


Safety Data Sheet dated 29/6/2020, version 1

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

- 1.1. Product identifier
Mixture identification
Trade name: RATIO K-2
- 1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Detergent for manual dishwashing.
Professional use (SU22) - Washing and cleaning products (PC35)
Uses advised against:
Different uses than recommended. Do not use in combination with other products.
- 1.3. Details of the supplier of the safety data sheet
Manufacturer:
SUTTER INDUSTRIES s.p.a. - Società con Unico Socio
15060 Borghetto Borbera (AL) Italia
Tel. +39 0143 631.1
Competent person responsible for the safety data sheet:
regulatory.affairs@sutter.it
- 1.4. Emergency telephone number
+39 0143 631.1 mon-fri 9.00/17.00

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP)
 Warning, Eye Irrit. 2, Causes serious eye irritation.

Adverse physicochemical, human health and environmental effects:
No other hazards

- 2.2. Label elements
Hazard pictograms:



- Warning
Hazard statements:
H319 Causes serious eye irritation.
Precautionary statements:
P264 Wash hands thoroughly after handling.
P280 Wear eye protection.
P337+P313 If eye irritation persists: Get medical advice/attention.
Special Provisions:
EUH210 Only for professional use. Safety data sheet available on request.

- Product contents:
anionic surfactants 5 - 15 %
amphoteric surfactants < 5 %
The product also contains: Perfumes
Preservatives: 2-BROMO-2-NITROPROPANE-1,3-DIOL,
BENZISOTHIAZOLINONE, LAURYLAMINE
DIPROPYLENEDIAMINE, SODIUM PYRITHIONE
Special provisions according to Annex XVII of REACH and subsequent amendments:
None

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

Not Applicable, the product is a mixture.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

>= 7% - < 10% ALKYL ETHER SULFATE C12-14, SODIUM SALT

REACH No.: 01-2119488639-16, CAS: 68891-38-3, EC: 500-234-8



3.2/2 Skin Irrit. 2 H315



3.3/1 Eye Dam. 1 H318

4.1/C3 Aquatic Chronic 3 H412

Specific Concentration Limits:

5% <= C < 10%: Eye Irrit. 2 H319

C >= 10%: Eye Dam. 1 H318

>= 1% - < 3% COCAMIDOPROPYL BETAINE

REACH No.: 01-2119489410-39, CAS: 147170-44-3, EC: 931-333-8



3.3/1 Eye Dam. 1 H318

4.1/C3 Aquatic Chronic 3 H412

Specific Concentration Limits:

4% <= C < 10%: Eye Irrit. 2 H319

C >= 10%: Eye Dam. 1 H318

>= 0.01% - < 0.1% 2-BROMO-2-NITROPROPANE-1,3-DIOL

REACH No.: 01-2119980938-15, Index number: 603-085-00-8, CAS: 52-51-7, EC: 200-143-0



3.1/3/Inhal Acute Tox. 3 H331



3.8/3 STOT SE 3 H335



3.1/4/Oral Acute Tox. 4 H302



3.1/4/Dermal Acute Tox. 4 H312



3.2/2 Skin Irrit. 2 H315



3.3/1 Eye Dam. 1 H318



4.1/A1 Aquatic Acute 1 H400 M=10.

 4.1/C2 Aquatic Chronic 2 H411

EUH044

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

Acute effects:

Skin and eye irritation for contact

Irritation interior system if swallowed.

Until revision date of this document, are unknown chronic effects from the mixture contact with skin, eyes, inhalation, ingestion.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO₂).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

The mixture does not contain ingredients classified as explosive according to EC Regulation 1272/2008 (CLP).

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

The mixture does not contain ingredients classified as explosive according to EC Regulation 1272/2008 (CLP).

