

Revision date: 28.02.2020  
Replacement of version 0015 of 07.01.2019

Version: 0016



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

### 1.1 *Product identifier*

Trade name	<b>TBE Running Buffer (5x Concentrate)</b>
Product number	anam0012
Item code	TB50060
Formulation	TBE LP
Formulation number	11/05

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

Appropriate use:  
The product is used for electrophoresis in analytical laboratories.

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

anamed Elektrophorese GmbH  
Ringstraße 4  
D-64401 Gross-Bieberau  
Telephone: +49-6162-809840  
e-mail-address of the competent person responsible for this Safety Data Sheet:  
[urban-finking.gefstoff@t-online.de](mailto:urban-finking.gefstoff@t-online.de)

#### **Technical contact:**

anamed Elektrophorese GmbH  
Frau Dr. Vera Kreis  
Telephone +49-6162-809840  
Fax +49-6162-8098420

### 1.4 *Emergency telephone number*

Poison Control Center Mainz (Giftinformationszentrum Mainz) or local poison centers  
Telephone +49-6131 19 2 40

## SECTION 2: Hazards identification

### 2.1 *Classification of the substance or mixture*

The mixture does not meet the criteria for a classification as hazardous in accordance with the current version of Regulation (EC) No 1272/2008.

### 2.2 *Label elements*

Hazard pictogram(s):	No pictogram
Signal word(s):	No signal word
Product identifier:	Not required
Hazard statements:	Not required
Precautionary statements:	Not required

#### Supplemental hazard information:

According to Annex II Part 2 section 2.10 of the Regulation (EC) No 1272/2008 the label on the packaging of **mixtures not intended for the general public** shall bear the statement:

EUH210 – "Safety data sheet available on request".

### 2.3 *Other hazards*

Possible health hazard if not used correctly.  
Irritant effect on eyes and skin cannot be ruled out.  
The product is classified as slightly hazardous to water.  
The mixture does not contain any substances classified as PBT/vPvB in a concentration of 0.1% or more.

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Product number:	<b>anam0012</b>		

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

REACH registration number:

- Trometamol: 01-2119957659-16-XXXX
- Boric acid: 01-2119486683-25-XXXX

#### 3.2.1 Characterisation

Tris borate EDTA buffer solution (concentrate) for nucleic acid electrophoresis.

It is an aqueous mixture based on several special substances.

#### 3.2.2 Substances presenting a health/environmental hazard within the meaning of Regulation (EC) No 1272/2008

CAS No	EC No	Identification	% by weight	Classification
10043-35-3	233-139-2	boric acid	1 - < 5.5	Repr. 1B; H360FD

See subsection 2.2 for further details. Full text of the hazard statements see subsection 16.2.

#### 3.2.3 Substances for which Union workplace exposure limits have been assigned and which are not already included under point 3.2.2 (see also Section 8.)

No substances.

#### 3.2.4 Additional information

Specific concentration limits for boric acid:

Repr. 1B: C ≥ 5,5%

The product contains 5 – 10% trometamol.

DNEL/PNEC values have been assigned for this substance (see subsection 8.1).

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### 4.1.1 General information

Change contaminated clothing and wash before reuse.

Emergency eyewash should be provided in the immediate working surroundings.

##### 4.1.2 In case of inhalation

Remove the casualty into fresh air.

In the event of symptoms take medical treatment.

##### 4.1.3 In case of contact with skin

In case of contact with skin rinse thoroughly with plenty of water.

##### 4.1.4 In case of contact with eyes

In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do.

##### 4.1.5 In case of ingestion

If swallowed, rinse mouth with water (only if the person is conscious).

Do not induce vomiting.

Let water be swallowed in little sips (dilution effect).

Put victim at rest. Take medical treatment immediately.

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

Irritant effect on eyes and skin cannot be ruled out.

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

No information available.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### 5.1.1 Suitable extinguishing media

Water spray jet, carbon dioxide, dry powder, foam.

##### 5.1.2 Unsuitable extinguishing media

Full water jet.

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

In the event of fire the following can be released: hydrocarbons, carbon oxides, nitrogen oxides, irritant fumes.

Risk of formation of toxic pyrolysis products.

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus.

Do not inhale explosion and combustion gases.

