

**Safety data sheet
according to 1907/2006/EC, Article 31**

Printing date 02.11.2015

Version 7

Revision: 12.06.2015

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

· **1.1 Product identifier**

· **Trade name: R 20-TC Developer part 1**

· **Article number:** 10231

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

To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.

· **Application of the substance / the mixture**

Photochemicals
Photographic developer
Reserved for industrial and professional use.

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

· **Manufacturer/Supplier:**

ADEFO-CHEMIE GmbH
Justus-von-Liebig-Str. 24-26
D-63128 Dietzenbach
Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
E-Mail: service@adefo-chemie.de
www.adefo-chemie.de

· **Informing department:**

Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
E-Mail: kr@calbe-chemie.de

· **1.4 Emergency telephone number:** Tel.: 0700-24112112 (CAL)

SECTION 2: Hazards identification

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

· **Classification according to Regulation (EC) No 1272/2008**

Acute Tox. 4	H302	Harmful if swallowed.
Eye Dam. 1	H318	Causes serious eye damage.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Muta. 2	H341	Suspected of causing genetic defects.
Carc. 2	H351	Suspected of causing cancer.
Repr. 1A	H360FD	May damage fertility. May damage the unborn child.
Aquatic Acute 1	H400	Very toxic to aquatic life.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS05 GHS07 GHS08 GHS09

· **Signal word** Danger

· **Hazard-determining components of labelling:**

hydroquinone
boric acid
disodium disulphite

· **Hazard statements**

H302 Harmful if swallowed.

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- H318 Causes serious eye damage.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H360FD May damage fertility. May damage the unborn child.
- H400 Very toxic to aquatic life.

Precautionary statements

- P280 Wear protective gloves / eye protection.
- P273 Avoid release to the environment.
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- 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/doctor.
- P308+P313 If exposed or concerned: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Additional information:

Restricted to professional users.

2.3 Other hazards
Results of PBT and vPvB assessment










- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

- **Description:** Mixture of the substances listed below with harmless additions.

Dangerous components:

CAS: 123-31-9 EINECS: 204-617-8 Index number: 604-005-00-4 Reg.nr.: 01-2119524016-51-xxxx	hydroquinone -----  Muta. 2, H341; Carc. 2, H351  Eye Dam. 1, H318  Aquatic Acute 1, H400 (M=10)  Acute Tox. 4, H302; Skin Sens. 1, H317	75-100%
CAS: 10043-35-3 EINECS: 233-139-2 Index number: 005-007-00-2 Reg.nr.: 01-2119486683-25-xxxx	boric acid -----  Repr. 1B, H360FD	15-20%
CAS: 7681-57-4 EINECS: 231-673-0 Index number: 016-063-00-2 Reg.nr.: 01-2119531326-45-xxxx	disodium disulphite -----  Eye Dam. 1, H318  Acute Tox. 4, H302	2,0-5,0%
CAS: 13047-13-7 EINECS: 235-920-3	4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one -----  Aquatic Chronic 2, H411  Acute Tox. 4, H302; Skin Sens. 1, H317	2,0-5,0%

SVHC

10043-35-3	boric acid
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- **Additional information** For the wording of the listed risk phrases refer to section 16.

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SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information**
Personal protection for the First Aider.
Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact**
Instantly wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact**
Rinse opened eye for several minutes under running water (at least 15 minutes).
Remove contact lenses, if present and easy to do.
Use eye protection.
Call a doctor immediately.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Induce vomiting and call for medical help.
- **4.2 Most important symptoms and effects, both acute and delayed**
Sickness
Methaemoglobinaemia
- **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **5.2 Special hazards arising from the substance or mixture**
Can be released in case of fire
Carbon monoxide
- **5.3 Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective clothing.
Avoid causing dust.
- **6.2 Environmental precautions:** Do not allow to enter drainage system, surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Collect mechanically.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.

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See Section 13 for information on disposal.

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SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Do not handle until all safety precautions have been read and understood.
Wear protective clothing.
Instantly remove any clothing soiled by the product.
Prevent formation of dust.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Keep container tightly sealed.
- **Information about storage in one common storage facility:**
Do not store together with acids.
Store away from oxidising agents.
Keep away from foodstuffs, beverages and food.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.
Store in a cool place.
- **Recommended storage temperature:** 5-25 °C
- **Storage class**
LGK 13
(German Technical Rule for Hazardous Substance – TRGS 510)
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.

