



BERGLASS



MATERIAL SAFETY DATA SHEET

POLYKLEAR LOCAL CATALYST

1. IDENTIFICATION OF THE SUBSTANCE

POLYKLEAR LOCAL CATALYST Product name

2. HAZARDS IDENTIFICATION

Main hazards Danger classification:

O = Oxidising

C = Corrosive

R phrases:

R-7 May cause fire.

R-22 Harmful if swallowed.

R-34 Causes burns.

S phrases:

S-3/7- Keep container tightly closed in a cool place.

S-26- In case of contact with eyes, rinse immediately with plenty of water and seek

S-36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

S-50- Do not mix with accelerators, reducing agents, strong acids, alkalis and heavy metal compounds.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous	ingradiants
mazardous	ingredients

	Transmit and migration and mig				
	Dimethyl phthalate	Conc. 0-67%	CAS 131-11-3	EINECS 205-011- 6	CAS Symbols/Risk phrases None
	TXIB	0-67%	6846-50-0	229-934- 9	None
Pc	Methyl ethyl ketone peroxide	30-40%	1338-23-4	215-661- 2	E, C / 2, 22, 34
100	Hydrogen peroxide	< 5%	7722-84-1	231-765- 0	O, C / 5, 8, 20/22, 35
	Methyl ethyl ketone(2-butanone)	< 3%	78-93-3	201-159- 0	F, Xi / 11,36,66,67
	Water	< 3%	7732-18-5		None

0-25%

4. FIRST AID MEASURES

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Methyl Bensoate

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Fax #: (032) 421-7789; 346-1817

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Remove contaminated clothing. Wash skin thoroughly with soap and temperate water. Skin contact

Skin contact can cause skin corrosion.

Eye contact Irrigate copiously with clean, temperated fresh water for at least 15 minutes holding the

eyelids apart and seek medical advice if necessary. Eye contact can cause irreversible

eye damage or eye corrosion.

Inhalation Remove to fresh air, keep patient warm and at rest, if breathing is irregular or stopped,

administer artificial respiration. Give nothing by mouth. If unconscious, place in recovery

position and seek medical advice.

If accidentally swallowed obtain immediate medical attention. Keep at rest. Drink water Ingestion

or milk, and DO NOT induce vomiting. Ingestion can cause damage, corrosion of gullet

and stomach.

General information In all cases of doubt, or when symptoms persist, seek medical attention. Never give

anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

Extinguishing media Water spray from a safe distance, preferably with a water-fog nozzle.

> For very small fires, an extinguisher with carbon dioxide, foam or dry chemical may be effective. In case of a fire in or near a storage area, cool stored containers with water

spray.

Unsuitable extinguishing media: Water jet.

Fire hazards This peroxide burn vigorously with acceleration. Fire will produce dense black

smoke. Exposure to decomposition products may cause a health hazard. Caution:

Reigniting may occur.

Protective equipment Wear resistant protective clothing and foot wear. Appropriate breathing apparatus may

be required.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Avoid breathing vapours. Avoid skin and eye contact. Wear personal protection

equipment recommended in section 8.

Environmental Contain any fluid that runs out using inert non-combustible material e.g. sand,

precautions earth, vermiculite. Dike to prevent runoff from entering drains, sewers, streams etc. If

the product contaminates lakes, rivers or sewage, inform appropriate authorities in

accordance with local regulations.

Clean up methods Absorb the leak with an inert, non-combustible absorbent material,

> e.g. sand, earth, perlite or vermiculite. Transfer the material into a clean approved container for proper disposal. Wet the material with water. Wash the contaminated

zone.

7. HANDLING AND STORAGE

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Handling

Storage

Precautions for safe handling: Provide adequate ventilation. Keep containers tightly closed when not in use. Avoid skin and eye contact. Avoid breathing vapours. Wear

personal protection equipment recommended in section 8. Emergency shower and

equipment for rinsing eyes must be available. Do not use near food or drink. Wash the hands thoroughly after handling or contact.

Conditions for storage rooms and vessels: Store in accordance with local regulations. Store in original package, in cool, well ventilated place away from sources of heat, fires, sparks and direct sunlight. For maximum shelf life we recommend to store the product at temperatures not higher than 25 C. At higher temperatures the shelf life will be reduced. For safety reasons the storage temperature should not exceed 35.0. Rotate stock using the oldest material first. Prevent unauthorized access.

