single exposure:

Inhalation: According to its composition : May cause respiratory irritation.

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In man : Irritating to nose, throat and respiratory system (100 ppm, 0,48 mg/l)

Repeated exposure: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

• In animals : No specific toxic effects

NOAEL= 65 mg/kg (Method: OECD Test Guideline 407, Rat) (32 %)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

• In animals : By diet: No toxic effect directly extrapolated to humans

NOAEL= 750mg/kg bw/day (Method: OECD Test Guideline 408, Rat, 3 months)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

• In animals : By oral route: No toxic effect directly extrapolated to humans

Target organs: Liver, Kidney, NOAEL= 30 - 100mg/kg bw/day (Rat, 6 Weeks)

• In animals : By inhalation: No toxic effect directly extrapolated to humans

Target organs: Liver, Kidney, NOAEL= 1,041 mg/l (Rat, 6 Weeks)

BUTANONE :

• In man : Repeated exposure by inhalation: Reported effects on man in industry :

Possible increases in the neurotoxicity of other solvents

• In animals : By inhalation: Liver disorders, NOAEL= 2500ppm (Method: OECD Test Guideline 413, Rat, 3 Months)

Aspiration hazard: Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

Acute aquatic toxicity : Toxic to aquatic life.

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

12.1. Toxicity:

Fish: According to its composition, can be considered as : Harmful to fish.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

LC50, 96 h (Poecilia reticulata) : 44,2 mg/l (Method: OECD Test Guideline 203, Test substance: In solution in Dimethyl phthalate)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

LC50, 96 h (Lepomis macrochirus (Bluegill sunfish)) (Method: OECD Test Guideline 203) No effect upto the limit of solubility

4-HYDROXY-4-METHYLPENTAN-2-ONE :

LC50, 96 h (Oryzias latipes) : > 100 mg/l (Method: OECD Test Guideline 203)

HYDROGEN PEROXIDE :

LC50, 96 h (Pimephales promelas (fathead minnow)) : = 16,4 mg/l (Method: US EPA, pH: 6,6 - 7,2)

Aquatic invertebrates: According to its composition, can be considered as : Harmful to daphnia.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

EC50, 48 h (Daphnia magna (Water flea)) : 39 mg/l (Method: OECD Test Guideline 202, Test

substance: In solution in Dimethyl phthalate)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

48 h (Daphnia magna (Water flea)) (Method: US EPA, Immobilization) No effect up to the limit of solubility

4-HYDROXY-4-METHYLPENTAN-2-ONE :

EC50, 48 h (Daphnia magna (Water flea)) : > 1.000 mg/l (Method: OECD Test Guideline 202)

HYDROGEN PEROXIDE :

LC50, 48 h (Daphnia pulex (Water flea)) : = 2,4 mg/l (Method: US EPA)

Aquatic plants: According to its composition, can be considered as : Toxic to algae.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

ErC50, 72 h (Raphidocelis subcapitata) : 5,6 mg/l (Method: OECD Test Guideline 201, Test substance:

In solution in Dimethyl phthalate)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

EC50, 72 h (Selenastrum capricornutum) : > 7,49 mg/l (Method: OECD Test Guideline 201, growth rate)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

ErC50, 72 h (Raphidocelis subcapitata (freshwater green alga)) : > 1.000 mg/l (Method: OECD Test Guideline 201, Growth inhibition)

HYDROGEN PEROXIDE :

ErC50, 72 h (Skeletonema costatum) : = 1,38 mg/l (growth rate) Marine environment

Microorganisms:

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

EC10, 30 min (Activated sludge) : 12 mg/l (Method: OECD Test Guideline 209, Test substance: In solution in Dimethyl phthalate)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

EC50, 3 h (Activated sludge) : > 1.000 mg/l (Method: OECD Test Guideline 209, Respiration inhibition)

HYDROGEN PEROXIDE :

