



MATERIAL SAFETY DATA SHEET

PRODUCT NUMBER: 11 10 81 and 11 10 82

SECTION 1 PRODUCT IDENTIFICATION AND MANUFACTURE

SUPPLIER: METPREP LTD.
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PRODUCT: Kleer-Set Hardener

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Organic peroxides, Type D	H242: Heating may cause a fire.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Classification (67/548/EEC, 1999/45/EC)	
Oxidising	R 7: May cause fire.
	R10: Flammable.
Corrosive	R34: Causes burns.
Harmful	R22: Harmful if swallowed.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word :	Danger	
Hazard statements :	H226 H242 H302 H314	Flammable liquid and vapour. Heating may cause a fire. Harmful if swallowed. Causes severe skin burns and eye damage.
Precautionary statements :	Prevention: P210 P220 P235 P262 P280	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep/Store away from clothing/ strong acids, bases, heavy metal salts and other reducing substances /combustible materials. Keep cool. Do not get in eyes, on skin, or on clothing. Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:	P303 + P361 + P353 P305 + P351 + P338 P315 P378	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/ attention. Use dry sand, dry chemical or alcohol-resistant



foam for extinction.

Storage:
P403 + P233

Store in a well-ventilated place. Keep container tightly closed.



Disposal:
P501

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

Hazardous components which must be listed on the label:

1338-23-4 methylethylketoneperoxide

Labelling according to EC Directives: 1999/45/EC

Hazard symbols		
	Oxidising	Corrosive
R-phrase(s) :	R 7 R10 R22 R34	May cause fire. Flammable. Harmful if swallowed. Causes burns.
S-phrase(s) :	S 3/7 S14 S26 S36/37/39 S45 S50	Keep container tightly closed in a cool place. Keep away from strong acids, bases, heavy metal salts and other reducing substances. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Do not mix with activators and catalyst promoters.

Hazardous components which must be listed on the label:

1338-23-4 methylethylketoneperoxide

2.3 Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3 SUBSTANCE HAZARD IDENTIFICATION

3.1 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (67/548/EEC)	Classification (1272/2008/EC)	Concentration [%]
methylethylketoneperoxide	1338-23-4 215-661-2 01- 2119514691- 43-0000	O; R 7 Xn; R22 C; R34	Org. Perox. C; H242 Acute Tox. 4; H302 Skin Corr. 1B; H314	>= 25 - < 35
4-hydroxy-4-methylpentan-2-one butanone	123-42-2 204-626-7 78-93-3 201-159-0	Xi; R36 F; R11 R66 R67 Xi; R36	Eye Irrit. 2; H319 Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	>= 12,5 - < 15 >= 3 - < 5
ydrogen peroxide solution	7722-84-1 231-765-0	O; R 8 R 5 C; R35 Xn; R20/22	Ox. Liq. 1; H271 Acute Tox. 4; H332 Acute Tox. 4; H302 Skin Corr. 1A; H314	>= 3 - < 5



SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures

General advice :	Take off all contaminated clothing immediately. Never give anything by mouth to an unconscious person. Remove from exposure, lie down. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
If inhaled :	Remove to fresh air. Call a physician immediately.
In case of skin contact :	Wash off immediately with soap and plenty of water.
In case of eye contact :	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
If swallowed :	Clean mouth with water and drink afterwards plenty of water. If a person vomits when lying on his back, place him in the recovery position. Do NOT induce vomiting. If swallowed, seek medical advice immediately and show this container or label.

4.2 Most important symptoms and effects, both acute and delayed no data available

4.3 Indication of any immediate medical attention and special treatment needed no data available

SECTION 5 FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media :	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media :	High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

5.3 Advice for firefighters

Special protective equipment for: Firefighters Use personal protective equipment.

Further information : 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

Wear respiratory protection. Wear personal protective equipment.

6.2 Environmental precautions

Avoid subsoil penetration. Do not allow material to contaminate ground water system. Do not contaminate water. If the product contaminates rivers and lakes or drains inform respective authorities. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Remove mechanically and with care (e.g. with clean polyethylene plastic shovel). Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

6.4 Reference to other sections

see chapter: 7, 8, 11, 12 and 13

6.5 Other information

Never add other substances or waste material to product residue. Move product residue to a safe place and dispose of properly.



