

SAFETY DATA SHEET

Date of update: 30.10.2020

Version: 4.0/EN

[In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended]

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **METOX-50**
Substance name: reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane [MEKP], solution 35%
ECHA number: 700-954-4
Registration number: 01-2119514691-43-0004
Synonym: 2-butanone peroxide

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

Relevant identified uses: Manufacturing of the substance; Formulation of preparations; Industrial use of reactive processing aids; Industrial use of chemicals for polymer processing.
Uses advised against: not determined.

1.3 Details of the supplier of the safety data sheet

Manufacturer: **Oxytop Sp. z o.o.**
Address: Antoninek 2, 62-060 Stęszew, Polska
Telephone/Fax number: +48 61 898 53 00, 48 61 898 53 01
E-mail address for a competent person responsible for sds: dokumentacja@oxytop.pl

1.4 Emergency telephone number

112 (emergency telephone number),

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Org. Perox. D H242, Acute Tox. 4 H302, Acute Tox. 4 H332, Skin Corr. 1B H314, Eye Dam. 1 H318

Heating may cause a fire. Harmful if swallowed. Harmful if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage.

2.2 Label elements

Hazard pictograms and signal words



DANGER

Hazard statements

H242 Heating may cause a fire.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.

Precautionary statements

P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
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.

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2.3 Other hazards

The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH.
WARNING! Due to the explosive properties of the substance, do not remove the stabilizer from the substance - explosion hazard.

Section 3: Composition/information on ingredients

3.1 Substances

Name:	Reaction mass of butane-2,2-diyl dihydroperoxide and dioxydibutane-2,2-diyl dihydroperoxide *
CAS number:	1338-23-4
EC number:	700-954-4
Index number:	-
REACH number:	01-2119514691-43-0004
Classification:	Org. Perox. D H242, Acute Tox. 4 H302, Acute Tox. 4 H332, Skin Corr. 1B H314, Eye Dam. 1 H318

*MEKP is a multi-constituent substance consisting of the two main components sec-butylidene hydroperoxide (CAS 2625-67-4, EC 220-091-2, "Monomer") and dioxybis(1-methylpropylidene) hydroperoxide (CAS 126-76-1, EC 204-802-3, "Dimer"). Stabilizer: dimethyl phthalate.

Main components

Name:	sec-butylidene hydroperoxide
CAS number:	2625-67-4
EC number:	220-091-2
Concentration:	20-25%
Name:	dioxybis(1-methylpropylidene) hydroperoxide
CAS number:	126-76-1
EC number:	204-802-3
Concentration:	9-14%

Additive (stabilizer)

Name:	dimethyl phthalate
CAS number:	131-11-3
EC number:	205-011-6
Concentration:	56-61%

Section 4: First aid measures

4.1 Description of first aid measures

Skin contact: Take off contaminated clothing. Wash the contaminated skin thoroughly with plenty of water. Do not use solvents and solutions. Wear sterile dressing. Immediately consult a doctor.

Eye contact: Wash the contaminated eye with plenty of water for 10-15 minutes. Protect the non-irritated eye, remove contact lenses. Avoid powerful water stream – risk of cornea damage. Wear sterile dressing. Immediately consult a doctor.

Ingestion: Do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Consult a doctor immediately, show the container or label.

Inhalation: Move the victim to fresh air. Keep victim warm and calm. Consult a doctor if disturbing symptoms appear.

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4.2 Most important symptoms and effects, both acute and delayed

Eye contact: may cause irritation, redness, pain, vision difficulties, corneal damage, serious eye damage.

Skin contact: may cause irritation, redness, severe skin burns.

Ingestion: ulcers, burns, risk of perforation of the upper digestive tract can occur.

Inhalation: headaches and dizziness, respiratory tract irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured.

Symptomatic treatment.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: foam, dry chemicals, carbon dioxide, water spray, sand.

Unsuitable extinguishing media: halons, water jet – risk of the propagation of the flame.

5.2 Special hazards arising from the substance or mixture

Heating may cause a fire. The product burns very rapidly. There is a risk of re-ignition. Product vapors may form dangerous explosive mixtures with air. As a result of thermal decomposition, combustible materials may be created: ethane, methane, ethylene, and highly reactive free radicals. During the fire, the product may produce harmful fumes of carbon oxides and other unidentified products of pyrolysis. Do not inhale combustion products, they can be dangerous for human health.

5.3 Advice for firefighters

Personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals. Cool the endangered containers with water spray from a safe distance (ca. 15 m) and remove them from the danger zone if it is safe and possible to do. Collect used extinguishing agents.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. Ensure that only the trained personnel removes the effects of the accident. In case of large spills, isolate the exposed area. Avoid skin and eyes contamination. Ensure adequate ventilation. Do not inhale vapours. Remove all ignition sources. Do not smoke. Do not use sparking tools.