• **8.1 Control parameters**

- **Components with limit values that require monitoring at the workplace:**

123-31-9 hydroquinone

WEL	Long-term value: 0.5 mg/m ³
-----	--

7681-57-4 disodium disulphite

WEL	Long-term value: 5 mg/m ³
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- **Additional information:** The lists that were valid during the compilation were used as basis.

• **8.2 Exposure controls**

• **Personal protective equipment**

• **General protective and hygienic measures**

The usual precautionary measures should be adhered to general rules for handling chemicals.
Keep away from foodstuffs, beverages and food.
Do not eat, drink or smoke while working.
Take off immediately all contaminated clothing.
Wash contaminated clothing before reuse.
Be sure to clean skin thoroughly after work and before breaks.
Avoid contact with the eyes and skin.

- **Breathing equipment:** Not necessary if room is well-ventilated.

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- **Protection of hands:**

Protective gloves.

The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374.

This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.

Only use chemical-protective gloves with CE-labelling of category III.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**

	Thickness (mm)	Breakthrough time (min)
Nitril rubber	0,38	> 480
Neoprene	0,65	> 240
Butyl rubber	0,36	> 480

Avoid natural rubber gloves.

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Synthetic gloves

Value for permeation: Level:

≥3 (60 min)

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing.

SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form: Crystalline powder

Colour: Colourless

- **Odour:** Pungent

- **pH-value (50 g/l) at 20 °C:** 6,5

- **Change in condition**

Melting point/Melting range: 170 °C

Boiling point/Boiling range: Not determined

- **Flash point:** Not applicable

- **Ignition temperature:** 515 °C

- **Self-inflammability:** Product is not selfigniting.

- **Danger of explosion:** Product is not explosive.

- **Density** Not determined

- **Settled apparent density at 20 °C** 600 kg/m³

- **Solubility in / Miscibility with**

Water: Soluble

- **Solvent content:**

Organic solvents: 0,0 %

Solids content: 100,0 %

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- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Reacts with strong acids
Reacts with acids releasing sulphur dioxide
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**

- **Acute toxicity**
Harmful if swallowed.

- **LD/LC50 values that are relevant for classification:**

10043-35-3 boric acid

Oral	LD50	2660 mg/kg (rat)
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123-31-9 hydroquinone

Oral	LD50	320 mg/kg (rat)
Dermal	LD50	>900 mg/kg (rat)

13047-13-7 4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one

Oral	LD50	565 mg/kg (rat)
Dermal	LD50	> 2000 mg/kg (rat)

7681-57-4 disodium disulphite

Oral	LD50	3200 mg/kg (rat)
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- **Primary irritant effect:**
- **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **Additional toxicological information:**
Hydroquinone has been included in the German "TRGS 905" (Technical Rules for Dangerous Substances/Index of carcinogen and mutagen substances or substances dangerous to reproductive systems), and has been classified as "Category 3" of carcinogen and mutagen substances (3 = category of lowest dangerousness). The according EU committees have not yet evaluated this classification.
This statement was deduced from the properties of the single components.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
Limited evidence of a carcinogenic effect.
Possible risk of irreversible effects.
- **Germ cell mutagenicity**
Suspected of causing genetic defects.

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- **Carcinogenicity**
Suspected of causing cancer.
- **Reproductive toxicity**
May damage fertility. May damage the unborn child.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

• **12.1 Toxicity**

• **Aquatic toxicity:**

10043-35-3 boric acid

EC50/48 h	133 mg/l (Daphnia magna)
LC50/96 h	50 - 100 mg/l (Onchrohynchus mykiss)

123-31-9 hydroquinone

EC50/48 h	0.29 mg/l (Daphnia magna)
IC50/72 h	0.335 mg/l (Selenastrum capricornutum)
LC50/96 h	0.044 mg/l (Pimephales promelas)

13047-13-7 4-(hydroxymethyl)-4-methyl-1-phenylpyrazolidin-3-one

LC50/96 h	1 - 10 mg/l (Pimephales promelas)
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7681-57-4 disodium disulphite

EC50/48 h	89 mg/l (Daphnia magna)
LC50/96 h	32 mg/l (Lepomis macrochirus)