SECTION 7	HANDLING AND STORAGE
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7.1 Precautions for safe handling

Advice on safe handling :	For personal protection see section 8.
Dust explosion class :	no data available

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas: and containers	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. Keep container tightly closed. No smoking.
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Further information on storage: conditions	Avoid impurities (e.g. rust, dust, ash), risk of decomposition.
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Advice on common storage :	Store apart from other dangerous and incompatible substances.
Storage temperature :	< 30 °C

Other data :	Storing temperature for reasons of quality liquid up to -25 °C
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7.3 Specific end uses
no data available

SECTION 8	EXPOSURE CONTROL/PERSONAL PROTECTION
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8.1 Control parameters

Components	CAS-No.	Control parameters	Basis	Update
4-hydroxy-4-methylpentan-2-one (diacetone alcohol)	123-42-2	AGW: 96 mg/m ³ , 20 ppm	DE TRGS 900	01 2006
methylethylketone	78-93-3	AGW: 600 mg/m ³ , 200 ppm	DE TRGS 900	01-2006
4-hydroxy-4-methylpentan-2-one	123-42-2	AGW: 96 mg/m ³ , 20 ppm	DE TRGS 900	2006-01-01
butanone	78-93-3	DFG, H, AGW: 600 mg/m ³ , 200 ppm	DE TRGS 900	2006-01-01
butanone	78-93-3	DFG, H, Y, TWA: 600 mg/m ³ , 200 ppm	2000/39/EC	2000-06-16
		STEL: 900 mg/m ³ , 300 ppm		

Other information on limit values: see chapter 16

Biological occupational exposure limits - TRGS903

Substance name	CAS-No.	Control parameters	Sampling time	Update
butanone	78-93-3	2-butanon: 5 mg/l (U)	a	2004-08-01

Remarks:

- | | |
|---|--|
| a | No time limit |
| b | Immediately after exposition or after working hours |
| c | In case of long-term exposition: after more than one shift |
| d | Before the next shift |

8.2 Exposure controls

Engineering measures Provide adequate ventilation.

Personal protective equipment
Respiratory protection : Short duration filter unit: Filter A

Hand protection
Material : butyl-rubber

Glove thickness : 0,5 mm

Break through time : >= 8 h

Remarks : Skin should be washed after contact.

Eye protection : Tightly fitting safety goggles
Face protection



Skin and body protection :	Protective suit Remove and wash contaminated clothing before re-use.
Hygiene measures :	Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feedingstuffs.
Environmental exposure controls	
General advice :	Avoid subsoil penetration. Do not allow material to contaminate ground water system. Do not contaminate water. If the product contaminates rivers and lakes or drains inform respective authorities. Do not let product enter drains.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance :	liquid
Colour :	colourless
Odour :	characteristic
Odour Threshold :	Not relevant
pH :	not applicable
Melting point/freezing point :	< -25 °C
Initial boiling point and boiling range	not applicable, Decomposition
Flash point :	57 °C Method: ISO 3679, Seta-Flash
Evaporation rate :	Not relevant
Flammability (solid, gas) :	not applicable
Lower explosion limit :	not applicable
Upper explosion limit :	not applicable
Vapour pressure :	0,184 Pa at 25 °C
Relative vapour density :	no data available
Density :	1,01 g/cm ³ at 20 °C
Water solubility :	ca. 6,5 g/l at 20 °C
Partition coefficient: noctanol/water	log Pow: < 0,3 at 25 °C
Solubility in other solvents :	Mixable Medium: Phthalates
Autoignition temperature :	not applicable, Decomposes on heating.
Decomposition temperature :	ca. 60 °C, SADT (UN test H.4), SADT possible at temperatures above approximately 60 °C.
Viscosity, dynamic :	13 mPa.s at 20 °C
Viscosity, kinematic :	no data available
Explosive properties :	no data available
Oxidizing properties :	Organic peroxide

9.2 Other information

Refractive index :	1,431 at 20 °C
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SECTION 10 STABILITY AND REACTIVITY PROPERTIES

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

Contact with incompatible substances can cause disintegration at or below SADT.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Stability: Stable under recommended storage conditions.

10.4 Conditions to avoid

Keep away from heat and sources of ignition.

10.5 Incompatible materials

Materials to avoid : Accelerators, strong acids and bases, heavy metals and heavy metal salts, reducing agents, Avoid impurities (e.g. rust, dust, ash), risk of decomposition.



10.6 Hazardous decomposition products

Hazardous decomposition products:

Irritant, caustic, flammable, noxious/toxic gases and vapours can develop in the case of fire and decomposition
ca. 60 °C

Thermal decomposition :

Method: SADT (UN test H.4)

Note: SADT possible at temperatures above approximately 60 °C.

