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

1.1. Product identifier

TIP TOP HARDENER No. 2

Art.-No.
590 0727, 590 1166, 590 2976

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

Use of the substance/mixture

Hardener

1.3. Details of the supplier of the safety data sheet

TIP TOP Oberflaechenschutz Elbe GmbH

Heuweg 4
D-06886 Wittenberg

Telephone:	+49(0)3491/635-50
Telefax:	+49(0)3491/635-552

Responsible for the safety data sheet: sds@gbk-ingelheim.de

1.4. Emergency telephone number: Emergency telephone :+49 (0) 6132 / 84463 (GBK Gefahrgut Buero GmbH, Ingelheim)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Indications of danger: Oxidizing, Corrosive
R phrases:
May cause fire.
Harmful if swallowed.
Causes burns.

GHS classification

Hazard categories:
Organic peroxide: Org. Perox. CD
Acute toxicity: Acute Tox. 4
Skin corrosion/irritation: Skin Corr. 1B
Serious eye damage/eye irritation: Eye Dam. 1
Hazard Statements:
Heating may cause a fire.
Harmful if swallowed.
Causes severe skin burns and eye damage.

2.2. Label elements

Pictograms: GHS02-GHS05-GHS07

Signal word: Danger

Hazardous components which must be listed on the label

Butanone peroxide

Hazard statements

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

Precautionary statements

P260	Do not breathe vapour.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Remove/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.
P405	Store locked up.

2.3. Other hazards

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Methylethylketone peroxide, 33% in dimethyl phthalate

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
215-661-2	Butanone peroxide	33 %
1338-23-4	O - Oxidizing, C - Corrosive, Xn - Harmful R07-22-34	
	Self-react. D, Acute Tox. 4, Skin Corr. 1B; H242 H302 H314	
01-2119514691-43		
202-259-7	Methyl benzoate	10 - 20 %
93-58-3	Xn - Harmful R22	
	Acute Tox. 4; H302	
231-765-0	Hydrogen peroxide	1 - < 2,5 %
7722-84-1	O - Oxidizing, C - Corrosive, Xn - Harmful R5-8-35-20/22	
008-003-00-9	Ox. Liq. 1, Acute Tox. 4, Acute Tox. 4, Skin Corr. 1A; H271 H332 H302 H314	
201-159-0	Butanone	1 - < 2,5 %
78-93-3	F - Highly flammable, Xi - Irritant R11-36-66-67	
606-002-00-3	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336	
02-2119752535-35		

Full text of R and H phrases: see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.
Adhere to personal protective measures when giving first aid.
Symptoms of poisoning may not appear for several hours. Keep under medical supervision for at least 48 hours.

After inhalation

Supply fresh air, if required oxygen, consult a physician.
If patient is not breathing, apply artificial respiration.
Remove the casualty into fresh air and keep him immobile.
In case of the person being unconscious put him/her in a stable side position.

After contact with skin

Wash off immediately 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

Summon a doctor immediately.
Rinse out mouth and give plenty of water to drink.
Never give anything by mouth to an unconscious person.
Induce vomiting only upon the advice of a physician.

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

Harmful if swallowed.

Causes severe skin burns and eye damage

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

Treat symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

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

Extinguishing media which must not be used for safety reasons

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:
Carbon monoxide and carbon dioxide.
Hydrocarbons.

5.3. Advice for firefighters

Use breathing apparatus with independent air supply.
Protective suit.

Additional information

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.
Keep away sources of ignition.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3. Methods and material for containment and cleaning up

Shovel into suitable container for disposal.
Soak up with inert absorbent material (e.g. vermiculite, clean sand).
Dilute larger quantities of desensitization agent (e.g. fuel oil) to < 10% before disposal.
Do not keep container sealed.

6.4. Reference to other sections

Observe protective instructions (see Sections 7 and 8).
Information for disposal look up chapter 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Do not breathe vapours.
Wash hands before breaks and at the end of workday.
Keep away from acids, bases, heavy metal salts and reducing agents.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking.
Keep away from open flames, hot surfaces and sources of ignition.
Use explosion-proof equipment / fittings and non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep only in original container.
Keep container tightly closed in a dry, cool and well-ventilated place.
Protect against direct sun radiation.
Avoid temperatures above 25°C .

Advice on storage compatibility

Incompatible with:

Reducing agents., Heavy metal salts, Acids and bases.

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

Hardener

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
7722-84-1	Hydrogen peroxide	1	1.4		TWA (8 h)	WEL
		2	2.8		STEL (15 min)	WEL
1338-23-4	Methyl ethyl ketone peroxides (MEKP)	-	-		TWA (8 h)	WEL
		0.2	1.5		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

Occupational exposure controls

Pay attention to anti-explosion protection rules.
Ensure adequate ventilation, especially in confined areas.

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.
Remove and wash contaminated clothing before re-use.

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type A).