EC50, 0,5 h (Activated sludge) : = 466 mg/l (Method: OECD Test Guideline 209, Respiration inhibition)

Aquatic toxicity / Long term toxicity:

Aquatic invertebrates:

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

NOEC, 21 d (Daphnia magna (Water flea)) : = 0,7 mg/l (Method: OECD Test Guideline 211, reproduction)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

NOEC, 21 d (Daphnia magna (Water flea)) : = 100 mg/l (Method: OECD Test Guideline 211, Reproduction inhibition)

HYDROGEN PEROXIDE :

NOEC, 21 d (Daphnia magna (Water flea)) : = 0,63 mg/l (Reproduction inhibition)

Aquatic plants:

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

EC10, 72 h (Raphidocelis subcapitata) : 2,1 mg/l (Method: OECD Test Guideline 201, growth rate)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

NOEC, 72 h (Selenastrum capricornutum) : = 3,56 mg/l (Method: OECD Test Guideline 201, growth rate inhibition)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

NOEC, 72 h (Raphidocelis subcapitata) : = 1000 mg/l (Method: OECD Test Guideline 201, Growth inhibition)

HYDROGEN PEROXIDE :

NOEC, 72 h (Skeletonema costatum) : = 0,63 mg/l (reproduction) Marine environment

12.2. Persistence and degradability:

Biodegradation (In water): According to its composition, can be considered as : Inherently biodegradable.

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

Not readily biodegradable.

The 10 day time window criterion is not fulfilled., 70,73 % after 28 d (Method: OECD Test Guideline 301 B)

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

Readily biodegradable

87 % after 28 d (Method: OECD Test Guideline 301D)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

Readily biodegradable

98,51 % after 28 d (Method: OECD Test Guideline 301 A)

HYDROGEN PEROXIDE :

The methods for determining biodegradability are not applicable to inorganic substances.,

Decomposition : few minutes to 24 h

12.3. Bioaccumulative potential:

Bioaccumulation: According to its composition, can be considered as : Bioaccumulation is unlikely.

REACTION MASS OF BUTANE-2,2-DIYL DIHYDROPEROXIDE AND DIOXYDIBUTANE-2,2-DIYL DIHYDROPEROXIDE :

Partition coefficient: n-octanol/water: log Kow : < 0,3 (Method: OECD Test Guideline 117)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

Partition coefficient: n-octanol/water: log Kow : = 4,04 - 4,91 (Method: calculated)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

Partition coefficient: n-octanol/water: log Kow : = -0,09 (Method: calculated)

HYDROGEN PEROXIDE :

Partition coefficient: n-octanol/water: log Kow : = -1,57 , at 20°C (Method: calculated)

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

Bioconcentration factor (BCF): = 195 (23 d, Method: OECD Test Guideline 305, Lepomis macrochirus (Bluegill sunfish))

12.4. Mobility in soil - Distribution among environmental compartments:

Absorption / desorption:

1-ISOPROPYL-2,2-DIMETHYLTRIMETHYLENE DIISOBUTYRATE :

log Koc: 2,69 - 3,6 (Method: calculated)

4-HYDROXY-4-METHYLPENTAN-2-ONE :

In soils and sediments: Slight adsorption , log Koc: = 0,52 (Method: estimation)

12.5. Results of PBT and vPvB assessment:

According to REACH regulation, annex XIII, this mixture contains no substance meeting PBT and vPvB criteria.

12.6. Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment:

Disposal of product: Do not dispose of waste into sewer. Eliminate the product by incineration after dilution in a suitable flammable solvent (in accordance with local and national regulations). Amount of active oxygen must be below 1%.

Disposal of packaging: Do not release into the environment. Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).

Can be disposed of as waste water, when in compliance with local regulations.