Cool endangered containers with water spray jet.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

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**SECTION 6: Accidental release measures**

- 6.1 Personal precautions, protective equipment and emergency procedures**
- 6.1.1 For non-emergency personnel**  
 Ensure adequate ventilation. Use personal protective clothing.  
 Use respiratory protection if exposed to vapours.  
 Keep away from unprotected people.
- 6.1.2 For emergency responders**  
 For suitable fabric for personal protective clothing see Section 8.
- 6.2 Environmental precautions**  
 Do not discharge into the drains, the aquatic environment and soil.
- 6.3 Methods and material for containment and cleaning up**  
 Pick up with suitable material. Dispose of absorbed material in accordance with the regulations.  
 Send in suitable containers for recovery or disposal.  
 Flush away residues with plenty of water.
- 6.4 Reference to other sections**  
 For personal protective equipment see also Section 8.  
 For disposal considerations see also Section 13.

**SECTION 7: Handling and storage**

- 7.1 Precautions for safe handling**
- 7.1.1 Advice on safe handling**  
 The normal safety precautions for handling of chemicals must be observed.  
 Avoid contact with eyes and skin.  
 Comply with the minimum standards in accordance with TRGS 500<sup>1</sup>.
- 7.1.2 Advice on general occupational hygiene**  
 Do not inhale vapours. Avoid contact with eyes and skin.  
 At work do not eat, drink, smoke or take drugs.  
 Change contaminated clothing and wash before reuse.  
 Wash hands before breaks and after work. Use barrier skin cream.  
 Emergency eyewash should be provided in the immediate working surroundings.
- 7.2 Conditions for safe storage, including any incompatibilities**
- 7.2.1 Advice on protection against fire and explosion**  
 None.
- 7.2.2 Requirements for storage rooms and vessels**  
 Keep container tightly closed. Keep in a cool place.
- 7.2.3 Advice on storage compatibility**  
 The information about joint storage given in Table 2 of TRGS 510<sup>1</sup> must be observed.
- 7.2.4 Further information on storage conditions**  
 None.
- 7.2.5 Storage class (for Germany only)**  
 LGK 12 (non-combustible liquids) in accordance with TRGS 510<sup>1</sup>.
- 7.3 Specific end use(s)**  
 The product is only intended for the uses mentioned under subsection 1.2.

**SECTION 8: Exposure controls/personal protection****8.1 Control parameters**

CAS No	Identification	Limit values	Remarks
10043-35-3	boric acid	2 mg/m <sup>3</sup> 0.5 mg/m <sup>3</sup> - inhalable fraction	<b>National limit values – eight hours</b> Belgium Germany (related to the element content - boron) Latvia Spain Switzerland
		10 mg/m <sup>3</sup> 2 mg/m <sup>3</sup> 1.8 – inhalable fraction	<b>National limit values – short term</b> Belgium Germany (related to the element content - boron) Spain Switzerland
		6 mg/m <sup>3</sup> 1 mg/m <sup>3</sup> - inhalable fraction	
		6 mg/m <sup>3</sup> 1.8 – inhalable fraction	

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*(continued from subsection 8.1 Control parameters)*

#### DNEL values

##### Additional limit values for trometamol in accordance with the registration dossier:

worker, long-term exposition: inhalation, systemic effect:	117.5 mg/m <sup>3</sup>
worker, long-term exposition: dermal, systemic effect:	166.7 mg/kg <sub>bw</sub> /d
general population, long-term exposition: inhalation, systemic effect:	29 mg/m <sup>3</sup>
general population, long-term exposition: dermal, systemic effect:	83.3 mg/kg <sub>bw</sub> /d
general population, long-term exposition: oral, systemic effect:	8.3 mg/kg <sub>bw</sub> /d

##### Additional limit values for boric acid in accordance with the registration dossier:

worker, long-term exposition: inhalation, systemic effect:	8.3 mg/m <sup>3</sup>
worker, long-term exposition: dermal, systemic effect:	392 mg/kg <sub>bw</sub> /d
general population, long-term exposition: inhalation, systemic effect:	4.15 mg/m <sup>3</sup>
general population, long-term exposition: dermal, systemic effect:	196 mg/kg <sub>bw</sub> /d
general population, long-term exposition: oral, systemic effect:	0.98 mg/kg <sub>bw</sub> /d
general population, acute: oral, systemic effect:	0.98 mg/kg <sub>bw</sub> /d

#### PNEC values

##### Additional limit values for trometamol in accordance with the registration dossier:

aquatic, sewage treatment plant:	300 mg/l
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##### Additional values boric acid in accordance with the registration dossier:

aquatic, fresh water:	2.9 mg/l
aquatic, marine water:	2.9 mg/l
aquatic, intermittent release:	13.7 mg/l
aquatic, sewage treatment plant (STP):	10 mg/l
soil environment:	5.7 mg/kg <sub>dw</sub>

The methods for measuring chemical agents in workplace atmosphere must meet the general requirements of EN 481, EN 482 and EN 689.

