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

#### 1.1 Product identifier

### Buehler EpoThin 2 Hardener Article number 20-3442-xxx, 20-3445

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

#### 1.2.1 Relevant uses

Mounting material for metallographic specimens

1.2.2 Uses advised against

None known.

#### 1.3 Details of the supplier of the safety data sheet

Company ITW Test & Measurement GmbH

In der Steele 2

40599 Düsseldorf / GERMANY Phone 0800 707 6273 Fax 0800 707 6274

Homepage www.buehler-met.de E-mail info.uk@buehler.com

Address enquiries to

Technical informationinfo.uk@buehler.comSafety Data Sheetsdb@chemiebuero.de

1.4 Emergency telephone number

Company 0800 707 6273 (Only valid if dialled within the UK) +49 (0) 211 974100

#### **SECTION 2: Hazards identification**

### 2.1 Classification of the substance or mixture

### 2.1.1 Classification according to Regulation (EC) No 1272/2008 [CLP]

Skin Corr. 1B: H314 Causes severe skin burns and eye damage.

Skin Sens. 1: H317 May cause an allergic skin reaction.

Acute Tox. 4: H332 Harmful if inhaled.

Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects.

Repr. 2: H361f Suspected of damaging fertility. Eye Dam. 1: H318 Causes serious eye damage.

#### 2.1.2 Classification according to Directive 67/548/EEC or 1999/45/EC

Xn, Harmful - R 20: Harmful by inhalation.

C, Corrosive - R 34: Causes burns.

Sensitizing. - R 43: May cause sensitisation by skin contact.

N, Dangerous for the environment - R 51/53: Toxic to aquatic organisms, may cause long-

term adverse effects in the aquatic environment.

Xn, toxic for reproduction category 3 - R 62: Possible risk of impaired fertility.



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#### 2.2 Label elements

The product is classified and required to be labelled in accordance with EC-Directives

Labelling according to Regulation (EC) 1272/2008

Hazard pictograms

!

Signal word DANGER

Contains: Polyoxypropylenediamine

m-Phenylenebis(methylamine)

4-tert-Butylphenol

Triethylenetetramine, propoxylated Trimethylhexamethylene diamine

Triethylenetetramine

Hazard statements H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H332 Harmful if inhaled.

H411 Toxic to aquatic life with long lasting effects.

H361f Suspected of damaging fertility.

Precautionary statements P260 Do not breathe vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection. P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P310 Immediately call a POISON CENTER/doctor.

2.3 Other hazards

**Environmental hazards** Does not contain any PBT or vPvB substances.

Other hazards Further hazards were not determined with the current level of knowledge.



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# SECTION 3: Composition / Information on ingredients

#### Product-type:

The product is a mixture.

Range [%]	Substance
20 - <60	Polyoxypropylenediamine
	CAS: 9046-10-0, EINECS/ELINCS: Polymer
	GHS/CLP: Skin Corr. 1B: H314
	EEC: C, R 34
10 - 20	m-Phenylenebis(methylamine)
	CAS: 1477-55-0, EINECS/ELINCS: 216-032-5
	GHS/CLP: Acute Tox. 4: H302 - Acute Tox. 3: H331 - Skin Corr. 1B: H314 - Skin Sens. 1: H317 - Aquatic Chronic 3: H412
	EEC: T, R 22-23-34-43-52/53
10 - 20	4-tert-Butylphenol
	CAS: 98-54-4, EINECS/ELINCS: 202-679-0, EU-INDEX: 604-090-00-8
	GHS/CLP: Repr. 2: H361f - Skin Irrit. 2: H315 - Eye Dam. 1: H318
	EEC: Xn, R 38-41-62
5 - 10	Triphenyl phosphite
	CAS: 101-02-0, EINECS/ELINCS: 202-908-4, EU-INDEX: 015-105-00-7
	GHS/CLP: Skin Irrit. 2: H315 - Eye Irrit. 2: H319 - Aquatic Acute 1: H400 - Aquatic Chronic 1: H410
	EEC: N-Xi, R 50/53-36/38
5 - 10	Triethylenetetramine, propoxylated
	CAS: 26950-63-0, EINECS/ELINCS: 500-055-5
	GHS/CLP: Skin Sens. 1: H317
	EEC: Xi, R 43
1 - 5	Trimethylhexamethylene diamine
	CAS: 25620-58-0, EINECS/ELINCS: 247-134-8
	GHS/CLP: Aquatic Chronic 3: H412 - Skin Sens. 1: H317 - Skin Corr. 1B: H314 - Acute Tox. 4: H302
	EEC: C, R 52/53-43-34-22
1 - 5	Triethylenetetramine
	CAS: 112-24-3, EINECS/ELINCS: 203-950-6, EU-INDEX: 612-059-00-5
	GHS/CLP: Aquatic Chronic 3: H412 - Skin Sens. 1: H317 - Skin Corr. 1B: H314 - Acute Tox. 4: H312
	EEC: C, R 21-34-43-52/53
1 - 3	2,2',2"-Nitrilotriethanol
	CAS: 102-71-6, EINECS/ELINCS: 203-049-8
	GHS/CLP: Eye Irrit. 2: H319