- **12.2 Persistence and degradability** Not determined
- **12.3 Bioaccumulative potential** Not determined
- **Behaviour in environmental systems:** Not determined
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxic effects:** No further relevant information available.
- **Remark:** Very toxic for fish
- **Behaviour in sewage processing plants:** Not determined
- **Additional ecological information:**
- **General notes:**
Water hazard class 3 (German Regulation) (Self-assessment): highly water-endangering.
Do not allow product to reach ground water, water bodies or sewage system.
Also poisonous for fish and plankton in water bodies.
Very toxic for aquatic organisms
At present there are no ecotoxicological assessments.
This statement was deduced from the properties of the single components.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

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SECTION 13: Disposal considerations

• **13.1 Waste treatment methods**

• **Recommendation**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Must be specially treated under adherence to official regulations.

• **European waste catalogue**

09 01 01*	water-based developer and activator solutions
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• **Uncleaned packagings:**

• **Recommendation:**

Non contaminated packagings can be used for recycling.

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

EAK-No. 15 01 10

• **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

• **14.1 UN-Number**

• **ADR,RID, IMDG, IATA**

UN 3077

• **14.2 UN proper shipping name**

• **ADR/RID**

ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, SOLID, N.O.S. (1,4-
dihydroxybenzene (hydroquinone))

• **IMDG, IATA**

ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, SOLID, N.O.S. (hydroquinone)

• **14.3 Transport hazard class(es)**

• **ADR,RID, IMDG, IATA**



• **Class**

9 Miscellaneous dangerous substances and articles.

• **Label**

9

• **14.4 Packing group**

• **ADR,RID, IMDG, IATA**

III

• **14.5 Environmental hazards:**

Product contains environmentally hazardous substances: hydroquinone

• **Marine pollutant:**

Symbol (fish and tree)

• **Special marking (ADR/RID):**

Symbol (fish and tree)

• **Special marking (IATA):**

Symbol (fish and tree)

• **14.6 Special precautions for user**

Warning: Miscellaneous dangerous substances and articles.

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

Not applicable.

• **Transport/Additional information:**

These substances when transported in single or combination packagings containing a net quantity per single or inner packaging of 5 l or less for

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·	liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general. See the following notes.
· ADR/RID	Goods are not subject to the provisions in accordance with the special provision 375 ADR.
· IMDG	Goods are not subject to the provisions in accordance with 2.10.2.7 IMDG-Code.
· IATA	Goods are not subject to the provisions in accordance with the special provision 197 IATA-DGR.
· UN "Model Regulation":	UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-dihydroxybenzene (hydroquinone)), 9, III

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **National regulations**
- **Information about limitation of use:**
Employment restrictions concerning pregnant and lactating women must be observed.

Class	Share in %
I	77.7

- **Water hazard class:** Water danger class 3 (Self-assessment): highly water-endangering.
- **Other regulations, limitations and prohibitive regulations**

Substances of very high concern (SVHC) according to REACH, Article 57

10043-35-3	boric acid
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- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Relevant phrases

- H302 Harmful if swallowed.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H360FD May damage fertility. May damage the unborn child.
- H400 Very toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.

- **Recommended restriction of use** No public product, only for commercial use

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· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 4: Acute toxicity, Hazard Category 4
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Muta. 2: Germ cell mutagenicity, Hazard Category 2
Carc. 2: Carcinogenicity, Hazard Category 2
Repr. 1A: Reproductive toxicity, Hazard Category 1A
Repr. 1B: Reproductive toxicity, Hazard Category 1B
Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

· Sources

applicable EEC directives:

- 1907/2006
- 1272/2008

Internal physical tests, MSDS of the ingredients,
Information system on hazardous substances of the German Social Accident Insurance
(GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>

· * Data compared to the previous version altered.

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

- **1.1 Product identifier**
- **Trade name: R 20-TC Developer part 2**

- **Article number:** 10231
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
To this day we do not have any information about the identified use at the moment. These data are available we will add these to the safety data sheet.
- **Application of the substance / the mixture**
Photochemicals
Photographic developer
Reserved for industrial and professional use.
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
ADEFO-CHEMIE GmbH
Justus-von-Liebig-Str. 24-26
D-63128 Dietzenbach
Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
E-Mail: service@adefo-chemie.de
www.adefo-chemie.de
- **Informing department:**
Tel.: +49 6074 84239-0
Fax: +49 6074 84239-63
E-Mail: kr@calbe-chemie.de
- **1.4 Emergency telephone number:** Tel.: 0700-24112112 (CAL)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
 - **Classification according to Regulation (EC) No 1272/2008**
Skin Corr. 1A H314 Causes severe skin burns and eye damage.

