

SECTION 1: Identification

1.1 Product identifier

Trade name RoClean™ L212
CAS number none

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

Relevant identified uses Water treatment
 RO Reverse Osmosis

1.3 Details of the supplier of the safety data sheet

Avista Technologies, Inc.
 140 Bosstick Blvd.
 92069 San Marcos
 United States

Telephone: +1 (760) 744 0536
 e-mail: regulatory@avistatech.com
 Website: AvistaMembraneSolutions.com

1.4 Emergency telephone number

Emergency Number (USA, Canada): 1 (800) 424-9300 (ChemTrec)
 Emergency Number (International): 1 (703) 527-3887 (International Collect)

1.5 Registration



This product is designed to be used off-line and is to be flushed out prior to using the system for drinking water, following the manufacturer's use instructions.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

<i>Hazard class</i>	<i>Category</i>	<i>Hazard statement</i>
acute toxicity (inhal.)	4	H332
skin corrosion/irritation	1B	H314
serious eye damage/eye irritation	2A	H319
substance or mixture corrosive to metals	1	H290

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Signal word danger

Pictograms

GHS05, GHS07



Hazard statements

- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.

Precautionary statements

- P234 Keep only in original container.
- P260 Do not breathe dusts or mists.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear eye protection/face protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- 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.
- P363 Wash contaminated clothing before reuse.
- P390 Absorb spillage to prevent material damage.
- P405 Store locked up.
- P406 Store in corrosive resistant container with a resistant inner liner.
- P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Hazards not otherwise classified

Harmful to aquatic life (GHS category 3: aquatic toxicity - acute).

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous ingredients

Name of substance	Identifier	Wt%	Classification acc. to GHS
Silicate compound A	CAS No Proprietary EC No Proprietary	10 - <20	Acute Tox. 3 / H331 Skin Irrit. 2 / H315 Eye Irrit. 2 / H319 STOT SE 3 / H335
Surfactant D	CAS No Proprietary EC No Proprietary	1 - <5	Acute Tox. 4 / H302 Eye Dam. 1 / H318

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<i>Name of substance</i>	<i>Identifier</i>	<i>Wt%</i>	<i>Classification acc. to GHS</i>
Acrylic terpolymer	CAS No Proprietary	1 - < 5	
Water	7732-18-5	70 - < 80	Not established
Organic amine C	78-96-6	1 - < 5	Acute Tox. 4 / H312 Skin Corr. 1B / H314 Eye Dam. 1 / H318
Chelate agent I	144538-83-0	1 - < 5	Not established
Emulsifier C	Proprietary	1 - < 5	Eye Irrit. 2A / H319

For full text of abbreviations: see SECTION 16.

Specific chemical identity and concentration of some ingredients are protected as Trade Secret information.

Registration Number: 3333932 Date filed: 24 June 2019.

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

In case of respiratory tract irritation, consult a physician. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Splashes cause strong tearing, pain, may cause permanent visual impairment. Prolonged contact may cause dryness, redness, burns, blistering and ulceration. Can be partially absorbed by the skin. Ingestion causes pain, burns, abdominal pain, possible general impact (shock).

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote is known. Treatment of the symptoms.

SECTION 5: Fire-fighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Non-combustible. Coordinate firefighting measures to the fire surroundings. Water spray, Alcohol resistant foam, Fire extinguishing powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

Keep containers cool with water spray. In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Chemical protection suit, Use suitable breathing apparatus

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Aqueous solutions or powders that become wet produce extremely slippery conditions.

For non-emergency personnel

Follow emergency procedures such as the need to evacuate the danger area or to consult an expert. Remove persons to safety. Prevent skin contact. Avoid inhaling sprayed product. Aqueous solutions or powders that become wet produce extremely slippery conditions.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases. Wear personal protective equipment/face protection. Aqueous solutions or powders that become wet produce extremely slippery conditions. Special danger of slipping by leaking/spilling product.

Suitable fabric for personal protective clothing

PE: polyethylene, NR: natural rubber, latex, CR: chloroprene (chlorobutadiene) rubber

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority. Disposal considerations: see section 13. Chemicals generally shouldn't reach surface water.

6.3 Methods and material for containment and cleaning up**Advice on how to contain a spill**

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), Material for neutralising like diluted acetic acid.

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Appropriate containment techniques

Neutralization techniques. Decontamination techniques. Use of adsorbent materials. Vacuuming techniques.

Equipment required for containment/clean-up

Approved industrial vacuum cleaner, Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), Sweeping compounds (oil absorbing), Shovel, Drain seal, Collecting container, Protective gloves, Eye protection (e.g. protective goggles), Personal protective equipment: see section 8

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Section 7: Handling and storage. See also to sections 8 and 13 of the safety data sheet.

SECTION 7: Handling and storage**7.1 Precautions for safe handling****Recommendations****Measures to prevent fire as well as aerosol and dust generation**

Use local and general ventilation.

Handling of incompatible substances or mixtures

Do not mix with acids. Do not mix with other chemicals.

Keep away from

Acids, Strong oxidizers, Other chemicals

Measures to protect the environment

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities**Managing of associated risks****Corrosive conditions**

Store in corrosive resistant container with a resistant inner liner.