6.2 Environmental precautions

In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Notify relevant emergency services.

6.3 Methods and material for containment and cleaning up

Place the damaged container in emergency container. Collect with liquid absorbing materials (e.g. soil, sand). In case of a large leakage, pump it out. Place it in labeled containers for waste. Waste should be kept wet. Do not close the containers. Clean the contaminated place and ventilate it.

6.4 Reference to other sections

Appropriate conduct with waste product – section 13. Personal protective equipment – see section 8.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices. Do not eat, drink or smoke when using the product. Before break and after work wash hands. Avoid contact with skin and eyes. Use personal protection equipment. Ensure adequate ventilation of area, where the product is used.

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Do not inhale vapours and spray. Remove all ignition sources – do not use open flame, do not smoke, use sparking tools and clothing made with fibers susceptible to static electrification. Protect tanks from heat, install explosion-proof electrical equipment, tanks should be bridged and grounded. In the workplace, use only the amount of the product that is absolutely necessary for the job. Keep the unused containers tightly closed. Never mix peroxides directly with accelerators (risk of explosion) – add each component separately to the resin. Do not re-use empty containers.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original containers in dry, cool and well-ventilated area in the warehouse or any part of thereof that is designed for storing peroxides and that corresponds to regulations in force in the field of security and fire protection - fireproof storage, explosion-proof electrical installation and ventilation, the floor with electro-conductive flooring. Metal devices and storage equipment, containers, packaging, etc. on which the electrical charges can be accumulated, should be grounded. Keep away from heat and ignition sources. Avoid direct sunlight. Do not smoke. Protect the containers from contamination. Never pour back the substance into the original container from which it was taken (risk of decomposition). Keep away from incompatible materials (see section 10), foodstuffs and animal feed. Temperature recommended for storage: <25°C (to maintain the technical characteristics of the substance). Use package made of stainless steel, polyethylene (HDPE), Teflon (PTFE). Do not store in containers made of: metals (including steel), copper, rubber (natural or synthetic), stoneware.

7.3 Specific end use(s)

See exposure scenarios.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Product does not contain any components with occupational exposure limit values at working place.

Please check any national occupational exposure limit values in your country.

Legal basis: Commission Directives 2006/15/EC, 2000/39/EC, 2009/161/EC, 2017/164/EU, 2019/1831/EU.

DNEL values for workers:

Type of effect	Route	DNEL
Acute – systematic effects	Inhalation	15,864 mg/m ³
Long-term – systematic effects	Inhalation	5,288 mg/m ³
Long-term – systematic effects	Dermal	3 mg/kg bw

DNEL values for general population:

Type of effect	Route	DNEL
Long-term - systematic effects	Inhalation	1,125 mg/m ³
Long-term – systematic effects	Dermal	1,5 mg/kg bw
Long-term – systematic effects	Oral	0,75 mg/kg bw

PNEC values

PNEC	Value	Assesment factor
Fresh water	0.0056 mg/l	1000
Marine water	0.00056 mg/l	10000
Water (intermittent release)	0.056 mg/l	100
Sediment (fresh water)	0,0876 mg/kg	-
Sediment (marine water)	0,00876 mg/kg	-
Soil	0,0142 mg/kg	-
STP	1,2 mg/l	10

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8.2 Exposure controls

Use the product in accordance with good occupational hygiene and safety practices. Do not eat, drink or smoke when using the product. Before break and after work wash hands carefully. Avoid contact with skin and eyes. Do not inhale vapours. Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke. If, during the work process there is a danger of spilling corrosive liquids on workers or a risk of inflammation of their garments – safety showers (to wash a whole body) and separate eyewash stations should be installed no further than 20 meters in horizontal line from the posts on which the processes are carried out. Ventilation and electrical installation should be explosion-proof. General ventilation and / or local exhaust is recommended in order to maintain the concentration of vapors below dangerous values. Local exhaust is recommended, because it enables to control the emissions at source and prevents from spreading to the whole working area.

Hand protection

Wear protective gloves, resistant to the product. Material recommended for gloves: PCV, neoprene. In case of a short contact, use protective gloves with effectiveness level ≥ 2 (breakthrough time > 30 min.). In case of a prolonged contact, use protective gloves with effectiveness level = 6 (breakthrough time > 480 min.).

The material that the gloves are made of must be impenetrable and resistant to the product's effects. The selection of material must be performed with consideration of breakthrough time, penetration speed and degradation. Moreover, the selection of proper gloves depends not only on the material, but also on other quality features and changes depending on the manufacturer. The producer should provide detailed information regarding the exact breakthrough time. This information should be followed.