Avoid storage of incompatible materials: The product must never be stored together with accelerators such as dryers, heavy metal compounds etc. Avoid contact with rust. Keep away from sources of ignition. Keep away from oxidizing agents, from strongly alkaline and strongly acid materials.

Further information for storage: Store in original package. Rotate stock using the oldest material first. Prevent unauthorized access.

Precautions against fire

and explosions:

Isolate from sources of heat, sparks and open flame. No sparking tools should be used. Preparation may charge electrostatically: always use earthing leads when transferring from one container to another. Use clean equipment and tools of inert material such as stainless steel, polyethylene, polypropylene, glass. All equipment should be earthed. Use Peleus ball when pipetting the peroxide solutions. Dilution is not recommended. Never dilute with acetone.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Evnosure Limits:

Exposure Limits:			
Component	CAS-no.	Swedish Exp.limits	ACGIH / Type
		/ Type	
Methyl ethyl ketone peroxide	1338-23-4	0.2 ppm / C	0.2 ppm / C
		1,5 mg/m3 / C	
Dimethylphtalate	131-11-3	3.0 mg/m3 / TWA	5 mg/m3 / TWA
Hydrogen peroxide	7722-84-1	1 ppm / TWA	1 ppm / TWA
Butanone (methyl ethyl ketone)	78-93-3	50 ppm / TWA	50 ppm / TWA

TWA = Time Waited Average TLV = Threshold Limited Value C = Ceiling Limited Value

General protection and hygiene measures: Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Do not eat or drink when handling.

Personal Protection equipment:

Respiratory protection: Is required if the limit like TWA or TLV are exceeded. Gas mask with filter A (brown, organic substances) or positive pressure self contained breathing apparatus.

Hand protection: Use resistant gloves of: butyl rubber, neoprene, ethylen-vinylalcohol, teflon.

Eye protection: Use safety eyewear designed to protect against splash of liquids. Splashes in the eyes may cause serious eye damage. Emergency eye rinsing equipment must be available.

Skin protection: Wear antistatic clothing made of natural fibre or of high temperature resistant synthetic fibre. All parts of the body should be washed after contact.

Further information: Observe the information in section 7. DNEL



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Methyl ethyl ketone peroxide 40% in Dimethyl phthalate:

Use: Industrial or professional DNEL Acute toxicity worker:

Oral: NA Dermal: NA Inhalation: NA

DNEL Long term, Repeated toxicity worker/general population:

Oral: NA/0,27 mg/kg bw,d

Dermal: 1,08 / 0,54 mg/kg bw,d Inhalation: 1,90 / 0,41 mg/m3 PNEC freshwater: 5,6E-03 mg/L PNEC marine waters: 5,6E-04 mg/L

PNEC freshwater sediment: 6,18E-04 mg/kg wwt PNEC marine sediment: 1,9E-03 mg/kg wwt

PNEC soil: 1,26E-03 mg/kg dw

PNEC sewage treatment plant: 1,2 mg/L

Not mutagenic. Not sensitising.







9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state Liquid.

Colour Clear. Colourless. Odour Faint, minty

Boiling point Not applicable (decomposes)

Flash point < 75°C Explosive properties NO

Lower explosion limit LEL Not applicable Upper explosion limit UEL Not applicable

Oxidizing properties No Vapour pressure at 84 oC, (kPa) 0.10 Viscosity at 202C (mPas) 9-23 pН 4 - 7Active oxygen (%) 8,7-9,8 SADT (oC) 60 Density at 20°C (g/cm3) 1.00 - 1.16Solubility in water Immiscible



10. STABILITY AND REACTIVITY

Stability Stable when kept in original, closed container, out of direct sunlight at temperatures

> below 35°C. SADT (Self accelerating decomposition temperature) 60 oC. Contact with incompatible material can cause decomposition below SADT. Decomposition of product

due to heat or contamination may lead to fire or strong explosions.

Conditions to avoid Temperatures over 25°C and storage in direct sunlight. Confinement in stainless steel

equipments (tanks, vessels, pipes etc).

Materials to avoid Incompatible materials such as acids, strong bases, tert-amines, Friedel-crafts catalysts,

> heavy metals, cobalt accelerators or other peroxide accelerators or promoters, rust, brass, galvanized steel, acetone, reducing or oxidizing agents, grinding dust and dirt.

Decomposition and Carbon dioxide, Water, Acetic acid, Formic acid, Propanoic

combustion products: acid.