14. TRANSPORT INFORMATION

Regulation	UN number	Proper shipping name	Class	Label	PG	Environmentally hazardous	Other information
ADR	3105	ORGANIC PEROXIDE TYPE D, LIQUID (Methylethyl ketone peroxide) 5	5.2	5.2		no	
ADN	3105	ORGANIC PEROXIDE TYPE D, LIQUID (Methylethyl ketone peroxide)	5.2	5.2		no	
RID	3105	ORGANIC PEROXIDE TYPE D, LIQUID (Methylethyl ketone peroxide)	5.2	5.2		no	
IATA Cargo	3105	Organic peroxide type D, liquid (Methyl ethyl ketoneperoxide)	5.2	5.2 +74F		no	
IATA Passenger	3105	Organic peroxide type D, liquid (Methyl ethyl ketoneperoxide)	5.2	5.2 +74F		no	
IMDG	3105	ORGANIC PEROXIDE TYPE D, LIQUID (METHYETHYL KETONE PEROXIDE)	5.2	5.2		no	EmS Number: F-J, S-R

15. REGULATORY INFORMATION

Safety data sheets: according to Regulation (EC) No. 1907/2006

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

Listed in:

EU. Regulation 273/2004, Drug Precursors: butanone; ethyl methyl ketone Number 2914-12-00

Additional regulations (European Union) :

Hazardous Waste Regulations 2005 Applies

The Control of substances Hazardous to Health Regulations 2002 (as amended) Banned and/or restricted

UK REGULATION Chip3: Chemical (Hazard Information and Packaging for Supply) Regulations 2002

Material storage : Hazard group: Type 1

Organic peroxide

Major Accident Hazard Legislation Oxidising 3

15.2. Chemical Safety Assessment:

Chemical Safety Assessments have been carried out for these substances. (4-Hydroxy-4-methylpentan-2-one)
(Reaction mass of butane-2,2- diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide) (Hydrogen peroxide)

INVENTORIES:

EINECS: Conforms to

TSCA: Conforms to

DSL: All components of this product are on the Canadian DSL.

IECSC (CN): Conforms to

ENCS (JP): Conforms to

ISHL (JP): Conforms to

KECI (KR): Conforms to

PICCS (PH): Conforms to

AICS: Conforms to

NZIOC: Conforms to

16. OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3

R 5 Heating may cause an explosion.

R 7 May cause fire.

R 8 Contact with combustible material may cause fire.

R10 Flammable.

R11 Highly flammable.

R20/22 Harmful by inhalation and if swallowed.

R22 Harmful if swallowed.

R23/24 Toxic by inhalation and in contact with skin.

R34 Causes burns.

R35 Causes severe burns.

R36 Irritating to eyes.

R36/37 Irritating to eyes and respiratory system.

R38 Irritating to skin.

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R66 Repeated exposure may cause skin dryness or cracking.

R67 Vapours may cause drowsiness and dizziness.

H225 Highly flammable liquid and vapour.

H226 Flammable liquid and vapour.

H242 Heating may cause a fire.

H271 May cause fire or explosion; strong oxidiser.

H302 Harmful if swallowed.

H310 Fatal in contact with skin.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

H330 Fatal if inhaled.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

H412 Harmful to aquatic life with long lasting effects.

Cahiers et notes documentaires INRS - N°186 - 1erT2002 : “Les peroxydes et leur utilisation”

Further information This product must be handled only by personnel well informed of safety conditions., When used in formulations, contact us for labelling.

Update:

Safety datasheet sections which have been updated: Type:

1-16 General update of Safety Data Sheet (REACH registration).

2 Classification and labelling Revisions

Thesaurus:

NOAEL : No Observed Adverse Effect Level (NOAEL)

LOAEL : Lowest Observed Adverse Effect Level (LOAEL)

bw : Body weight

food : oral feed

dw : Dry weight

vPvB : very Persistent and very Bioaccumulative

PBT : Persistent, Bioaccumulative and Toxic

NB: In this document the numerical separator of the thousands is the “.” (point), the decimal separator is “,” (comma).