 - **2.2 Label elements**
 - **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
 - **Hazard pictograms**
- 

GHS05
- **Signal word** Danger
 - **Hazard-determining components of labelling:**
potassium hydroxide
 - **Hazard statements**
H314 Causes severe skin burns and eye damage.
 - **Precautionary statements**

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): 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/doctor.
P321	Specific treatment (see on this label).

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P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P363 Wash contaminated clothing before reuse.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture of the substances listed below with harmless additions.

- **Dangerous components:**

CAS: 497-19-8 EINECS: 207-838-8 Index number: 011-005-00-2 Reg.nr.: 01-2119485498-19-xxxx	sodium carbonate ----- ⚠ Eye Irrit. 2, H319	20-25%
CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 Reg.nr.: 01-2119487136-33-xxxx	potassium hydroxide ----- ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314 ⚠ Acute Tox. 4, H302	10-15%
CAS: 139-89-9 EINECS: 205-381-9 Reg.nr.: 01-2119972845-22-xxxx	trisodium 2-(carboxylatomethyl(2-hydroxyethyl)amino) ethyliminodi(acetate) ----- ⚠ Eye Irrit. 2, H319	2,0-5,0%

- **Additional information** For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

- **4.1 Description of first aid measures**
- **General information**
 Personal protection for the First Aider.
 Instantly remove any clothing soiled by the product.
- **After inhalation** Supply fresh air; consult doctor in case of symptoms.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.
- **After eye contact**
 Rinse opened eye for several minutes under running water (at least 15 minutes).
 Remove contact lenses, if present and easy to do.
 Use eye protection.
 Call a doctor immediately.
- **After swallowing**
 Rinse out mouth and then drink plenty of water.
 Do not induce vomiting; instantly call for medical help.
- **4.2 Most important symptoms and effects, both acute and delayed**
 No further relevant information available.
- **Danger** Danger of gastric perforation.
- **4.3 Indication of any immediate medical attention and special treatment needed**
 No further relevant information available.

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SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents**
CO₂, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents** Water with a full water jet.
- **5.2 Special hazards arising from the substance or mixture**
Can be released in case of fire
sulphur dioxide (SO₂)
- **5.3 Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
At formation of toxic gases:
Put on breathing apparatus.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid causing dust.
Wear protective clothing.
- **6.2 Environmental precautions:** Do not allow to enter drainage system, surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Collect mechanically.
Dispose of contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Wear protective clothing.
Prevent formation of dust.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Keep container tightly sealed.
- **Information about storage in one common storage facility:**
Do not store together with acids.
Keep away from foodstuffs, beverages and food.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
Protect from heat and direct sunlight.
- **Recommended storage temperature:** 5-25 °C
- **Storage class** LGK 8 B
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.

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· 8.1 Control parameters
· Components with limit values that require monitoring at the workplace:
1310-58-3 potassium hydroxide

 WEL Short-term value: 2 mg/m³
· Additional information: The lists that were valid during the compilation were used as basis.

· 8.2 Exposure controls
· Personal protective equipment
· General protective and hygienic measures

The usual precautionary measures should be adhered to general rules for handling chemicals.

Keep away from foodstuffs, beverages and food.

Take off immediately all contaminated clothing.

Wash contaminated clothing before reuse.

Do not eat, drink or smoke while working.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

· Breathing equipment:

Use breathing protection in case of insufficient ventilation.

Filter P2.

· Protection of hands:

Protective gloves.

The protective gloves to be used must comply with the specifications of the EC directive 89/686/EEC and the resultant standard EN 374.

This recommendation applies only to the product stated in the Safety Data Sheet and supplied by us as well as to the purpose specified by us.

Only use chemical-protective gloves with CE-labelling of category III.

· Material of gloves

Nitrile rubber, NBR

Butyl rubber, BR

Avoid natural rubber gloves.

 Recommended thickness of the material: ≥ 0.5 mm

· Penetration time of glove material

 Value for permeation: Level ≤ 6 (480 min)

The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

· For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:

Synthetic gloves

Value for permeation: Level:

6 (480 min)

· Eye protection: Tightly sealed safety glasses.