Hand protection

Chemical protective gloves made of nitrile, nitrile/cotton, butyl or neoprene, with a minimum thickness of 0.7 mm, permeation time of approx. 480 minutes.
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.
Pls. find examples in the protective gloves database under: http://bestglove.com/site/chemrest/

Eye protection

Tightly fitting goggles.
Eye wash bottle with pure water.

Skin protection

Long sleeved clothing.
Apron.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	Colourless
Odour:	characteristic

			Test method
Changes in the physical state			
Flash point:		> 60 °C	
Explosive properties			
The product is considered non-explosive; nevertheless explosive vapour/air mixture can be generated.			
Lower explosion limits:		n.a.	
Upper explosion limits:			
Ignition temperature:		n.a.	
Density (at 20 °C):		1,12 - 1,15 g/cm³	
Water solubility: (at 20 °C)		Partially miscible	
Solubility in other solvents:	Phthalates : Bemerkung : Miscible		
Viscosity / dynamic: (at 20 °C)		9 - 15 mPa·s	

9.2. Other information

SADT (UN-Test H.4): approx. 60°C
Active oxygen: 9,0 - 9,3%

SECTION 10: Stability and reactivity

10.1. Reactivity

No decomposition if stored normally.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts with:
Soil, rust, chemicals, strong acids and bases and accelerators (heavy metal salts, amines).

10.4. Conditions to avoid

To avoid thermal decomposition, do not overheat.
Self-Accelerating decomposition temperature (SADT) from 60°C (SADT).

10.5. Incompatible materials

Soil, rust, chemicals, strong acids and bases and accelerators (heavy metal salts, amines).

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.
Hydrocarbons

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

No toxicological data available.
Harmful if swallowed.
Butanone peroxide / LD50/oral/rat: 1017 mg/kg
Methyl benzoate / LD50/oral/rat: 1177 mg/kg
Hydrogen peroxide / LD50/oral/rat: 841 mg/kg
ATEmix/oral: ~ 1600 mg/kg

Irritation and corrosivity

Causes severe skin burns and eye damage

Sensitising effects

Not classified.

Severe effects after repeated or prolonged exposure

STOT - Single exposure: Not classified.
STOT - Repeated exposure: Not classified.
Aspiration hazard: May be fatal if swallowed and enters airways.

Carcinogenic/mutagenic/toxic effects for reproduction

Carcinogenicity: Not classified.

Mutagenicity: Not classified.
Teratogenicity: Not classified.

Additional information on tests

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

SECTION 12: Ecological information

12.1. Toxicity

Ecological data are not available.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

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

Low hazard to waters.

Further information

Do not release undiluted into wastewater or drainage ditch.
Do not release undiluted or in higher quantities into the groundwater, sewerage or waters.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Can be incinerated, when in compliance with local regulations.
Where possible recycling is preferred to disposal.

Waste disposal number of waste from residues/unused products

080409 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other dangerous substances
Classified as hazardous waste.

Contaminated packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.
Packaging that cannot be cleaned should be disposed of like the product.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN3105
14.2. UN proper shipping name:	ORGANIC PEROXIDE TYPE D, LIQUID (Butanone peroxide)
14.3. Transport hazard class(es):	5.2
Hazard label:	5.2

Classification code:	P1
Limited quantity:	125 mL / 30 kg
Transport category:	2
Tunnel restriction code:	D

Inland waterways transport (ADN)

14.1. UN number:	UN3105
14.2. UN proper shipping name:	ORGANIC PEROXIDE TYPE D, LIQUID (Butanone peroxide)

14.3. Transport hazard class(es): 5.2
Hazard label: 5.2

Classification code: P1
Limited quantity: 125 mL / 30 kg

Marine transport (IMDG)

14.1. UN number: UN3105
14.2. UN proper shipping name: ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
14.3. Transport hazard class(es): 5.2
Hazard label: 5.2

Limited quantity: 125 mL / 30 kg
EmS: F-J, S-R

Air transport (ICAO)

UN/ID number: UN3105
14.2. UN proper shipping name: ORGANIC PEROXIDE TYPE D, LIQUID (Methyl ethyl ketone peroxide)
14.3. Transport hazard class(es): 5.2
Hazard label: 5.2

Limited quantity Passenger: Forbidden
IATA-packing instructions - Passenger: 570
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 570
IATA-max. quantity - Cargo: 10 L

14.5. Environmental hazards
Dangerous for the environment: 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 MARPOL73/78 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
1999/13/EC (VOC): 1 %

National regulatory information
Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.
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

Changes
Changes in chapter:

Full text of R phrases referred to under Sections 2 and 3
05 Heating may cause an explosion.

07	May cause fire.
08	Contact with combustible material may cause fire.
11	Highly flammable.
20/22	Harmful by inhalation and if swallowed.
22	Harmful if swallowed.
34	Causes burns.
35	Causes severe burns.
36	Irritating to eyes.
66	Repeated exposure may cause skin dryness or cracking.
67	Vapours may cause drowsiness and dizziness.

Full text of H statements referred to under Sections 2 and 3

H225	Highly 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.

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)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)