Body protection

Wear protective clothing type 3, 4 or 6 to protect against liquid chemicals (selection should be made taking into account the way of exposure to chemical agent):

- protective clothing against liquid jet - type 3;
- protective clothing against liquid spray - type 4;
- clothing that protects against liquid splashes - type 6.

Eyes protection

Use tightly fitting protective glasses if there is a risk of eye contamination.

Respiratory protection

In case of the formation of vapours and aerosols, use absorbing equipment or absorbing and filtering equipment with a suitable protection class (class 1/protection against gases or vapours with a concentration in the air volume not exceeding 0.1%, class 2 / protection against gases or vapours with a concentration in the air not exceeding 0.5%, class 3 / protect against gases or vapours at concentrations in the air volume to 1%). In cases where the oxygen concentration is $\leq 17\%$ and / or maximum concentration of toxic substances in the air is $\geq 1.0\%$ by volume, isolating equipment should be used.

Applied personal protective equipment must comply with the requirements of the Directive 89/686/EC. The employer is obliged to provide protective equipment relevant to performed activities and in accordance with all quality requirements, including its maintenance and cleaning.

Environmental exposure controls

Do not allow large quantities of the product to contaminate ground water, canalization, sewages or soil.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical state:	liquid
colour:	colorless
odour:	characteristic
odour threshold:	not determined
pH (20°C):	3,5-5,0
melting point/freezing point:	-6- to -55°C

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initial boiling point and boiling range:	> 95°C
flash point:	84°C (method: ISO 3679, closed cup)*
evaporation rate:	not determined
flammability (solid, gas):	not applicable
upper/lower flammability or explosive limits:	not determined
vapour pressure (25°C):	0.184 - 73.6 Pa (method: calculated)*
vapour density:	not determined
density (20°C):	1,169 - 1,175 g/cm ³
solubility(ies):	insoluble in water
partition coefficient: n-octanol/water (25°C):	2,04 (dimer) <0,3 (monomer) (method: A8 according to reg. 440/2008/EC as amended)*
auto-ignition temperature:	not determined
decomposition temperature:	60°C (Self-Accerelating Decomposition Temperature)*
explosive properties:	not display
oxidising properties:	not display
dynamic viscosity (20°C):	13,1 mPas (Ubbelohde viscosimeter)*

9.2 Other information

None.

*Data for MEKP in TXIB (stabilizer).

Section 10: Stability and reactivity

10.1 Reactivity

Reactive product. See also subsection 10.4-10.5.

10.2 Chemical stability

The product is stable under normal conditions of use and storage (appropriate stabilizers).

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Avoid heat sources, temperature >25°C, direct exposure to sunlight and flame sources – risk of exothermic decomposition.

10.5 Incompatible materials

Keep away from strong oxidizers, strong acids and basis, Sulphur compounds, salts of transition metals, rust, dust (risk of self-accelerating exothermic decomposition), accelerators (amines, metal salts), acetone.

10.6 Hazardous decomposition products

MEKP undergoes a rapid hydrolytic degradation and form acetic acid, ethyl acetate, methyl ethyl ketone.

Section 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD ₅₀ (rat, oral)	1 017 mg/kg (method: OECD 401)
LD ₅₀ (rabbit, dermal)	4 000 mg/kg (method: OECD 402)
LC ₅₀ (rat, inhalation)	200 ppm/4h
LC ₅₀ (rat, inhalation)	17000 mg/m ³ (method: OECD 403)

Harmful if swallowed. Harmful if inhaled.

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Skin corrosion/irritation

MEKP was tested for irritating / corrosive properties to skin on rabbits, in accordance with method B.4 according to reg. 440/2008/EC as amended. The results showed that MEKP is corrosive to the skin.

Serious eye damage/irritation

MEKP was tested for irritating / corrosive properties to eyes on rabbits. The results showed that MEKP is corrosive to the eyes - causes serious eye damage.

Respiratory or skin sensitisation

The substance is not sensitizing (method OECD 406 and B6 according to reg. 440/2008/EC as amended. Material: guinea pig).

Germ cell mutagenicity

The substance is not classified as mutagenic according to in vitro and in vivo tests.

Carcinogenicity

No carcinogenicity study is available for MEKP. In accordance with column 2 of REACH Annex X, a carcinogenicity study (required in section 8.9.1) does not need to be conducted as methyl-ethylketone peroxide did not reveal indication for mutagenic/genotoxic effects in a complete battery set in vitro and in some in vivo mutagenicity tests. In addition, there is no evidence from the repeated dose studies that the substance can induce hyperplasia and /or pre-neoplastic lesions.