· Body protection: Protective work clothing.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties
· General Information
· Appearance:

Form:	Solid.
	Crystalline powder
Colour:	Colourless

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· Odour:	Not characteristic
· pH-value (100 g/l) at 25 °C:	13,5
· Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· Ignition temperature:	
Decomposition temperature:	> 250 °C
· Self-inflammability:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive.
· Critical values for explosion:	
Oxidising properties	None
· Density	Not determined
· Settled apparent density at 20 °C	1200 kg/m ³
· Solubility in / Miscibility with Water:	Soluble
· Solvent content:	
Organic solvents:	0,0 %
Solids content:	100,0 %
· 9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Strong exothermic reaction with acids
Reacts with acids releasing sulphur dioxide
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

- **LD/LC50 values that are relevant for classification:**

1310-58-3 potassium hydroxide

Oral	LD50	365 mg/kg
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497-19-8 sodium carbonate

Oral	LD50	4000 mg/kg (rat)
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139-89-9 trisodium 2-(carboxylatomethyl(2-hydroxyethyl)amino)ethyliminodi(acetate)

Oral	LD50	>5000 mg/kg (rat)
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- **Primary irritant effect:**
- **Skin corrosion/irritation**
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
Causes severe skin burns and eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Subacute to chronic toxicity:** No known symptoms to date.
- **Additional toxicological information:**
This statement was deduced from the properties of the single components.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

1310-58-3 potassium hydroxide

LC50/96 h	80 mg/l (Gambusia affinis)
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497-19-8 sodium carbonate

LC50/96 h	300 mg/l (Lepomis macrochirus)
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- **12.2 Persistence and degradability** Not determined
- **12.3 Bioaccumulative potential** Not determined
- **Behaviour in environmental systems:** Not determined
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:** No further relevant information available.
- **Remark:** Not determined
- **Behaviour in sewage processing plants:** Not determined
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): Weakly water-endangering.
At present there are no ecotoxicological assessments.
This statement was deduced from the properties of the single components.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Must be specially treated under adherence to official regulations.

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· **European waste catalogue**

09 01 01*	water-based developer and activator solutions
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· **Uncleaned packagings:**

· **Recommendation:**

Non contaminated packagings can be used for recycling.

Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

EAK-No. 15 01 10

· **Recommended cleaning agent:** Water, if necessary with cleaning agent.

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR,RID, IMDG, IATA** UN 1813

· **14.2 UN proper shipping name**

· **ADR/RID** UN1813 POTASSIUM HYDROXIDE, SOLID
 · **IMDG, IATA** POTASSIUM HYDROXIDE, SOLID, mixture

· **14.3 Transport hazard class(es)**

· **ADR,RID, IMDG, IATA**



· **Class** 8 Corrosive substances.
 · **Label** 8

· **14.4 Packing group**

· **ADR,RID, IMDG, IATA** II

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user**

Warning: Corrosive substances.
 · **Kemler Number:** 80
 · **EMS Number:** F-A,S-B
 · **Segregation groups** 1 - Acids

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

Not applicable.

· **Transport/Additional information:**

· **ADR/RID**
 · **Limited quantities (LQ)** 1 kg
 · **Transport category** 2
 · **Tunnel restriction code** E

· **IMDG**
 · **Limited quantities (LQ)** 1 kg

· **IATA**
 · **Remarks:** Packing Instruction
 PAX 859, CAO 863

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· UN "Model Regulation":	UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II
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SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **National regulations**
- **Water hazard class:** Water hazard class 1 (Self-assessment): weakly water-endangering.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Relevant phrases**
 H290 May be corrosive to metals.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H319 Causes serious eye irritation.
- **Recommended restriction of use** No public product, only for commercial use
- **Abbreviations and acronyms:**
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 ICAO: International Civil Aviation Organisation
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 ELINCS: European List of Notified Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Met. Corr. 1: Corrosive to metals, Hazard Category 1
 Acute Tox. 4: Acute toxicity, Hazard Category 4
 Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A
 Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2
- **Sources**
 applicable EEC directives:
 - 1907/2006
 - 1272/2008
 Internal physical tests, MSDS of the ingredients,
 Information system on hazardous substances of the German Social Accident Insurance
 (GESTIS-database on hazardous substances), <http://www.dguv.de/ifa/en/gestis/stoffdb/index.jsp>