SECTION 11

TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity :

LD50 rat: 1.017 mg/kg

Test substance: methylethylketoneperoxide (40% in dimethylphthalate)

Acute inhalation toxicity :

LC50 rat: 17 mg/l

Exposure time: 4 h

Test substance: methylethylketoneperoxide (40% in dimethylphthalate)

Note: Aerosol

Nominal concentration

Acute dermal toxicity :

LD50 rat: 4.000 mg/kg

Test substance: methylethylketoneperoxide (40% in dimethylphthalate)

Skin corrosion/irritation

Skin irritation :

Causes burns.

Serious eye damage/eye irritation

Eye irritation :

Causes burns.

Respiratory or skin sensitization

Sensitisation : Method:

Maximisation Test

Test substance: methylethylketoneperoxide (60% in dimethylphthalate/
diacetone alcohol)

Did not cause sensitization on laboratory animals.

Germ cell mutagenicity

Genotoxicity in vitro :

Result: Not mutagenic in Ames Test.

Carcinogenicity

no data available

Reproductive toxicity

no data available

Teratogenicity

no data available

STOT - single exposure

no data available

STOT - repeated exposure

no data available

Aspiration hazard

Aspiration toxicity

no data available

SECTION 12

ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish :

LC50 (Poecilia reticulata (guppy)): 44,2 mg/l

Exposure time: 96 h

Test substance: methylethylketoneperoxide (33% in dimethylphthalate)

Toxicity to daphnia and other:
aquatic invertebrates.

EC50 (Daphnia): 39 mg/l

Exposure time: 48 h

Test substance: methylethylketoneperoxide (40% in dimethylphthalate)

Toxicity to algae :

EC50 (Pseudokirchneriella subcapitata): 5,6 mg/l

Exposure time: 72 h

Test substance: methylethylketoneperoxide (40% in dimethylphthalate)

Toxicity to bacteria :

EC50 (Bacteria): 48 mg/l

Exposure time: 30 min

Test substance: methylethylketoneperoxide (33% in dimethylphthalate)

12.2 Persistence and degradability

Biodegradability :

Result: Readily biodegradable.

Method: Closed Bottle Test

Test substance: methylethylketoneperoxide (MEKP)

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be persistent,

12.6 Other adverse effects

no data available

**SECTION 13****DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods**

Advice on disposal and packaging

: Disposal:

Dispose of in conjunction with appropriate waste disposal authorities and in accordance with disposal regulations.

Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14**TRANSPORT INFORMATION****ADR**

UN number : 3105
Description of the goods : ORGANIC PEROXIDE TYPE D, LIQUID
(methylethylketoneperoxide)
Class : 5.2
Packing group : --
Classification Code : P1
Labels : 5.2
Limited quantity : LQ16
Tunnel restriction code : (D)
Environmentally hazardous : no

RID

UN number : 3105
Description of the goods : ORGANIC PEROXIDE TYPE D, LIQUID
(methylethylketoneperoxide)
Class : 5.2
Packing group : --
Classification Code : P1
Hazard identification No : 539
Labels : 5.2
Limited quantity : LQ16
Environmentally hazardous : no

IATA

UN number : 3105
Description of the goods : Organic peroxide type D, liquid
(methylethylketoneperoxide)
Class : 5.2
Packing group : --
Labels : 5.2 (HEAT)
Packing instruction (cargo aircraft): 570
Environmentally hazardous : no
Packing instruction (passengeraircraft): 570

IMDG

UN number : 3105
Description of the goods : ORGANIC PEROXIDE TYPE D, LIQUID
(methylethylketoneperoxide)
Class : 5.2
Packing group : --
Labels : 5.2
EmSNumber 1 : F-J
EmS Number 2 : S-R
Marine pollutant : no

Special precautions for user

see chapter: 6, 7 and 8



SECTION 15

REGULATORY INFORMATION

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

National legislation

Water contaminating class:
(Germany)

Other regulations :

WGK 2 (water endangering)

VwVwS (German water pollution authority), appendix 4
BGV B4 organische Peroxide. (German regulatory requirements)
BG-Merkblatt M001 beachten (German regulatory requirements)
Produkt unterliegt nicht dem Sprengstoffgesetz (SprengG). (German regulatory requirements) Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers. Take note of Dir 94/33/EC on the protection of young people at work. Störfallverordnung Anhang I (German regulatory requirements)

Gefahrengruppe nach § 3 BGV B4: (German regulatory requirements)
Ib (German regulatory requirements)

15.2 Chemical Safety Assessment

no data available

SECTION 16

OTHER INFORMATION

Full text of R-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.
R34	Causes burns.
R35	Causes severe burns.
R36	Irritating to eyes.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3.

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.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H336	May cause drowsiness or dizziness.

Other information

DFG	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).
H	Skin absorption
Y	When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child

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