DIE HARDENER

11294-0001

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

1.1. Product identifier

DIE HARDENER
Article number: 540-0001/-0001M/-0006/-0250

REACH Registration Number:	01-2119457290-43-0000
CAS No:	78-93-3
Index No:	606-002-00-3
EC No:	201-159-0

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

Use of the substance/mixture

Gypsum hardener for dental use

1.3. Details of the supplier of the safety data sheet

Company name:	YETI Dentalprodukte GmbH
Street:	Industriestrasse 3
Place:	D-78234 Engen
Telephone:	+49 7733-9410-0
Telefax:	+49 7733-9410-22
Responsible Department:	sdb@yeti-dental.com Responsible for the safety data sheet: sds@gbk-ingelheim.de

1.4. Emergency telephone number:

+49 7733-9410-0 (Mo-Do 8:00 - 16:30, Fr 8:00 - 15:00)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Flammable liquid: Flam. Liq. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Highly flammable liquid and vapour.
Causes serious eye irritation.
May cause drowsiness or dizziness.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

Butanone

Signal word: Danger

Pictograms:

Hazard statements

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Special labelling of certain mixtures

EUH066	Repeated exposure may cause skin dryness or cracking.

Additional advice on labelling

Classification in compliance with the assessment procedure specified in the Regulation (EC) no 1272/2008.

2.3. Other hazards

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
78-93-3	Butanone			< 100 %
	201-159-0	606-002-00-3	01-2119457290-43-0000	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Remove contaminated soaked clothing immediately. Keep warm and calm injured person. Take away from danger area and lay down affected person.

After inhalation

Move to fresh air in case of accidental inhalation of vapours or decomposition products.
Refer for medical treatment.

After contact with skin

Wash off with soap and plenty of water.
Consult a doctor if skin irritation persists.

After contact with eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Seek medical treatment by eye specialist.

After ingestion

Do not induce vomiting. Rinse out mouth and give plenty of water to drink. Never give anything by mouth to an unconscious person. Summon a doctor immediately. Induce vomiting only upon the advice of a physician. Administer active charcoal (slurry with 20 - 40 grams with a ratio of 10:1). Do not administer milk or digestible oils!

4.2. Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. May cause drowsiness or dizziness. Repeated exposure may cause skin dryness or cracking.
Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Liver and renal damage is possible. Risk of pulmonary oedema.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptoms.
Laxan: sodium sulfate (1 tablespoon / 250 ml of water)
If necessary, rinse out the stomach.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Alcohol-resistant foam, dry chemical, carbon dioxide (CO2), water-spray.

Unsuitable extinguishing media

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:
Carbon monoxide and carbon dioxide

5.3. Advice for firefighters

Use breathing apparatus with independent air supply.
Protective suit.

Additional information
Vapours are heavier than air and spread along ground. The vapour/air mixture is explosive, even in empty, uncleaned receptacles. Risk of bursting of the receptacle. Cool containers at risk with water spray jet. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

In case of vapour formation use respirator. Ensure adequate ventilation. Use personal protective clothing. Get unprotected persons to safety. Keep away from heat and sources of ignition. Avoid contact with the skin and the eyes. Do not inhale vapour/aerosol.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water. Risk of explosion.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder). Shovel into suitable container for disposal. Clean contaminated surface thoroughly. Take measures against electrostatic charging.

6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).
Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling
Keep container tightly closed. Do not breathe vapours. Use only in thoroughly ventilated areas. Avoid contact with skin, eyes and clothing.

Advice on protection against fire and explosion
Do not smoke - volatile. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Use only explosion-proof equipment. Vapours may form explosive mixture with air. Ignitable mixtures can form in the empty container.

Further information on handling
Take off contaminated clothing and wash it before reuse. Preventive skin protection recommended. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep container tightly closed in a dry, cool and well-ventilated place.
Pay attention to anti-explosion rules.

Advice on storage compatibility
Incompatible with oxidizing agents.

Further information on storage conditions
Use only in well-ventilated areas. Keep containers tightly closed in a cool, well-ventilated place. Protect from heat and direct solar radiation. (> 40 °C)

7.3. Specific end use(s)

Gypsum hardener for dental use

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
78-93-3	Butan-2-one (methyl ethyl ketone)	200	600		TWA (8 h)	WEL
		300	899		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
78-93-3	Butan-2-one	butan-2-one	70 µmol/L	urine	Post shift

8.2. Exposure controls



Appropriate engineering controls
Technical measures and the application of suitable work processes have priority over the use of personal protective equipment.