SECTION 6: Accidental release measures

- 6.1. Personal precautions, protective equipment and emergency procedures
 - For non emergency personnel:
 - Wear personal protection equipment.
 - Remove persons to safety.
 - See protective measures under point 7 and 8.
 - For emergency responders:
 - Wear personal protection equipment.
- 6.2. Environmental precautions
 - Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
 - Retain contaminated washing water and dispose it.
 - In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
 - Suitable material for taking up: absorbing material, organic, sand
- 6.3. Methods and material for containment and cleaning up
 - Wash with plenty of water. To converge the product in containment tanks.
- 6.4. Reference to other sections
 - See also section 8 and 13

SECTION 7: Handling and storage

- 7.1. Precautions for safe handling
 - Avoid contact with skin and eyes, inhalation of vapours and mists.
 - Don't use empty container before they have been cleaned.
 - Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
 - See also section 8 for recommended protective equipment.
 - Advice on general occupational hygiene:
 - Contaminated clothing should be changed before entering eating areas.
 - Do not eat or drink while working.
- 7.2. Conditions for safe storage, including any incompatibilities
 - Store in a cool and well ventilated place.
 - Store away from sunlight.
 - Do not store in open or unlabeled containers.
 - Keep away from food, drink and feed.
 - Incompatible materials:
 - Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability. see also 1.2 and 7.2.
 - None in particular.
 - Instructions as regards storage premises:
 - Adequately ventilated premises.
- 7.3. Specific end use(s)
 - None in particular, see paragraph 1.2

SECTION 8: Exposure controls/personal protection

- 8.1. Control parameters
 - Until the revision date of this document, no experimental data are available for the mixture. Below, listed occupational exposure limits, if available, for the components listed in paragraph 3.2.
 - No occupational exposure limit available
- DNEL Exposure Limit Values
 - Until the revision date of this document, no experimental data are available for the mixture.

Below, listed the DNEL exposure limits, if available, for the components listed in paragraph 3.2.

ALKYL ETHER SULFATE C12-14, SODIUM SALT - CAS: 68891-38-3

Worker Industry: 2750 mg/kg - Consumer: 1650 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects

Worker Industry: 175 mg/m³ - Consumer: 52 mg/m³ - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Consumer: 15 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

Worker Industry: 12.5 mg/kg - Consumer: 7.5 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects - Notes: bw/d

Worker Industry: 44 mg/m³ - Consumer: 13.04 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects

Consumer: 7.5 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects - Notes: bw/d

PNEC Exposure Limit Values

Until the revision date of this document, no experimental data are available for the mixture. Below, listed the PNEC exposure limits, if available, for the components listed in paragraph 3.2.

ALKYL ETHER SULFATE C12-14, SODIUM SALT - CAS: 68891-38-3

Target: Marine water - Value: 0.024 mg/l

Target: Microorganisms in sewage treatments - Value: 10000 mg/l

Target: Marine water sediments - Value: 0.09168 mg/kg

Target: Soil (agricultural) - Value: 7.5 mg/kg

Target: Freshwater sediments - Value: 0.9168 mg/kg

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

Target: Marine water - Value: 0.00135 mg/l

Target: Fresh Water - Value: 0.0135 mg/l

Target: Marine water sediments - Value: 0.1 mg/kg

Target: Soil (agricultural) - Value: 0.8 mg/kg

Target: Microorganisms in sewage treatments - Value: 3000 mg/l

Target: Freshwater sediments - Value: 1 mg/kg

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.(EN 166)

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton (EN 14605 in case of splashes or EN 13982 in case of dust)

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber. (ex. EN 388 - EN 374 protection factor 6, corresponding to a breakthrough time >480 minutes).

Due to great diversity of types, observe the operating instructions of the manufacturer with respect to substances listed in paragraph 3.2.

Respiratory protection:

Not needed for normal use.

Thermal Hazards:

The product is not flammable or explosive - see paragraph 2.1. The product contains no explosive components.

