

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/10/2019

Reviewed on 12/10/2019

1 Identification

- **Product identifier**
- **Trade name: RATIONAL Decalcifier**
- **Article number:** 6006.0110
- **Application of the substance / the mixture** Deliming agent
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
RATIONAL AG
Siegfried-Meister-Straße 1
86899 Landsberg am Lech
Germany
- **Information department:** Product management
- **Emergency telephone number:** Hotline: +49 (0) 6132-84463

Tel.: +49 8191 327-2563
Fax: +49 8191 327-72 2563

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Met. Corr.1 H290 May be corrosive to metals.
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Phosphoric acid
- **Hazard statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

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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.

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.

P405 Store locked up.

- **Classification system**

- **NFPA ratings (scale 0-4)**



- **HMIS**

HEALTH	3	Health = *3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Description:** aqueous solution

- **Dangerous components:**

5329-14-6	Sulphamic acid Skin Irrit. 2, H315; Eye Irrit. 2A, H319	≥2.5-<10%
7664-38-2	Phosphoric acid Met. Corr. 1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302	≥3-<10%

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

4 First-aid measures

- **Description of first aid measures**

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

- **After inhalation** Supply fresh air; consult doctor in case of complaints.

- **After skin contact**

Immediately 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.

Remove contact lenses, if present and easy to do.

Protect unharmed eye.

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- Call a doctor immediately.
- **After swallowing**
Rinse out mouth and then drink plenty of water.
Do not induce vomiting - danger of perforation!
Call a doctor immediately.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents** None
- **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Nitrogen oxides (NO_x)
Oxides of phosphorus (P_xO_y)
Sulphur oxides (SO_x)
- **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.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Avoid contact with skin and eyes.
Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Dilute with plenty of water.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.
Dispose of the collected material according to regulations.
- **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.

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· Protective Action Criteria for Chemicals

· PAC-1:

5329-14-6	Sulphamic acid	9.5 mg/m ³
7664-38-2	Phosphoric acid	3 mg/m ³
110-65-6	But-2-yne-1,4-diol	0.3 mg/m ³
112-34-5	2-(2-Butoxyethoxy)ethanol	30 ppm
29385-43-1	Methyl-1H-Benzotriazole	2 mg/m ³

· PAC-2:

5329-14-6	Sulphamic acid	100 mg/m ³
7664-38-2	Phosphoric acid	30 mg/m ³
110-65-6	But-2-yne-1,4-diol	5.1 mg/m ³
112-34-5	2-(2-Butoxyethoxy)ethanol	33 ppm
29385-43-1	Methyl-1H-Benzotriazole	22 mg/m ³

· PAC-3:

5329-14-6	Sulphamic acid	630 mg/m ³
7664-38-2	Phosphoric acid	150 mg/m ³
110-65-6	But-2-yne-1,4-diol	31 mg/m ³
112-34-5	2-(2-Butoxyethoxy)ethanol	200 ppm
29385-43-1	Methyl-1H-Benzotriazole	130 mg/m ³

7 Handling and storage

· Handling

· Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Avoid contact with skin and eyes.

Do not breathe vapour/spray.

Make sure that all applicable workplace limits are observed.

· Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities

· Storage

· Requirements to be met by storerooms and receptacles:

Store in the original container.

Observe all local and national regulations for storage of water polluting products.

· Information about storage in one common storage facility: Store away from foodstuffs.

· Further information about storage conditions:

Keep receptacle tightly sealed.

Store and transport upright.

· Specific end use(s) No further relevant information available.

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8 Exposure controls/personal protection

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

· **Control parameters**

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

The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

7664-38-2 Phosphoric acid

PEL Long-term value: 1 mg/m³

REL Short-term value: 3 mg/m³
Long-term value: 1 mg/m³

TLV Short-term value: 3 mg/m³
Long-term value: 1 mg/m³

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

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.

· **Breathing equipment:**

Use suitable respiratory protective device only when aerosol or mist is formed.

If all workplace limits are observed and good ventilation is ensured, no special precautions necessary.

· **Protection of hands:**

Protective gloves

To avoid skin problems reduce the wearing of gloves to the required minimum.

Check the permeability prior to each renewed use of the glove.

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.

· **Material of gloves**

e.g. KCL Dermatril® 740

Recommended thickness of the material: ≥ 0.11 mm

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**

Penetration time: ≥ 8 hours

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

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- **Eye protection:** Tightly sealed goggles.
- **Body protection:**
Protective work clothing.
Body protection must be chosen depending on activity and possible exposure.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· General Information

· Appearance:

· Form:	fluid
· Color:	yellowish
· Odor:	characteristic
· Odor threshold:	Not determined.

· **pH-value at 20 °C (68 °F):** < 1

· Change in condition

· Melting point/Melting range:	undetermined
· Boiling point/Boiling range:	≥ 100 °C (≥212 °F)

· **Flash point:** Not applicable

· **Flammability (solid, gaseous)** Not applicable.

· **Ignition temperature:** Not applicable

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product does not present an explosion hazard.

· Explosion limits:

· Lower:	Not determined.
· Upper:	Not determined.