Protective and hygiene measures
Do not inhale vapours. Avoid contact with eyes and skin. Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke. Take off immediately all contaminated clothing.

Eye/face protection
Tightly fitting goggles (EN 166).
Eye wash bottle with pure water (EN 15154).

Hand protection
Splash protection: Protective gloves resistant to chemicals made off butyl, minimum coat thickness 0,7 mm, permeation resistance (wear duration) > 240 minutes, i.e. protective glove <Butoject 898> made by www.kcl.de. This recommendation refers exclusively to the chemical compatibility and the lab test conforming to EN 374 carried out under lab conditions. Requirements can vary as a function of the use. Therefore it is necessary to adhere additionally to the recommendations given by the manufacturer of protective gloves.

Skin protection
Long sleeved clothing (EN 368). Wear fire retardant protective coveralls. Take precautions against electrostatic discharges.

Respiratory protection
In case of vapour / mist formation use respirator. (Full mask, filter A).

Environmental exposure controls
Do not empty into drains Explosion risk.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	Colourless	
Odour:	Solvent-like	
pH-Value (at 20 °C):	Neutral	
Changes in the physical state		
Melting point:	- 86 °C	
Initial boiling point and boiling range:	(1013 hPa) ~ 80 °C	
Sublimation point:	n.d.	
Softening point:	n.d.	
Pour point:	n.d.	
:	n.d.	
Flash point:	~ - 4 °C	DIN 51755
Sustaining combustion:	No data available	
Flammability		
Solid:	n.d.	
Gas:	n.d.	
Explosive properties	In use, may form flammable/explosive vapour-air mixture. Heating will cause pressure rise with risk of bursting.	
Lower explosion limits:	1,8 vol. %	
Upper explosion limits:	11,5 vol. %	
Ignition temperature:	514 °C	DIN 51794
Auto-ignition temperature		
Solid:	n.d.	
Gas:	n.d.	
Decomposition temperature:	n.d.	
Oxidizing properties	n.d.	

Vapour pressure: (at 20 °C)	105 hPa	
Vapour pressure:	n.d.	
Density (at 20 °C):	0,805 g/cm³	berechnet
Bulk density:	n.d.	
Water solubility: (at 20 °C)	292 g/L	
Solubility in other solvents	n.d.	
Partition coefficient:	n.d.	
Viscosity / dynamic:	n.d.	
Viscosity / kinematic:	n.d.	
Flow time:	n.d.	
Vapour density:	n.d.	
Evaporation rate:	n.d.	
Solvent separation test:	n.d.	
Solvent content:	100 %	

9.2. Other information

Solid content: 0%

Other information
No data available.
(n.a. = not applicable; n.d. = not determined)

SECTION 10: Stability and reactivity

10.1. Reactivity

No decomposition if stored and applied as directed.
Formations of peroxides possible. In use, may form flammable/explosive vapour-air mixture.Uncleaned empty vessels may contain product gases which can form explosive mixtures with air.

10.2. Chemical stability

Sensitive to light.
Sensitive to air.

10.3. Possibility of hazardous reactions

Reactions with oxidizing agents.
Reactions with alkalies.
Reacts with: Chromium(VI) oxide.

10.4. Conditions to avoid

Vapour/air mixtures are explosive at intensive warming.
Heating can release vapours which can be ignited.

10.5. Incompatible materials

Oxidizing agents (strong)., Chromium(VI) oxide, strong bases.
Plastics may be corroded.

10.6. Hazardous decomposition products

Peroxides, Carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met.
nausea.
Vomiting.
Aspiration hazard.
Hazard of lung oedema.
Risk of pneumonia.

CAS No	Chemical name				
	Exposure route	Method	Dose	Species	Source
78-93-3	Butanone				
	oral	LD50	3400 mg/kg	Rat	OECD 401
	dermal	LD50	> 8000 mg/kg	Rabbit	Value from literature

Irritation and corrosivity
Causes serious eye irritation.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Causes serious eye irritation.
Repeated exposure may cause skin dryness or cracking.