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

Environmental exposure controls:

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

See also section 6.2.
Appropriate engineering controls:
No further technical checks suitable for your product under normal conditions.
See also section 1.2, section 7 and Exposure Scenario - Annex I of this document.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Appearance and colour:	Clear liquid, orange	Visual	--
Odour:	Citrus	Olfactory	--
Odour threshold:	Evident	Olfactory	--
pH:	4,0 ± 0,5	Instrumental control	--
Melting point / freezing point:	Not Relevant	--	Parameter not relevant for the type of product
Initial boiling point and boiling range:	>= 100 °C	--	Estimated value on chemical / physical properties of components
Flash point:	> 60 °C	--	Estimated value on chemical / physical properties of components
Evaporation rate:	Not Relevant	--	Parameter not relevant for the type of product
Solid/gas flammability:	Not Relevant	--	Parameter not relevant for the type of product
Upper/lower flammability or explosive limits:	Not Relevant	--	Parameter not relevant for the type of product
Vapour pressure:	Not Relevant	--	Parameter not relevant for the type of product
Vapour density:	Not Relevant	--	Parameter not relevant for the type of product
Relative density:	1.025 g/ml	Instrumental control	--
Solubility in water:	Total	--	Internal tests
Solubility in oil:	Partial	--	Internal tests
Partition coefficient (n-octanol/water):	< 1000	--	Value estimated based on the solubility of the mixture.
Auto-ignition temperature:	Not Relevant	--	Parameter not relevant for the type of product
Decomposition temperature:	Not Relevant	--	Parameter not relevant for the type of product
Viscosity:	1000 +/- 500 cP	Instrumental control	--
Explosive properties:	Not Relevant	--	Parameter not relevant for product composition.
Oxidizing properties:	Not Relevant	--	Parameter not relevant for product composition.

9.2. Other information

Properties	Value	Method:	Notes:
Miscibility:	Not Relevant	--	Parameter not relevant for the

			type of product
Fat Solubility:	Not Relevant	--	Parameter not relevant for the type of product
Conductivity:	Not Relevant	--	Parameter not relevant for the type of product
Substance Groups relevant properties	Not Relevant	--	Parameter not relevant for the type of product

SECTION 10: Stability and reactivity

10.1. Reactivity

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

10.2. Chemical stability

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

10.3. Possibility of hazardous reactions

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

See also section 7.2.

10.4. Conditions to avoid

Different uses than recommended. Do not use in combination with other products. See also 1.2 and 7.2

10.5. Incompatible materials

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability. see also 1.2 and 7.2.

10.6. Hazardous decomposition products

Until the revision date of this document, no adverse effects and symptoms to exposure of the product are known, including chemical reactivity and instability.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological information of the product:

WASH PLUS SAN

a) acute toxicity

Not classified

Based on available data, the classification criteria are not met

b) skin corrosion/irritation

Not classified

Based on available data, the classification criteria are not met

c) serious eye damage/irritation

The product is classified: Eye Irrit. 2 H319

d) respiratory or skin sensitisation

Not classified

Based on available data, the classification criteria are not met

e) germ cell mutagenicity

Not classified

Based on available data, the classification criteria are not met

f) carcinogenicity

Not classified

Based on available data, the classification criteria are not met

g) reproductive toxicity

Not classified

Based on available data, the classification criteria are not met

- h) STOT-single exposure
Not classified
Based on available data, the classification criteria are not met
- i) STOT-repeated exposure
Not classified
Based on available data, the classification criteria are not met
- j) aspiration hazard
Not classified
Based on available data, the classification criteria are not met

Toxicological information of the main substances found in the product:

Below are reported, if available, the toxicological information of the components listed in paragraph 3.2.