· **Oxidizing properties** not classified as oxidising

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

· **Density at 20 °C (68 °F):** 1.085 g/cm³ (9.054 lbs/gal)

· **Relative density** Not determined.

· **Vapour density (AIR = 1)** Not determined.

· **Evaporation rate** Not determined.

· Solubility in / Miscibility with

· **Water:** Fully miscible

· **Partition coefficient (n-octanol/water):** Not determined.

· Viscosity:

· dynamic:	Not determined.
· kinematic:	Not determined.
· Organic solvents:	0 %

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· **Other information**

Further informations please refer to technical data sheet.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Corrosive action on metals
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**
Nitrogen oxides (NO_x)
Phosphorus oxides (e.g. P₂O₅)
Sulfur oxides (SO_x)

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

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

5329-14-6 Sulphamic acid

Oral	LD50	3160 mg/kg (rat)
Dermal	LD50	> 2000 mg/kg (rat)

7664-38-2 Phosphoric acid

Oral	LD50	1530 mg/kg (rat)
Dermal	LD50	2740 mg/kg (rabbit)
Inhalative	LC50/1 h	1.689 mg/l (rabbit)

- **Primary irritant effect:**
- **on the skin:** Causes severe skin burns and eye damage.
- **on the eye:** Causes serious eye damage.
- **Additional toxicological information:**
The product shows the following dangers according to the calculation method of Regulation (EC) No. 1272/2008 (CLP/GHS):
Skin Corr. 1B
Eye Dam. 1
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

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· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

- **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.

12 Ecological information

· Toxicity

· Aquatic toxicity:

5329-14-6 Sulphamic acid

LC50/96 h 70.3 mg/l (fish)

7664-38-2 Phosphoric acid

LC50/96 h 75.1 mg/l (oryzias latipes)

EC50/24 h 29 mg/l (water flea (daphnia magna)) (ISO 6341 15)

Water quality

IC50 270 mg/l (bacteria)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

· Additional ecological information:

· General notes:

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

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

Water hazard class 1 (Self-assessment) (German regulation): slightly hazardous for water.

· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

· Waste treatment methods

· Recommendation

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

Disposal must be made according to local/official regulations.

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- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to local/official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN3264
- **UN proper shipping name**
- **DOT** Corrosive liquid, acidic, inorganic, n.o.s. (Sulfamic acid, Phosphoric acid solution)
- **ADR** UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHAMIC ACID, PHOSPHORIC ACID, SOLUTION)
- **IMDG, IATA** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHAMIC ACID, PHOSPHORIC ACID, SOLUTION)

- **Transport hazard class(es)**

- **DOT**



- **Class** 8 Corrosive substances
- **Label** 8

- **ADR**



- **Class** 8 (C1) Corrosive substances
- **Label** 8

- **IMDG, IATA**



- **Class** 8 Corrosive substances
- **Label** 8

- **Packing group**

- **DOT, ADR, IMDG, IATA** III

- **Environmental hazards:**

- **Marine pollutant:** No

- **Special precautions for user**

Warning: Corrosive substances

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· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	A
· Stowage Code	SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHAMIC ACID, PHOSPHORIC ACID, SOLUTION), 8, III

15 Regulatory information

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

· **SARA Section 355 (extremely hazardous substances)**

None of the ingredients is listed.

· **SARA Section 313 (specific toxic chemical listings)**

7664-38-2	Phosphoric acid
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112-34-5	2-(2-Butoxyethoxy)ethanol
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· **TSCA (Toxic Substances Control Act)**

84696-97-9	Diammonium dihydrogen [[[2-hydroxyethyl]imino]bis(methylene)]bisphosphonate
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· **Prop 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

· **Prop 65 - Chemicals known to cause developmental toxicity**

None of the ingredients is listed.

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- **Carcinogenicity categories**

- **MAK (German Maximum Workplace Concentration)**

None of the ingredients is listed.

- **National regulations**

- **Information about limitation of use:**

Employment restrictions concerning young persons must be observed.

- **Water hazard class:**

Water hazard class 1 (Self-assessment) (German regulation): slightly hazardous for water.

- **Other regulations, limitations and prohibitive regulations**

Observe restrictions on the marketing and use according to Annex XVII of Regulation (EC) No 1907/2006.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:**

Chemical Regulatory Compliance Company Telephone: +1 (630) 410-1660
 Chicago, IL e-Mail: GHS@crc-us.com
 USA Website: www.crc-us.com

- **Date of preparation / last revision 12/10/2019 / 1**

- **Abbreviations and acronyms:**

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
 DOT: US Department of Transportation
 IATA: International Air Transport Association
 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)
 NFPA: National Fire Protection Association (USA)
 HMIS: Hazardous Materials Identification System (USA)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 OSHA: Occupational Safety & Health
 TLV: Threshold Limit Value
 PEL: Permissible Exposure Limit
 REL: Recommended Exposure Limit
 Met. Corr. 1: Corrosive to metals – Category 1
 Acute Tox. 4: Acute toxicity – Category 4
 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. 2A: Serious eye damage/eye irritation – Category 2A