Comment on component parts

Substances of Very High Concern - SVHC: substances are not contained or are below 0,1%.

For full text of H-statements and R-phrases: see SECTION 16.

#### **SECTION 4: First aid measures**

#### 4.1 **Description of first aid measures**

**General information** Take off contaminated clothing and wash before reuse.

Inhalation Ensure supply of fresh air.

Seek medical advice immediately.

Skin contact In case of contact with skin wash off immediately with soap and water.

Immediate medical treatment necessary, as untreated burns can result in slow-healing

Eye contact Consult a doctor immediately.

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy

to do. Continue rinsing. Shield unaffected eye.

Ingestion Consult a doctor immediately.

Do not induce vomiting.

Rinse out mouth and give plenty of water to drink.



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

Allergic reactions Product is caustic.

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

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide. Water spray jet. Dry powder. Foam.

Extinguishing media that must not

be used

Full water jet.

#### 5.2 Special hazards arising from the substance or mixture

Risk of formation of toxic pyrolysis products.

Nitrogen oxides (NOx). Carbon monoxide (CO)

### 5.3 Advice for firefighters

Use self-contained breathing apparatus.

Cool containers at risk with water spray jet.

Fire residues and contaminated firefighting water must be disposed of in accordance within

the local regulations.

### **SECTION 6: Accidental release measures**

### 6.1 Personal precautions, protective equipment and emergency procedures

High risk of slipping due to leakage/spillage of product.

Use personal protective equipment (protective gloves, safety glasses, protective clothing).

Keep away from all sources of ignition.

Ensure adequate ventilation.

#### 6.2 Environmental precautions

Prevent spread over a wide area (e.g. by containment or oil barriers).

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

In case the product spills into drains/surface waters/groundwater, immediately inform the authorities.

#### 6.3 Methods and material for containment and cleaning up

Pick up with absorbent material (e.g. sand, sawdust, universal absorbent, diatomaceous

earth).

Dispose of absorbed material in accordance within the regulations.

#### 6.4 Reference to other sections

See SECTION 8+13

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Provide suitable vacuuming at the processing machines and in the processing area.

Use only in well-ventilated areas.

Do not eat, drink, smoke or take drugs at work.

After worktime and before work breaks the affected skin areas must be thoroughly cleaned.

Take off contaminated clothing and wash before reuse.

Use barrier skin cream.



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#### 7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container. Prevent penetration into the ground.

Do not store together with oxidizing agents.

Do not store together with food and animal food/diet.

Keep container tightly closed.

Keep in a cool place. Store in a dry place. Keep container in a well-ventilated place.

#### 7.3 Specific end use(s)

See product use, SECTION 1.2

## SECTION 8: Exposure controls / personal protection

#### 8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

Range [%]	Substance
1 - 3	2,2',2"-Nitrilotriethanol
	CAS: 102-71-6, EINECS/ELINCS: 203-049-8
	Long-term exposure: 5 mg/m³, ACGIH 2006

#### 8.2 Exposure controls

Eye protection Safety glasses.

Hand protection Butyl rubber, >120 min (EN 374).

The details concerned are recommendations. Please contact the glove supplier for further

information.

**Skin protection** Light protective clothing of plastic material.

Other Do not inhale vapours.

Avoid contact with eyes and skin.

Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of these equipments to chemicals should be ascertained with the respective

supplier

**Respiratory protection** Breathing apparatus in the event of high concentrations.

Short term: filter apparatus, combination filter A-P2.

Thermal hazards none

Delimitation and monitoring of the

environmental exposition

Protect the environment by applying appropriate control measures to prevent or limit

emissions.