ALKYL ETHER SULFATE C12-14, SODIUM SALT - CAS: 68891-38-3

- a) acute toxicity:
Test: LD50 - Route: Skin - Species: Rabbit > 5000 mg/kg - Source: OECD 402
Test: LD50 - Route: Oral - Species: Rat > 5000 mg/kg - Source: OECD 401
- b) skin corrosion/irritation:
Test: Skin Irritant - Route: Skin - Species: Rabbit Positive - Source: OECD 404
- c) serious eye damage/irritation:
Test: Eye Corrosive - Species: Rabbit Positive - Source: OECD 405
- d) respiratory or skin sensitisation:
Test: Skin or Resp. Sensitization Negative - Source: OECD 406
- e) germ cell mutagenicity:
Test: Mutagenesis Negative - Source: Ames Test

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

- a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 1960 mg/kg - Source: OECD 401 - Notes: bw
Test: LD50 - Route: Skin - Species: Rat > 2000 mg/l - Source: OECD 402
- b) skin corrosion/irritation:
Test: Skin Irritant - Route: Skin - Species: Rabbit Negative - Source: OECD 404 -
Notes: Sol 30%
- c) serious eye damage/irritation:
Test: Eye Corrosive - Species: Rabbit Yes - Source: OECD 405
- d) respiratory or skin sensitisation:
Test: Skin Sensitization Negative - Source: OECD 406

2-BROMO-2-NITROPROPANE-1,3-DIOL - CAS: 52-51-7

- a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat = 305 mg/kg
Test: LD50 - Route: Skin - Species: Rat = 1100 mg/kg
Test: LC50 - Route: Inhalation Dust - Species: Rat = 800 mg/m³ - Duration: 4h
- b) skin corrosion/irritation:
Test: Skin Irritant - Route: Skin - Species: Rabbit Positive - Duration: 4h - Source: OECD 404
- c) serious eye damage/irritation:
Test: Eye Corrosive - Species: Rabbit Positive
- d) respiratory or skin sensitisation:
Test: Skin Sensitization Negative
- e) germ cell mutagenicity:
Test: Mutagenesis Negative
- f) carcinogenicity:
Test: NOAEL - Route: Oral - Species: Rat = 7 mg/kg bw/d

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Until the revision date of this document, are not available experimental data on the mixture. Below are reported, if available, the eco-toxicological information of the components listed in paragraph 3.2.

WASH PLUS SAN

Not classified for environmental hazards

Based on available data, the classification criteria are not met

ALKYL ETHER SULFATE C12-14, SODIUM SALT - CAS: 68891-38-3

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 10 mg/l - Notes: Leuciscus idus

Endpoint: EC50 - Species: Daphnia > 10 mg/l - Notes: Daphnia magna

Endpoint: EC50 - Species: Algae > 100 mg/l - Notes: Scenedesmus subspicatus

b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Fish > 1 mg/l - Notes: Leuciscus idus

Endpoint: NOEC - Species: Daphnia > 0.1 mg/l - Notes: Daphnia magna

c) Bacteria toxicity:

Endpoint: EC0 - Species: Microorganisms / Effect on activated sludge: > 100 mg/l -

Notes: Pseudomonas putida

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish > 1 mg/l - Duration h: 96 - Notes: Leuciscus idus

Endpoint: EC50 - Species: Daphnia > 1 mg/l - Duration h: 48 - Notes: Daphnia magna

Endpoint: EC50 - Species: Algae > 1 mg/l - Duration h: 72 - Notes: Desmodium subspicatus

b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Fish > 0.1 mg/l - Notes: Oncorhynchus mykiss

Endpoint: NOEC - Species: Daphnia > 0.1 mg/l - Notes: Daphnia magna

c) Bacteria toxicity:

Endpoint: EC0 - Species: Microorganisms / Effect on activated sludge: > 100 mg/l -

Notes: Pseudomonas putida

2-BROMO-2-NITROPROPANE-1,3-DIOL - CAS: 52-51-7

a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish = 35.7 mg/l - Duration h: 96 - Notes: Oncorhynchus mykiss

Endpoint: EC50 - Species: Algae = 0.37 mg/l - Duration h: 72 - Notes: Anabaena flos aqua

Endpoint: EC50 - Species: Daphnia = 1.4 mg/l - Duration h: 48 - Notes: Daphnia magna

b) Aquatic chronic toxicity:

