

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

Printing date 03.05.2021

Version 1

Revision: 08.03.2021

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

- 1.1 Product identifier

- Trade name: RAM-D1

- Article number: 04400000001

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

- Sector of Use SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

- Product category

PC14 Metal surface treatment products

PC15 Non-metal-surface treatment products

- Process category

PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions

PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities

- Environmental release category

ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)

- Application of the substance / the mixture

Industrial use

Post-treatment of additive manufactured components

- 1.3 Details of the supplier of the safety data sheet

- Manufacturer/Supplier:

Rösler Oberflächentechnik GmbH

Hausen 1

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- Supplier:

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- Further information obtainable from: Department of Product Control / E-Mail: sds@rosler.com

- 1.4 Emergency telephone number:

In England and Wales: NHS Direct - 0845 4647

In Scotland: NHS 24 - 08454 24 24 24

SECTION 2: Hazards identification

- 2.1 Classification of the substance or mixture

- Classification according to Regulation (EC) No 1272/2008



corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.

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- 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

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 [or 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.

P332+P313 If skin irritation occurs: Get medical advice/attention.

- 2.3 PBT: Not applicable.

- 2.3 vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Chemical characterization: Mixture

- Description:

Mixture of substances listed below with nonhazardous additions.

| - Dangerous components: | | |
|---|---|------|
| CAS: 111-76-2 EINECS: 203-905-0 Reg.nr.: 01-2119475108-36-xxxx | 2-butoxyethanol ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319 | 1-5% |
| CAS: 1310-58-3 EINECS: 215-181-3 Reg.nr.: 01-2119487136-33-xxxx | potassium hydroxide ⚠ Met. Corr.1, H290; Skin Corr. 1A, H314; ⚠ Acute Tox. 4, H302 Specific concentration limits: Skin Corr. 1A; H314: C ≥ 5 % Skin Corr. 1B; H314: 2 % ≤ C < 5 % Skin Irrit. 2; H315: 0.5 % ≤ C < 2 % Eye Irrit. 2; H319: 0.5 % ≤ C < 2 % | 1-5% |

SECTION 4: First aid measures

- 4.1 Description of first aid measures

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** If skin irritation continues, consult a doctor.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- After swallowing:

Rinse out mouth with plenty of water.

Do not induce vomiting; call for medical help immediately.

- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

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- **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, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Particular danger of slipping on leaked/spilled product.
- **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Do not allow to penetrate the ground/soil.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose of the material collected according to regulations.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
No special measures required.
No special precautions are necessary if used correctly.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store at: +5°C to +30°C
Durability: at least 2 years
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters

- Additional information about design of technical facilities:

No further data; see item 7.

- Ingredients with limit values that require monitoring at the workplace:

111-76-2 2-butoxyethanol

| | |
|---------------------|---|
| WEL (Great Britain) | Short-term value: 246 mg/m ³ , 50 ppm Long-term value: 123 mg/m ³ , 25 ppm Sk, BMGV |
| IOELV (EU) | Short-term value: 246 mg/m ³ , 50 ppm Long-term value: 98 mg/m ³ , 20 ppm Skin |

1310-58-3 potassium hydroxide

| | |
|---------------------|---------------------------------------|
| WEL (Great Britain) | Short-term value: 2 mg/m ³ |
|---------------------|---------------------------------------|

- DNELs

111-76-2 2-butoxyethanol

| | | |
|------------|---|---------------------------------|
| Dermal | DNEL long term exposure - systemic effects | 75 mg/kg bw/day (Workers) |
| | DNEL acute/short term exposure - systemic effects | 89 mg/kg bw/day (Workers) |
| Inhalative | DNEL acute/short term exposure - systemic effects | 663 mg/m ³ (Workers) |
| | DNEL long term exposure - systemic effects | 98 mg/m ³ (Workers) |

1310-58-3 potassium hydroxide

| | | |
|------------|---|-------------------------------|
| Inhalative | DNEL long-term exposure - local effects | 1 mg/m ³ (Workers) |
|------------|---|-------------------------------|

- PNECs

111-76-2 2-butoxyethanol

| | |
|---------------|--|
| PNEC aqua | 8.8 mg/l (freshwater) 0.88 mg/l (marine water) |
| PNEC STP | 463 mg/l |
| PNEC sediment | 34.6 mg/kg (freshwater) 3.46 mg/kg (marine water) |
| PNEC soil | 2.8 mg/kg |

- Ingredients with biological limit values:

111-76-2 2-butoxyethanol

| | |
|----------------------|---|
| BMGV (Great Britain) | 240 mmol/mol creatinine Medium: urine Sampling time: post shift Parameter: butoxyacetic acid |
|----------------------|---|

- Additional information: The lists valid during the making were used as basis.

- 8.2 Exposure controls

- Personal protective equipment:

- General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing

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Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Do not eat, drink, smoke or sniff while working.

- Respiratory protection:

Not necessary in case of intended use.

Use suitable respiratory protective device if vapors occur or aerosol is formed.