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11. TOXICOLOGICAL INFORMATION

Toxicological information

Skin contact: Corrosive. Causes burns. Might cause irritation, skin-rash, swelling and chapping. Eyes contact: Corrosive. Just a few drops of it might cause irreversible lesion and permanent injury of

the cornea.

Inhalation: Inhalation might cause cough, headache and irritation of the respiratory-system. Ingestion: Harmful. Swallowing causes strong irritation and burn of throat and stomach.

Perforations of the mucous membranes might occur and, according to its quantity, it

might also cause the death of the injured person.

Sensitizing: Not sensitizing

Genotoxicity: Not mutagenic (Ames test)

Toxicological tests:

Methyl ethyl ketone peroxide 40% in Dimethyl phthalate:

Oral (rat) LD-50 1017 mg/kg Dermal (rat) LD-50 4000 mg/kg Inhalation(rat) LC-50 17 ml/l, 4h

Skin Corrosive **Eyes Corrosive**

Dimethyl phthalate:

Oral (rat) LD-50 >2400 mg/kg Dermal (rabbit)LD-50 >10000 mg/kg Inhalation LC-50 9300 mg/m3, 6,5h Skin Mildly irritating Eyes Minimally irritating

Methyl ethyl ketone:

Oral (rat) LD-50 >2000 mg/kg Dermal (rat) LD-50 >2000 mg/kg

Skin Irritating

Eyes Strongly irritating

Hydrogen Peroxide:

Oral (rat) LD-50 1518 mg/kg Inhalation (rat)LC-50 >10-20 mg/l, 4h

Skin Corrosive

12. ECOLOGICAL INFORMATION

Ecotoxicity

Methyl ethyl ketone peroxide 40% in Dimethyl phthalate:

acute toxicity, LC50 (96h) 44,2 mg/l (Poecilia reticulate)

NOEC (96h) 18 mg/l

acute toxicity, LC50 (48h) 39 mg/l (Daphnia) Aquatic invertebrates

Algae acute toxicity, EC50 (72h) 5,6 mg/l

NOEC (72h) 2,1 mg/l

Bacteria EC50 48 mg/l (activated sludge)

EC10 12 mg/l

Degradation Biotic: Readily biodegradable (closed bottle test)

Considered as not persistent.

Considered as no PBT- and no vPvB-substance.

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Dimethyl phthalate:

Algae

Methyl ethyl ketone:

Fish

Aquatic invertebrates

Algae

Degradation Biotic:

acute toxicity, LC50 (48h) >100 mg/l (Leuciscus idus)

Selenastrum capricornutum, IC50 (96h) 39,8 mg/l

acute toxicity, LC50 (48h) >100 mg/l (Daphnia) acute toxicity, EC50 (7 d) >100 mg/l (Desmodesmus subspicatus)

Readily biodegradable (closed bottle test)

Hydrogen peroxide:

Fish

Aquatic invertebrates

Algae

Degradation Biotic:

acute toxicity, LC50 (96h)16,4 mg/l

acute toxicity, EC50 (48h) 2,4 mg/l (Daphnia)

acute toxicity, EC50 (72h) 2,5 mg/l

Readily biodegradable (closed bottle test)



13. DISPOSAL CONSIDERATIONS

General information

Do not allow into drains or water courses. Product waste is considered as dangerous waste and should be disposed in accordance to local regulations.

Emptied containers should be handled as dangerous waste according to local regulations. The producer recommends destruction of both peroxide rests and empty

packaging by combustion under controlled forms.



14. TRANSPORT INFORMATION

Proper Shipping Name

ADR/RID

3105 UN

Class 5.2

Organic Peroxide Type D, Liquid

(Methyl Ethyl Ketone Peroxide)

IMDG

UN 3105 Class

5.2

EmS Code F-J S-R Packing group II Marine pollutant: no

Tunnel Code: D

Classification code: P1

IATA

UN 3105

Class 5.2 Packing group II



15. REGULATORY INFORMATION

Labelling Symbols

Substance listed in 96/82/EC, Organic Peroxide, O oxidising, C corrosive.



R-7 - May cause fire.

R-22 - Harmful if swallowed.

R-34 - Causes burns.





Risk phrases

S-3/7 - Keep container tightly closed in a cool place.