Endpoint: NOEC - Species: Daphnia = 0.27 mg/l - Duration h: 504 - Notes: Daphnia magna

Endpoint: NOEC - Species: Fish = 21.5 mg/l - Duration h: 588 - Notes: Oncorhynchus mykiss

Endpoint: NOEC - Species: Algae = 0.1 mg/l - Duration h: 72 - Notes: Pseudokirchneriella subcapitata

12.2. Persistence and degradability

Until the revision date of this document, are not available experimental data on the mixture. Below are reported, if available, the eco-toxicological information of the components listed in paragraph 3.2.

ALKYL ETHER SULFATE C12-14, SODIUM SALT - CAS: 68891-38-3

Biodegradability: Readily biodegradable

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

Biodegradability: Readily biodegradable

2-BROMO-2-NITROPROPANE-1,3-DIOL - CAS: 52-51-7

Biodegradability: Readily biodegradable - Test: OECD 301B - Duration: 28 days -

Notes: >70

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The surfactant(s) contained in this preparation complies with the biodegradability criteria laid down in Regulation (EC) No 648/2004 on detergents. All supporting data are kept available to the competent authorities of the Member States and will be provided to those authorities if they so request or at the request of a detergent manufacturer.

12.3. Bioaccumulative potential

Until the revision date of this document, are not available experimental data on the mixture. Below are reported, if available, the eco-toxicological information of the components listed in paragraph 3.2.

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

Bioaccumulation: Not bioaccumulative

2-BROMO-2-NITROPROPANE-1,3-DIOL - CAS: 52-51-7

Bioaccumulation: Not bioaccumulative - Test: Log Pow - Partition coefficient 0.22

12.4. Mobility in soil

Until the revision date of this document, are not available experimental data on the mixture. Below are reported, if available, the eco-toxicological information of the components listed in paragraph 3.2.

COCAMIDOPROPYL BETAINE - CAS: 147170-44-3

Mobility in soil: Not mobile

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

12.6. Other adverse effects

Until the revision date of this document, unknown adverse effects and symptoms towards the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover if possible. In so doing, comply with the local and national regulations currently in force. Do not discharge into the ground or into drains.

See also section 6.

SECTION 14: Transport information

14.1. UN number

Not classified as dangerous in the meaning of transport regulations.

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

ADR-Environmental Pollutant: No

IMDG-Marine pollutant: No

14.6. Special precautions for user

Not applicable

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

Not applicable

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

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Regulation (EC) n. 1272/2008 (CLP)
 Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
 Regulation (EU) 2015/830
 Regulation (EU) n. 286/2011 (ATP 2 CLP)
 Regulation (EU) n. 618/2012 (ATP 3 CLP)
 Regulation (EU) n. 487/2013 (ATP 4 CLP)
 Regulation (EU) n. 944/2013 (ATP 5 CLP)
 Regulation (EU) n. 605/2014 (ATP 6 CLP)
 Regulation (EU) n. 2015/1221 (ATP 7 CLP)
 Regulation (EU) n. 2016/918 (ATP 8 CLP)
 Regulation (EU) n. 2016/1179 (ATP 9 CLP)
 Regulation (EU) n. 2017/776 (ATP 10 CLP)
 Regulation (EU) n. 2018/699 (ATP 11 CLP)
 Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

None

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)
 Regulation (EC) nr 648/2004 (detergents).
 Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1
 None

15.2. Chemical safety assessment

No, for instructions on safe mangling you see Sections 7 and 8 and the exposure scenario - Annex I of this document.

A Chemical Safety Assessment has been carried out for the mixture.

No Chemical Safety Assessment has been carried out for the mixture.