Filter A/P2

- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

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

After use of gloves apply skin-cleaning agents and skin cosmetics.

- Material of gloves

e.g.

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- Eye protection:



Tightly sealed goggles

- Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

- 9.1 Information on basic physical and chemical properties

- General Information

- Appearance:

Form: Fluid

Colour: Colourless

- Odour: Characteristic

- pH-value (at 20°C):

pH-value (0,5%, at 20°C): 11.7

Melting point/freezing point: Undetermined.

Initial boiling point and boiling range: Undetermined.

- Flash point: Not applicable.

- Flammability (solid, gas): Not applicable.

- Decomposition temperature: Not determined.

- Auto-ignition temperature: Product is not selfigniting.

- Explosive properties: Product does not present an explosion hazard.

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- **Explosion limits:**
 - Lower:** Not determined.
 - Upper:** Not determined.
- **Vapour pressure at 20 °C:** 23 hPa
- **Density (at 20°C):** 1.037 g/cm³
- **Relative density** Not determined.
- **Vapour density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with water:** Fully miscible.
- **Partition coefficient: n-octanol/water:** Not determined.
- **Viscosity:**
 - Kinematic:** Not determined.
- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No dangerous reactions in case of intended use.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions in case of intended use.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** None in case of intended use and storage.

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 relevant for classification:

| 111-76-2 2-butoxyethanol | | |
|-------------------------------|------|-------------------|
| Oral | LD50 | 1,746 mg/kg (rat) |
| 1310-58-3 potassium hydroxide | | |
| Oral | LD50 | 365 mg/kg (rat) |

- **Primary irritant effect:**
- **Skin corrosion/irritation**
This product has to be classified using the calculation set out according to Regulation (EC) No 1272/2008.
Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**
This product has to be classified using the calculation set out according to Regulation (EC) No 1272/2008.
Causes serious eye damage.
- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

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- Additional toxicological information:

- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Regarding all rateable information this product is not cancerogenic, mutagenic or toxic 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:

The values of calculation of the aquatic toxicity of this mixture lie above the concentration limits for classification according to Regulation (EC) No 1272/2008.

- **12.2 Persistence and degradability** No further relevant information available.

- **12.3 Bioaccumulative potential** No further relevant information available.

- **12.4 Mobility in soil** No further relevant information available.

- Additional ecological information:

- **COD-value (5 g/L water):** 582 mg/L

- General notes:

Must not reach sewage water or drainage ditch undiluted or unneutralised.

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Avoid transfer into the environment.

- Results of PBT and vPvB assessment

The product contains no substance which is considered to be persistent, bioaccumulative or toxic (PBT) or as very persistent and very bioaccumulative (vPvB).

- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- 13.1 Waste treatment methods

- Recommendation

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

- European waste catalogue

| | |
|-----|---|
| HP4 | Irritant - skin irritation and eye damage |
|-----|---|

- Uncleaned packaging:

- Recommendation:

Not complete empty packaging should be disposed of as packaging with hazardous residues.

15 01 10*: packaging containing residues of or contaminated by dangerous substances.

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

- **Recommended cleansing agents:** Water

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SECTION 14: Transport information

- 14.1 UN-Number
- ADR, IMDG, IATA
- 14.2 UN proper shipping name
- ADR
- IMDG, IATA
- 14.3 Transport hazard class(es)

- ADR, IMDG, IATA
- Class
- Label
- 14.4 Packing group
- ADR, IMDG, IATA
- 14.5 Environmental hazards:
- Marine pollutant:

- 14.6 Special precautions for user
- Hazard identification number (Kemler code):
- EMS Number:
- Segregation groups
- Stowage Category
- Segregation Code
- 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

UN1814

1814 POTASSIUM HYDROXIDE SOLUTION mixture
POTASSIUM HYDROXIDE SOLUTION mixture

8 Corrosive substances.
8

II

No

Warning: Corrosive substances.
80
F-A,S-B
Alkalis
A
SG35 Stow "separated from" SGG1-acids
Not applicable.

- Transport/Additional information:

- ADR
- Limited quantities (LQ)
- Excepted quantities (EQ)

- Transport category
- Tunnel restriction code

1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

2
E

- IMDG
- Limited quantities (LQ)
- Excepted quantities (EQ)

1L
Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

- UN "Model Regulation":

UN 1814 POTASSIUM HYDROXIDE SOLUTION MIXTURE,
8, II

SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No further relevant information available.

- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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SECTION 16: Other information

This information is based on our present knowledge and refers to the product in its conditions as delivered. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. Existing laws and regulations have to be observed by the receiver on its own responsibility.

- Relevant phrases

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

- Department issuing SDS:

Rösler Oberflächentechnik GmbH
Department of Product Control

- Abbreviations and acronyms:

ADR: Accord relatif au transport international 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)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
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 – Category 1
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

- Sources

For the preparation of this MSDS information from our suppliers, information on chemicals from the European Chemicals Agency (ECHA) and data from the GESTIS database were used.