## 8.2 Exposure controls

### 8.2.1 Appropriate engineering controls

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See also subsection 7.1.

The effectiveness of suitable protective measures must be controlled.

Suitable assessment methods are described in the German TRGS 402<sup>1</sup>.

### 8.2.2 Individual protection measures, such as personal protective equipment

Personal protective equipment needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer/supplier of the personal protective equipment.

#### 8.2.2.1 Eye/face protection

Tightly fitting safety glasses in accordance with EN 166 (i.e. safety glasses with side shields).

#### 8.2.2.2 Skin protection

##### Hand protection:

In case of operations where skin contact is possible, wear suitable protective gloves.

Chemical protective gloves needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled.

Information on appropriate protective gloves is currently not available. In the cases of special applications, it is recommended to check the chemical resistance with the manufacturer of the gloves.

The protective gloves to be used must comply with the specifications of the standard EN 374.

##### Body protection:

Closed work clothing.

#### 8.2.2.3 Respiratory protection

With correct and proper use, and adequate ventilation of the working place, respiratory protection is not required.

In case of inadequate ventilation, and in case of formation of vapours/aerosols, wear respiratory protection.

Information on appropriate respirator protection is currently not available.

The limitations in wearing time according to the the DGUV Regel 112-190<sup>2</sup> (rule of the German employers' liability insurance association) for the use of respirators have to be observed.

#### 8.2.2.4 Thermal hazards

Not relevant.

### 8.2.3 Environmental exposure controls

See Section 6.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	colourless	
Odour:	odorless	
Odour threshold:	no relevant	
pH (as supplied):	8.1 – 8.3	
pH (of an aqueous solution):	not determined	
Melting point/freezing point (°C):	not determined	
Boiling point and boiling range (°C):	not determined	
Flash point (°C), closed cup:	not relevant	
Evaporation rate:	no data available	
Flammability (solid, gas):	not relevant	
Upper flammability or explosive limit:	not relevant	
Lower flammability or explosive limit:	not relevant	
Vapour pressure (20°C) (mbar):	no data available	
Vapour density (20°C):	no data available	
Density (g/cm <sup>3</sup> ):	not determined	
Relative density:	not determined	
Solubility in water:	miscible	
Soluble in:	not determined	
Partition coefficient: n-octanol/water:	- 2.3 (20°C) (trometamol)	(registration dossier)
	- 1.09 (22°C) (boric acid)	(EU Method A.8)
Auto-ignition temperature (°C):	no data available	
Decomposition temperature (°C):	no data available	
Viscosity:	no data available	
Explosive properties:	not explosive	
Oxidising properties:	not relevant	

### 9.2 Other information

None.

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available for the mixture.

### 10.2 Chemical stability

The product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

### 10.3 Possibility of hazardous reactions

When used as intended, no hazardous reactions known.

### 10.4 Conditions to avoid

No information available for the product.

### 10.5 Incompatible materials

No information available for the product.

### 10.6 Hazardous decomposition products

When used as intended, no hazardous decomposition products known.

For hazardous combustion products see subsection 5.2.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

The mixture has not been tested.

#### 11.1.1 Acute toxicity

LD50 rat, oral	(mg/kg)	> 2600	(boric acid)	(OECD Test Guideline 401)
		> 5000	(trometamol)	(OECD Test Guideline 425)
LD50 rabbit, dermal	(mg/kg)	> 2000	(boric acid)	(FIFRA (40CFR 163))
LD50 rat, dermal	(mg/kg)	> 5000	(trometamol)	(OECD Test Guideline 402)
LC50 rat, inhalation	(mg/l/4h)	> 2.03; aerosol	(boric acid)	(OECD Test Guideline 403)

#### 11.1.2 Skin corrosion/irritation

Irritant effect on skin (rabbit)		Not irritating	(boric acid)	(FIFRA (40CFR 163))
		Not irritating	(trometamol)	(OECD Test Guideline 404)

#### 11.1.3 Serious eye damage/irritation

Irritant effect on eyes (rabbit)		Slight irritation	(boric acid)	(FIFRA (40CFR 158, 162))
		Not irritating	(trometamol)	(OECD Test Guideline 405)