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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Form liquid
Color clear
Odor characteristic
Odour threshold not applicable
pH-value not applicable
pH-value [1%] not applicable

Flash point [°C] 90

Boiling point [°C]

Flammability (solid, gas) [°C] not determined
Lower explosion limit not determined
Upper explosion limit 5 Vol.%

Oxidizing properties no
Vapour pressure/gas pressure [kPa] not determined

Density [g/ml]not determinedBulk density [kg/m³]not applicableSolubility in waterpartially misciblePartition coefficient [n-octanol/water]not determinedViscositynot applicableRelative vapour density determinednot determined

in air

Evaporation speed not determined

Melting point [°C] not determined

Autoignition temperature [°C] not determined

Decomposition temperature [°C] not determined

### 9.2 Other information

none

not determined

### SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reactions known if used as directed.

#### 10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

### 10.3 Possibility of hazardous reactions

Reactions with strong oxidizing agents, strong acids and alkalies.

### 10.4 Conditions to avoid

See SECTION 7.2.

## 10.5 Incompatible materials

Oxidizing agent

#### 10.6 Hazardous decomposition products

No hazardous decomposition products known. In the event of fire: See SECTION 5.



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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity** 

Product		
ATE-mix, inhalative, Rat: 17,2 mg/l 4h.		
ATE-mix, dermal, Rabbit: > 2000 mg/kg.		
ATE-mix, oral, Rat: > 2000 mg/kg.		

Range [%]	Substance
1 - 5	Trimethylhexamethylene diamine, CAS: 25620-58-0
	LD50, oral, Rat: 910 mg/kg (IUCLID).
20 - <60	Polyoxypropylenediamine, CAS: 9046-10-0
	LD50, dermal, Rabbit: 2980 mg/kg.
	LD50, oral, Rat: 2880 mg/kg.
5 - 10	Triphenyl phosphite, CAS: 101-02-0
	LD50, oral, Rat: 444 mg/kg (RTECS).
	LDLo, dermal, Rabbit: 5000 mg/kg (RTECS).
10 - 20	m-Phenylenebis(methylamine), CAS: 1477-55-0
	LD50, dermal, Rabbit: 2000 mg/kg.
	LD50, oral, Rat: 930 mg/kg.
	LC50, inhalative, Rat: 2,4 mg/l 4h.
1 - 3	2,2',2"-Nitrilotriethanol, CAS: 102-71-6
	LD50, dermal, Rabbit: > 22500 mg/kg.
	LD50, oral, Rat: 5846 mg/kg.
1 - 5	Triethylenetetramine, CAS: 112-24-3
	LD50, dermal, Rabbit: 805 mg/kg.
	LD50, oral, Rat: 2500 mg/kg.

Serious eye damage/irritation Product is caustic.

Skin corrosion/irritation Product is caustic.

Respiratory or skin sensitisation Sensitizing.

Specific target organ toxicity — not determined single exposure

Specific target organ toxicity — not determined

repeated exposure

Mutagenicity

Reproduction toxicity Repr. 2
Carcinogenicity not determined

**General remarks** 

The product was classified on the basis of the calculation procedure of the preparation

directive.

not determined

Toxicological data of complete product are not available.



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## SECTION 12: Ecological information

#### 12.1 Toxicity

loxicity	
Range [%]	Substance
10 - 20	4-tert-Butylphenol, CAS: 98-54-4
	LC50, (48h), Leuciscus idus: 1,6 mg/l.
	EC50, Bacteria: 227 mg/l/16h.
	EC50, (48h), Daphnia magna: 3,4 mg/l.
	EC50, (72h), Pseudokirchneriella subcapitata: 22,7 mg/l.
1 - 5	Trimethylhexamethylene diamine, CAS: 25620-58-0
	LC50, (48h), Leuciscus idus: 172 mg/l.
	EC50, Bacteria: 89 mg/l/17h.
	EC50, (72h), Scenedesmus subspicatus: 29,5 mg/l.
	EC50, (24h), Daphnia magna: 31,5 mg/l.
20 - <60	Polyoxypropylenediamine, CAS: 9046-10-0
	LC50, (96h), fish: > 220 mg/l.
5 - 10	Triphenyl phosphite, CAS: 101-02-0
	EC50, (48h), Daphnia magna: 36,6 - 58,8 mg/l.
10 - 20	m-Phenylenebis(methylamine), CAS: 1477-55-0
	LC50, (96h), Oncorhynchus mykiss: > 100 mg/l.
	EC50, (48h), Daphnia magna: 16 mg/l.
1 - 3	2,2',2"-Nitrilotriethanol, CAS: 102-71-6
	LC50, (96h), Lepomis macrochirus: 450 - 1000 mg/l.
	EC50, (48h), Daphnia magna: 610 mg/l.
1 - 5	Triethylenetetramine, CAS: 112-24-3
	LC50, (96h), Poecilia reticulate: 570 mg/l (IUCLID).
	EC50, (48h), Daphnia magna: 31,1 mg/l (IUCLID).
	IC50, (72h), Algae: > 100 mg/l (IUCLID).
	LC0, (48h), Leuciscus idus: 200 mg/l (IUCLID).