Substances for which a Chemical Safety Assessment has been carried out:

None

SECTION 16: Other information

Full text of phrases referred to in Section 3:

H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H412 Harmful to aquatic life with long lasting effects.
 H319 Causes serious eye irritation.
 H331 Toxic if inhaled.
 H335 May cause respiratory irritation.
 H302 Harmful if swallowed.
 H312 Harmful in contact with skin.
 H400 Very toxic to aquatic life.
 H411 Toxic to aquatic life with long lasting effects.
 EUH044 Risk of explosion if heated under confinement.

Hazard class and hazard category	Code	Description
Acute Tox. 3	3.1/3/Inhal	Acute toxicity (inhalation), Category 3
Acute Tox. 4	3.1/4/Dermal	Acute toxicity (dermal), Category 4
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Irrit. 2	3.2/2	Skin irritation, Category 2

Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2
Aquatic Chronic 3	4.1/C3	Chronic (long term) aquatic hazard, category 3

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Eye Irrit. 2, H319	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
- ATE: Acute Toxicity Estimate
- ATEmix: Acute toxicity Estimate (Mixtures)
- CAS: Chemical Abstracts Service (division of the American Chemical Society).
- CLP: Classification, Labeling, Packaging.
- DNEL: Derived No Effect Level.
- EC0/10/20/50/100: Effective concentration, for 0/10/20/50/100 percent of test population.
- EINECS: European Inventory of Existing Commercial Chemical Substances.
- GefStoffVO: Ordinance on Hazardous Substances, Germany.
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
- IATA: International Air Transport Association.
- IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
- ICAO: International Civil Aviation Organization.
- ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
- IMDG: International Maritime Code for Dangerous Goods.
- INCI: International Nomenclature of Cosmetic Ingredients.
- KSt: Explosion coefficient.
- LC0/10/20/50/100: Lethal concentration, for 0/10/20/50/100 percent of test population.
- LD0/10/20/50/100: Lethal dose, for 0/10/20/50/100 percent of test population.
- NOEC: No Observed Effect Concentration



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NOAEL(R)/N No Observed Adverse Effect Level(Repeated)/Concentration
OAEC:
OECD: Organisation for Economic Co-operation and Development
PNEC: Predicted No Effect Concentration.
RID: Regulation Concerning the International Transport of Dangerous Goods
by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWA: Time-weighted average
WGK: German Water Hazard Class.

Safety Data Sheet
RATIO K-2



ANNEX I
PROFESSIONAL PRODUCT – LAUNDRY or AUTOMATIC DISHWASH DETERGENT

Title of exposure scenario	
Detergent for general cleaning: Manual or machine process.	
Use description	
Sector Use	SU22 – Professional use
Product Category	PC35 – Washing and cleaning products (including solvent based products)
Description of activities/process considered on exposure scenario.	
Use the recommended dose according to water hardness and degree of soiling, following the instructions on the label or technical data sheet.	
Frequency and duration	
Use phase	1 or more times a day. Duration depends on washing program.
Relevant limit values of ingredients, if available, are stated in section 8 of the SDS.	
Physical appearance and concentration	
Liquid or powder. To dilute.	
In section 2 of the SDS of product and on the label the classification of mixture is provided.	
Mixture classification is based on ingredients classification and on chemical/physical properties stated in section 9 of the SDS of product.	
Use conditions	
Room temperature /for recommended washing temperature see label or tecnica sheet.	
Protezione	
See section 8 of the SDS of product to more information on PPE.	Training of worker to use and maintenance of PPE is supposed.
Don't eat or drink, don't smoke.	Avoid contact with damaged skin.
No open flame.	Do not use in combination with other products
Wash hand after use.	
In case of accidental release: dilute with water and dry.	
Follow use instruction as specified on the label or on technical sheet. Use good occupational hygiene practices as specified in section 7 on the SDS.	
Environmental measures	
See section 6 of the SDS in case of accidental release	
See section 12 of the SDS for ecotoxicological information of mixture and dangerous ingredients.	
See section 13 of the SDS for disposal considerations.	

Note:

SDS: Safety Data Sheet

PPE: Personal Protection Equipment