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- 11.1.4 Respiratory or skin sensitisation**  
No data available for the product.  
Skin sensitisation (guinea pig) Not sensitising (boric acid) (OECD Test Guideline 406)
- 11.1.5 Germ cell mutagenicity**  
The mixture does not contain substances classified as germ cell mutagens.
- 11.1.6 Carcinogenicity**  
The mixture does not contain substances classified as carcinogenic.
- 11.1.7 Reproductive toxicity**  
The product contains boric acid in a concentration which does not require a classification of the mixture as toxic for the reproduction according to annex VI of Regulation (EC) No 1272/2008 (current version).
- 11.1.8 Specific target organ toxicity (STOT)-single exposure**  
The mixture does not contain substances classified as being a specific target organ toxicant after single exposure below generic concentration limits triggering a classification.
- 11.1.9 Specific target organ toxicity (STOT)-repeated exposure**  
The mixture does not contain substances classified as being a specific target organ toxicant after repeated exposure.
- 11.1.10 Aspiration hazard**  
The mixture does not contain aspiration toxicants.
- 11.1.11 Symptoms related to the physical, chemical and toxicological characteristics**  
Irritant effect on eyes and skin cannot be ruled out if the product is not used correctly.
- 11.1.12 Delayed and immediate effects as well as chronic effects from short and long-term exposure**  
Irritant effect on eyes and skin cannot be ruled out if the product is not used correctly.

## SECTION 12: Ecological information

- 12.1 Toxicity**  
**Aquatic toxicity:**
- |           |           |            |   |
|-----------|-----------|------------|---|
| 96 h LC50 | (fish)    | 79.7 mg/l  | (Pimephales promelas; fathead minnow)<br>(boric acid) (ASTM E729-95)        |
| NOEC 32d  | (fish)    | 11.2 mg/l  | (Pimephales promelas; fathead minnow)<br>(boric acid) (ASTM E1241-05)       |
| 48 h EC50 | (daphnia) | 133 mg/l   | (Daphnia magna)<br>(boric acid) (external safety data sheet)                |
|           |           | > 980 mg/l | (Daphnia magna)<br>(trometamol) (OECD Test Guideline 202)                   |
| 72 h EC50 | (algae)   | 40.2 mg/l  | (Pseudokirchneriella subcapitata)<br>(boric acid) (OECD Test Guideline 201) |
|           |           | 397 mg/l   | (Pseudokirchneriella subcapitata)<br>(trometamol) (OECD Test Guideline 201) |
- Behaviour in sewage works:**  
Treat by state-of-the-art technology before discharging into drains.
- 12.2 Persistence and degradability**  
The product has not been tested.  
Trometamol:  
biodegradation 100.7%, exposure time 28 days (OECD Test Guideline 301 F); readily biodegradable.  
Chemical oxygen demand (COD) No data available.  
Biochemical oxygen demand (BOD5) No data available.  
AOX-hint Not to apply.
- 12.3 Bioaccumulative potential**  
Partition coefficient n-octanol/water: - 2.3 (20°C) (trometamol) (registration dossier)  
- 1.09 (22°C) (boric acid) (EU Method A.8)
- Bioaccumulation is not expected.
- 12.4 Mobility in soil**  
The product has not been tested.
- 12.5 Results of PBT and vPvB assessment**  
The mixture does not contain any substances classified as PBT/vPvB in a concentration of 0.1% or more.
- 12.6 Other adverse effects**  
Ozone depletion potential No data available.  
Photochemical ozone creation potential No data available.  
Global warming potential No data available.  
The product is classified as slightly hazardous to water.  
**Contains according to the formulation following heavy metals and compounds of EC-Directives 2006/11/EC and 80/68/EEC:**  
None.

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### SECTION 13: Disposal considerations

#### 13.1 *Waste treatment methods*

Waste disposal according to official state regulations. Sewage disposal must be avoided. Consult the local waste disposal expert about waste disposal.

#### **Disposal operations/recovery operations according to Directive 2008/98/EC**

Disposal operations:	D 9	Physico-chemical treatment
Recovery operations:	R 3	Recycling/reclamation of organic substances which are not used as solvents

#### **Properties of waste which render it hazardous in accordance with Annex III of Directive 2008/98/EC**

Not relevant.

#### 13.1.1 *Product / unused product*

Waste disposal corresponding to European Waste Catalogue. Wastes must be classified with respect to their origin and depending on different processing steps. The waste codes mentioned as follows are only constituted as our recommendations. Referring to the particular case they should be completed or revised.