### 12.2 Persistence and degradability

Behaviour in environment

compartments

not determined

Behaviour in sewage plant not determined Biological degradability not determined

### 12.3 Bioaccumulative potential

No information available.

### 12.4 Mobility in soil

No information available.

### 12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

#### 12.6 Other adverse effects

The product was classified on the basis of the calculation procedure of the preparation directive. Ecological data of complete product are not available.

Do not discharge product unmonitored into the environment or into the drainage.



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### **SECTION 13: Disposal considerations**

#### 13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

**Product** 

Disposal in an incineration plant in accordance with the regulations of the local authorities.

Coordinate disposal with the authorities if necessary.

080409 Waste no. (recommended)

Contaminated packaging

Packaging that cannot be cleaned should be disposed of as for product.

Uncontaminated packaging may be taken for recycling.

Waste no. (recommended) 150110\*

150102 150104

#### **SECTION 14: Transport information**

### 14.1 UN number

See SECTION 14.2 in accordance with UN shipping name

#### 14.2 UN proper shipping name

Transport by land according to

ADR/RID

UN 2735 Amines, liquid, corrosive, n.o.s. (Polyoxypropylendiamine, m-Phenylenebis(methylamine)) (ENVIRONMENTALLY HAZARDOUS) 8 II

- Classification Code

- Label



C7



- ADR LQ

- ADR 1.1.3.6 (8.6) Transport category (tunnel restriction code) 2 (E)

UN 2735 Amines, liquid, corrosive, n.o.s. (Polyoxypropylendiamine, m-Inland navigation (ADN)

Phenylenebis(methylamine)) (ENVIRONMENTALLY HAZARDOUS) 8 II

- Classification Code

- Label





Marine transport in accordance with

IMDG

UN 2735 Amines, liquid, corrosive, n.o.s. (Polyoxypropylendiamine, m-Phenylenebis(methylamine), Triphenyl phosphite) 8 II MARINE POLLUTANT

F-A. S-B

- Label





- IMDG LQ

Air transport in accordance with IATA UN 2735 Amines, liquid, corrosive, n.o.s. (Polyoxypropylendiamine, m-Phenylenebis(methylamine)) 8 II

- Label

- EMS



#### 14.3 Transport hazard class(es)

See SECTION 14.2 in accordance with UN shipping name

### 14.4 Packing group

See SECTION 14.2 in accordance with UN shipping name



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#### 14.5 Environmental hazards

See SECTION 14.2 in accordance with UN shipping name

#### 14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not determined

### **SECTION 15: Regulatory information**

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

**EEC-REGULATIONS** 1967/548 (1999/45); 1991/689 (2001/118); 1999/13; 2004/42; 648/2004; 1907/2006 (Reach);

1272/2008; 75/324/EEC (2008/47/EC); 453/2010/EC

TRANSPORT-REGULATIONS DOT-Classification, ADR (2013); IMDG-Code (2013, 36. Amdt.); IATA-DGR (2013).

NATIONAL REGULATIONS (GB): EH40/2005 Workplace exposure limits (Second edition, published December 2011).

CHIP 3/ CHIP 4

- Observe employment restrictions

for people

Observe employment restrictions for mothers-to-be and nursing mothers. Observe

employment restrictions for young people.

- VOC (1999/13/CE) not determined

#### 15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

### **SECTION 16: Other information**

### 16.1 R-phrases (SECTION 3)

R 34: Causes burns.

R 22: Harmful if swallowed.

R 23: Toxic by inhalation.

R 43: May cause sensitisation by skin contact.

R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic

environment

R 50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic

environment.