Reproductive toxicity

NOAEL(rat) 50 mg/kg bw/day for systemic toxicity to the parental (method: OECD 421)

NOAEL(rat) 75 mg/kg bw/day for reproductive toxicity (method: OECD 421)

NOAEL(rat) 50 mg/kg bw/day toxicity newborn (method: OECD 421)

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Section 12: Ecological information

12.1 Toxicity

The substance is not classified as dangerous for environment.

Toxicity for fish LC₅₀ 44,2 mg/l/72h/*Poecilia reticulata* (method: OECD 201 and C1 according to reg. 440/2008/CE as amended).

Toxicity for invertebrates LC₅₀ 39 mg/l/42h/*Daphnia magna* (method: OECD 202 and C2 according to reg. 440/2008/CE as amended).

Toxicity for algae LC₅₀ 3,2 mg/l/72h/*Pseudokirchnerella subcapitata*, biomass (method: OECD 203 and C3 according to reg. 440/2008/CE as amended).

Toxicity for algae LC₅₀ 5,6 mg/l/72h/*Pseudokirchnerella subcapitata*, growth rate (method: OECD 203 and C3 according to reg. 440/2008/CE as amended).

12.2 Persistence and degradability

Substance is readily biodegradable (method: OECD 301B and 301D).

12.3 Bioaccumulative potential

Bioaccumulation is not expected. Determination of bioaccumulation for MEKP in aquatic species was scientifically unjustified and therefore was not required in accordance with section 9.3.2, column 2 of Annex IX of REACH regulation.

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The coefficients of bioaccumulation (BCF) of MEKP were calculated at 10,3 l/kg or log BCF 1,013 with program EPIWIN. Due to its low coefficient of bioaccumulation, MEKP has been recognized as a substance without the accumulation potential, and the direct and indirect exposure of the aquatic environment is highly unlikely. The log Pow MEKP estimated is as <2,04. In addition, the representative BCF decomposition products of MEKP showed no tendency to bioaccumulate.

12.4 Mobility in soil

The substance is not mobile in the soil. MEKP has a low partition coefficient n-octanol/water logPow and partition coefficient water / soil log Koc.

12.5 Results of PBT and vPvB assessment

The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH.

12.6 Other adverse effects

The substance has no influence on global warming and destruction of the ozone layer.

Section 13: Disposal considerations

13.1 Waste treatment methods

Disposal methods for the product: disposal in accordance with the local legislation. Waste code should be given in the place of waste formation. Classify as dangerous waste.

Disposal methods for used packing: eliminate empty containers in accordance with the legislation in force.

Legal basis: Directive 2008/98/EC, 94/62/EC.

Section 14: Transport information

14.1 UN number

UN 3105

14.2 UN proper shipping name

ORGANIC PEROXIDE TYPE D, LIQUID [reaction mass of butane-2,2-diyl dihydroperoxide and di-sec-butylhexaoxidane]

14.3 Transport hazard class(es)

5.2

14.4 Packing group

Not applicable.

14.5 Environmental hazards

The substance is not classified as dangerous for environment according to transport regulations.

14.6 Special precautions for user

Avoid heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.



Section 15: Regulatory information

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

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Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 as amended.

Commission Regulation (EU) No 2015/80 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

15.2 Chemical safety assessment

A Chemical Safety Assessment was performed.

Section 16: Other information

H phrases

H242	Heating may cause a fire.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.

Clarification of aberrations and acronyms

Org. Perox. D	Organic peroxide type D
Acute Tox. 4	Acute toxicity, cat. 4
Skin Corr. 1B	Skin Corrosion, cat. 1B
Eye Dam. 1	Eye damage, cat 1
PBT	Persistent, Bioaccumulative and Toxic substance
vPvB	very Persistent, very Bioaccumulative substance

Trainings

Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training.

People associated with transport of hazardous materials in accordance with ADR should be adequately trained for their job responsibilities (general training, bench and safety).

Key literature references and data sources

Safety data sheet was drawn up on the basis provided by the distributor sheet, literature, online databases (e.g. ECHA, TOXNET, Cosing) as well as knowledge and experience, taking into account the current legislation.

Other data

Modifications: sections: 3

This Safety Data Sheet cancels and updates all its previous versions.

The information contained herein is based on our current knowledge and are derived from data contained in the Chemical Safety Report (CSR). The above information is believed to be correct, but may not be sufficient and should be treated only as an aid to safety in transport, distribution, use and storage of the product. The safety data sheet does not relieve you of the knowledge of the rules on the use of the product. The recipient is responsible for safeguards staff and surroundings at the time of use of the substance. This product should be stored, transported and used in accordance with good industrial hygiene practices and in compliance with all laws.