S-26 - In case of contact with eyes, rinse immediately with plenty of water and seek

S-36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

S-50 - Do not mix with accelerators, reducing agents, strong acids, alkalis and heavy

metal compounds.



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16. OTHER INFORMATION

In Addition from section 2 and 3.

Methylethylketone peroxide. Symbol E, C

R2 Risk of explosion by shock, friction, fire or other sources of ignition

R22 Harmful if swallowed

R34 Causes burns

H240 Heating may cause an explosion

H302 Harmful if swallowed

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

Hydrogen peroxide. Symbol O, C

R5 Heating may cause an explosion.

R8 Contact with combustible material may cause fire

R20/22 Harmful by inhalation and if swallowed

R35 Causes severe burns.

H271 May cause a fire or explosion; strong oxidizer H314 Causes severe skin burns and eye damage

H332 Harmful if inhaled

H335 May cause respiratory irritation

Methyletylketone. Symbol F, Xi

Highly flammable R11

R36 Irritating to eyes

R66 Repeated exposure may cause skin dryness or cracking

R67 Vapours may cause drowsiness and dizziness

H225 Highly flammable liquid and vapour

H319 Causes serious eye irritation

H336 May cause drowsiness or dizziness

Methylbenzoate, Symbol Xn

R22 Harmful if swallowed

H302 Harmful if swallowed

Further information

The information supplied in this Safety Data Sheet is designed only as guidance for the safe use, storage and handling of the product. This information is correct to the best of our knowledge and belief at the date of publication however no guarantee is made to its accuracy. This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process.





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Technical Data Sheet

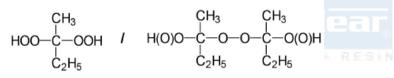
POLYKLEAR LOCAL CATALYST

Methyl Ethyl Ketone Peroxide CAS#1338-23-4 Liquid Mixture









Description:

Colourless, mobile liquid, consisting of peroxides based on methyl ethyl ketone, essentially desensitised with phtalate plasticiser. This ketone peroxide is used as an initiator (radical source) in the curing of unsaturated polyester resins and vinyl ester resins. Main application: curing of large moulded parts at ambient temperature in combination with cobalt accelerators.



Technical Data:

Appearance	colourless liquid
Active oxygen	
De-sensitising agent	phthalic acid ester
Densitiy at 20°C	ca. 1.1 g/cm ³
Viscosity at 20°C	
Miscibility	immiscible with water, soluble in phthalates
Critical temperature (SADT)	ca. 60°C
Cold storage stability	liquid to below -25°C
Recommended storage temperature	below 30°C
Maintenance of activity at 25°C	min. 6 months



POLYESTER CURING: Curing agent for UP resins at ambient temperature in combination with cobalt accelerators. Suitable for all UP resin types and for vinyl ester resins. Standard dosage level: 1-3% as supplied, with 0.5-2% of a 1% cobalt solution (or alternatively cobalt amine accelerator). "Shelf life" (gel time of resin + peroxide) usually only a few hours, depending on temperature and resin type. "Pot life" (gel time of resin + peroxide + accelerator) relatively long, especially, when ortho- or iso-phthalic resins are to be cured.



CURING PERFORMANCE: Moderate evolution of heat, therefore low internal stress. Recommended for vinyl ester (VE) resins. Relatively short mould release times, i.e. good mould release factors ($f_{MR} = t_{MR}/t_{gel}$). Temperatures below 20°C and/or some special resin types retard curing considerably.



PROCESSING METHODS: Particularly hand lay-up, spray lay-up, centrifugal casting, filament winding, casting of resins, and surface coatings (putties, fillers, gelcoats and topcoats).



SPRAY EQUIPMENT: Use spray equipment in accordance with manufacturer's instructions. Ensure all safety devices are operational. Do not clear gun by spraying MEKP into the air.



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"Cobalt Curing" of 2 mm GRP laminates at 23°C						
Formulation (parts by weight)						
Highly reactive o-phthalic acid resin Type MEKP Accelerator	100 2 2	100 2 1	100 2 0.5	100 2 0.2	100 1 1	100 1 0.5
Cure times (minutes)						
Gel time ($t_{\rm gel}$) at 23°C Mould release time ($t_{\rm MR}$) at 23°C Mould release factor ($f_{\rm MR}$ = $t_{\rm MR}/t_{\rm gel}$)	18 70 3.9	25 150 6.0	45 210 4.7	70 340 4.9	65 300 4.6	120 340 2.8























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