R 36/38: Irritating to eyes and skin.

R 21: Harmful in contact with skin.

R 38: Irritating to skin.

R 41: Risk of serious damage to eyes.

R 62: Possible risk of impaired fertility.

#### 16.2 Hazard statements (SECTION 3)

H318 Causes serious eye damage.

H361f Suspected of damaging fertility.

H312 Harmful in contact with skin. H410 Very toxic to aquatic life with long lasting effects.

H400 Very toxic to aquatic life.

H319 Causes serious eye irritation.

H315 Causes skin irritation.

H412 Harmful to aquatic life with long lasting effects.

H317 May cause an allergic skin reaction.

H331 Toxic if inhaled.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

Safety Data Sheet 1907/2006/EC - REACH (GB) **Buehler EpoThin 2 Hardener** Article number 20-3442-xxx, 20-3445 **ITW Test & Measurement GmbH** 40599 Düsseldorf



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#### 16.3 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

CAS = Chemical Abstracts Service

CLP = Classification, Labelling and Packaging

DMEL = Derived Minimum Effect Level DNEL = Derived No Effect Level EC50 = Median effective concentration

ECB = European Chemicals Bureau EEC = European Economic Community

EINECS = European Inventory of Existing Commercial Chemical Substances

ELINCS = European List of Notified Chemical Substances

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC-Code = International Code for the Construction and Equipment of Ships carrying

Dangerous Chemicals in Bulk

IC50 = Inhibition concentration, 50%

IMDG = International Maritime Code for Dangerous Goods IUCLID = International Uniform ChemicaL Information Database

LC50 = Lethal concentration, 50%

LD50 = Median lethal dose

MARPOL = International Convention for the Prevention of Marine Pollution from Ships

PBT = Persistent, Bioaccumulative and Toxic substance

PNEC = Predicted No-Effect Concentration

REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals

TLV®/TWA = Threshold limit value - time-weighted average TLV®STEL = Threshold limit value - short-time exposure limit VOC = Volatile Organic Compounds

vPvB = very Persistent and very Bioaccumulative

### 16.4 Other information Classification procedure

Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (Calculation method)

Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)

Acute Tox. 4: H332 Harmful if inhaled. (Calculation method)

Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects. (Calculation method)

Repr. 2: H361f Suspected of damaging fertility. (Calculation method) Eye Dam. 1: H318 Causes serious eye damage. (Calculation method) Safety Data Sheet 1907/2006/EC - REACH (GB)
Buehler EpoThin 2 Hardener
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**Modified position** 

SECTION 2 been added: P260 Do not breathe vapours/spray. SECTION 2 deleted: H335 May cause respiratory irritation.

SECTION 2 deleted: STOT SE 3 SECTION 2 been added: Repr. 2

SECTION 2 been added: H361f Suspected of damaging fertility.

SECTION 2 been added: Eye Dam. 1

SECTION 2 been added: H318 Causes serious eye damage.

SECTION 2 been added: Gesundheitsgefahr

SECTION 2 deleted: P309+P310 IF exposed or if you feel unwell: Immediately call a POISON

CENTER or doctor/physician.

SECTION 2 been added: P310 Immediately call a POISON CENTER/doctor. SECTION 2 deleted: P501 Dispose of contents/container to in accordance with local/regional/national/international regulation.

SECTION 2 been added: R 62: Possible risk of impaired fertility.

SECTION 4 been added: Immediate medical treatment necessary, as untreated burns can result in slow-healing wounds.

SECTION 4 been added: Consult a doctor immediately.

SECTION 4 been added: Shield unaffected eye.

SECTION 4 been added: Consult a doctor immediately.

SECTION 4 been added: Product is caustic.

SECTION 5 been added: Cool containers at risk with water spray jet.

SECTION 6 been added: In case the product spills into drains/surface waters/groundwater, immediately inform the authorities.

ininediately inform the authorities.

SECTION 10 been added: In the event of fire: See SECTION 5.

SECTION 11 been added: Product is caustic. SECTION 11 been added: Product is caustic.

SECTION 11 been added: Sensitizing.

SECTION 12 been added: Ecological data of complete product are not available.

SECTION 12 been added: Do not discharge product unmonitored into the environment or into the drainage.

SECTION 15 been added: TRGS 905: List of substances causing cancer, mutagenic or being dangerous to reproduction.

SECTION 15 been added: Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16 been added: Calculation method

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