EC waste code:	16 05 09
Waste notation:	Discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

#### 13.1.2 *Contaminated packaging*

Recommendation: Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

Recommended cleansing agent: Water

Packaging that cannot be cleaned:

EC waste code:	15 01 06
Waste notation:	Mixed packaging

### SECTION 14: Transport information

#### 14.1 *UN number*

No dangerous good in accordance with the UN Model Regulations (ADR/RID/ADN/IMDG/ICAO/IATA).

#### 14.2 *UN proper shipping name*

Not relevant.

#### 14.3 *Transport hazard class(es)*

Not relevant.

#### 14.4 *Packing group*

Not relevant.

#### 14.5 *Environmental hazards*

Not relevant.

#### 14.6 *Special precautions for user*

Not relevant.

#### 14.7 *Transport in bulk according to Annex II of MARPOL and the IBC Code*

Not relevant.

### SECTION 15: Regulatory information

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

##### 15.1.1 *Information regarding relevant Union safety, health and environmental provisions*

Regulation (EC) No 1907/2006:	Boric acid is included in the candidate list of the European Chemical Agency <sup>4</sup> in accordance with Article 59 paragraph 10.
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##### 15.1.2 *Information regarding national laws/national measures that may be relevant (for Germany only)*

Restriction of occupation:	Not relevant
Major-accident Regulation:	Not relevant
Fire and explosion hazards:	Not relevant
Regulation on clean air (TA Luft):	Not relevant
Water hazard class:	WGK 1 – slightly hazardous to water (deduction of the WGK according to Annex 1 No 5.2 AwSV) <sup>3</sup> The German Ordinance on facilities for handling substances that are hazardous to water (AwSV) has to be observed

German Ordinance on Hazardous Substances (in accordance with EC-Directive 98/24/EC):

Article 6 must be observed  
Articles 7, 8 and 14 must be observed as required

Technical Rules for Hazardous Substances<sup>1</sup>:

TRGS 400, 500, 510, 900

Rules of the employers' liability insurance association<sup>2</sup>:

DGUV Regel 112-190, 112-192, 112-195

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**15.2 Chemical safety assessment**

No chemical safety assessment has been carried out for a substance in the product.

**SECTION 16: Other information**

- 16.1 Keeping (restrictions)** Not relevant  
**Supply** University (college, academy), industry consumer
- 16.2 Full text of the hazard statements referred to under subsection 2.1 and point 3.2.2 of the Safety Data Sheet**  
H360FD May damage fertility.  
May damage the unborn child.
- 16.3 Key to abbreviations and acronyms used in the safety data sheet**
- ADN: Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure  
ADR: Accord européen relatif au transport international des marchandises dangereuses par route  
AOX: adsorbable organically bound halogens  
ASTM: American Society for Testing and Materials  
AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances that are hazardous to water)  
CFR: Code of Federal Regulations  
DNEL: Derived No-Effect Level  
FIFRA: Federal Insecticide, Fungicide, and Rodenticide Act  
ICAO/IATA: International Civil Aviation Organisation/International Air Transport Association-Dangerous Goods Regulations  
IMDG-Code: International Maritime Dangerous Goods-Code  
IUCLID: International Uniform Chemical Information Database  
KBwS: Commission for the Evaluation of substances hazardous to waters (Kommission Bewertung wassergefährdende Stoffe)  
LGK: Lagerklasse (storage class)  
NOEC: no observed effect level concentration  
OECD: Organisation for Economic Co-operation and Development  
PBT: persistent, bioaccumulative and toxic  
PNEC: Predicted No-Effect Concentration  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer  
RTECS: Registry of Toxic Effects of Chemical Substances  
TRGS: Technische Regeln für Gefahrstoffe (Technical Rules for Hazardous Substances)  
vPvB: very persistent and very bioaccumulative
- 16.4 Literature references and sources for data**  
<sup>1</sup> <http://www.baua.de>  
<sup>2</sup> <http://www.arbeitssicherheit.de>  
<sup>3</sup> <http://www.umweltbundesamt.de>  
<sup>4</sup> [http://echa.europa.eu/chem\\_data/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/candidate_list_table_en.asp)
- 16.5 Method used for the classification of the mixture**  
The product does not meet the criteria for a classification as hazardous in accordance with the current version of Regulation (EC) No 1272/2008.
- 16.6 Changes which have been made to the previous version of the safety data sheet**  
Revised sections: 1.3, 3.2.1, 8.1, 9.1, 11.1.1, 11.1.2, 11.1.3, 11.1.4, 12.1, 12.2, 12.3, 15.1.1, 16.3

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.