Sensitising effects
Based on available data, the classification criteria are not met.
Negative (Guinea pig, IUCLID)

STOT-single exposure
May cause drowsiness or dizziness. (Butanone)
May cause drowsiness or dizziness.

Severe effects after repeated or prolonged exposure
Repeated exposure may cause skin dryness or cracking.
Based on the data available the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.
Negative

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

Further information
After absorption of large amounts: disorders of the central nervous system, dizziness, intoxication, drop in blood pressure, anaesthesia. Leads to functional disorders of the respiratory tract and the heart. It is generally the case following inhalation of vapours/aerosols containing ketones that irritation of the mucous membranes, coughing, and shortness of breath may arise. The absorption of large amounts leads to central nervous system depression (anaesthesia). Following repeated contact with the skin, a degreasing effect with possible secondary infection may arise. Toxic effects to the liver and kidneys cannot be excluded following high doses . There is a risk of oedema developing in the respiratory tract following inhalation of the droplets. Handle in accordance with good industrial hygiene and safety practices.

SECTION 12: Ecological information

12.1. Toxicity

Toxicoligical data refer to pure product.

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	[h] | [d]	Species	Source
78-93-3	Butanone					
	Acute fish toxicity	LC50	3220 mg/l	96 h	Pimephales promelas	IUCLID
	Acute algae toxicity	ErC50	1150 mg/l		(16 h, Pseudomonas putida)	IUCLID
	Acute crustacea toxicity	EC50	5091 mg/l	48 h	Daphnia magna	IUCLID

12.2. Persistence and degradability

Readily biodegradable.
Theoretical oxygen demand (ThOD): 2440 mg/g (Value from literature)
BOD/ThBOD: BSB5 76 % (IUCLID)
COD/ThBOD: 95 % (Value from literature)

12.3. Bioaccumulative potential

Partition coefficient (n-octanol/water) log Pow: 0,29
There is no indication of bioaccumulation potential.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

According to Regulation (EC) No 1907/2006 (REACH) none of the substances, contained in this product are a PBT / vPvB substance.

12.6. Other adverse effects

Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

In accordance with regulations for special waste, must be taken to a special waste disposal. Should not be disposed of with household waste. Do not empty into drains
Keep in closed original container. Do not mix with other products.

Contaminated packaging

Empty containers should be taken for local recycling, recovery or waste disposal.
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Contaminated packagings are to be treated like the product itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 1193
14.2. UN proper shipping name:	ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3

Classification code:	F1
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	33
Tunnel restriction code:	D/E

Inland waterways transport (ADN)

14.1. UN number:	UN 1193
14.2. UN proper shipping name:	ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3

Classification code:	F1
Limited quantity:	1 L
Excepted quantity:	E2

Marine transport (IMDG)

14.1. UN number:	UN 1193
14.2. UN proper shipping name:	ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3

Special Provisions:	-
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-E, S-D

Air transport (ICAO)

14.1. UN number:	UN 1193
14.2. UN proper shipping name:	ETHYL METHYL KETONE (METHYL ETHYLKETONE)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3

Limited quantity Passenger:	1 L
Passenger LQ:	Y341
Excepted quantity:	E2
IATA-packing instructions - Passenger:	353
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	364
IATA-max. quantity - Cargo:	60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

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

The transport takes place only in approved and appropriate packaging.

SECTION 15: Regulatory information

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

EU regulatory information

2004/42/EC (VOC): 100 %

National regulatory information

Employment restrictions:	Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).
Water contaminating class (D):	1 - slightly water contaminating

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information

Abbreviations and acronyms

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
IMDG = International Maritime Code for Dangerous Goods
IATA/ICAO = International Air Transport Association / International Civil Aviation Organization
MARPOL = International Convention for the Prevention of Pollution from Ships
IBC-Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk

GHS = Globally Harmonized System of Classification and Labelling of Chemicals
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
CAS = Chemical Abstract Service
EN = European norm
ISO = International Organization for Standardization
DIN = Deutsche Industrie Norm
PBT = Persistent Bioaccumulative and Toxic

LD = Lethal dose
LC = Lethal concentration
EC = Effect concentration
IC = Median immobilisation concentration or median inhibitory concentration

Relevant H and EUH statements (number and full text)

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.
The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.
The delivery specifications are contained in the corresponding product sheet.
This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.
(n.a. = not applicable; n.d. = not determined)