Consideration of other advice

Store between 5°C and 40°C. Avoid freezing.

Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted.

Specific designs for storage rooms or vessels

No special measures are necessary. Keep container tightly closed.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

Water treatment. RO Reverse Osmosis.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****National limit values****Occupational Exposure Limits: PELs, TLVs, etc**

These information are not available.

8.2 Exposure controls**Appropriate engineering controls**

General ventilation.

Individual protection measures (personal protective equipment)

Guarantee that the eye flushing systems and safety showers are closely located to the working place.

Eye/face protection

Wear eye/face protection.

Skin protection

Chemical resistant protective clothing.

Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. In case of spray contact at least protection index 2 recommended, according to more than 30 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.4 mm

In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).

Layer thickness of gloves at least: 0.7 mm.

Type of material

PVC: polyvinyl chloride, PE: polyethylene, NBR: acrylonitrile-butadiene rubber, IIR: isobutene-isoprene (butyl) rubber

Breakthrough times of the glove material

Breakthrough times and swelling properties of the material must be taken into consideration

Other protection measures

Wash hands thoroughly after handling.

Respiratory protection

Not necessary under normal conditions and provided good general ventilation. In case of inadequate ventilation wear respiratory protection. Type : E (against acidic gases like sulfur dioxide or hydrogen chloride, color code: Yellow).

Environmental exposure controls

Disposal considerations: see section 13.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Color	clear , amber liquid
Odor	mild - like ammonia
Odor threshold	no data available

Other safety parameters

pH (value)	ca. 11.5 – 12.5 (in aqueous solution: 2 wt%, 25 °C) (base)
Melting point/freezing point	ca. <0 °C at 1 atm
Initial boiling point and boiling range	ca. >100 °C at 1 atm
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	not applicable
Upper/lower flammability or explosive limits	not determined
Vapor pressure	ca. 21 mmHg at 20 °C
Vapor density	this information is not available
Density	not determined
Relative density	1.1 – 1.2 at 25 °C (water = 1)

Solubility(ies)

Water solubility	miscible in any proportion
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Partition coefficient

-n-Octanol/water (log KOW)	this information is not available
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Auto-ignition temperature	not determined not applicable
Decomposition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Dangerous/dangerous reactions with Acids.

10.4 Conditions to avoid

Incompatible materials.

10.5 Incompatible materials

Acids, Oxidizers

Release of flammable materials with:

Light metals (due to the release of hydrogen in an acid/alkaline medium)

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Acute toxicity

Harmful if inhaled.

Acute toxicity of components of the mixture				
<i>Name of substance</i>	<i>Exposure route</i>	<i>Endpoint</i>	<i>Value</i>	<i>Species</i>
Organic amine C	oral	LD50	2,813 mg/kg	rat
Emulsifier C	oral	LD50	>7,200 mg/kg	rat
Emulsifier C	dermal	LD50	>2,000 mg/kg	rabbit
Emulsifier C	inhalation: dust/ mist	LC50	>6.41 mg/l/4h	rat

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage. Causes serious eye irritation.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Harmful to aquatic life.

Aquatic toxicity (acute) of components of the mixture					
<i>Name of substance</i>	<i>Endpoint</i>	<i>Exposure time</i>	<i>Value</i>	<i>Species</i>	<i>Source</i>
Organic amine C	LC50	96 h	≤464 mg/l	fish	European Chemicals Agency, http://echa.europa.eu/

Aquatic toxicity (acute) of components of the mixture					
<i>Name of substance</i>	<i>Endpoint</i>	<i>Exposure time</i>	<i>Value</i>	<i>Species</i>	<i>Source</i>
Organic amine C	EC50	48 h	108.8 mg/l	aquatic invertebrates	European Chemicals Agency, http://echa.europa.eu/
Organic amine C	ErC50	72 h	32.3 mg/l	algae	European Chemicals Agency, http://echa.europa.eu/
Emulsifier C	EC50	48 h	>1,020 mg/l	daphnia	
Emulsifier C	LC50	96 h	>1,000 mg/l	rainbow trout (Oncorhynchus mykiss)	

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Data are not available.

Remarks

Do not empty into drains or surface water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point. Dispose of waste according to applicable legislation.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks


Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Avoid release to the environment.

SECTION 14: Transport information

14.1 UN number	2735
14.2 UN proper shipping name	Amines, liquid, corrosive, n.o.s.
Technical name (hazardous ingredients)	contains: (tetrasodium 2-(1,2-dicarboxylatoethylamino)butanedioate) (1-aminopropan-2-ol)
14.3 Transport hazard class(es)	
Class	8
14.4 Packing group	III
14.5 Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations
14.6 Special precautions for user	
	There is no additional information.
14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code	
	The cargo is not intended to be carried in bulk.



Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT)

Index number	2735
Proper shipping name	Amines, liquid, corrosive, n.o.s.
Particulars in the shipper's declaration	UN2735, Amines, liquid, corrosive, n.o.s., (tetrasodium 2-(1,2-dicarboxylatoethylamino)butanedioate, 1-aminopropan-2-ol), 8, III
Class	8
Packing group	III
Danger label(s)	8
	
Special provisions (SP)	IB3, T7, TP1, TP28
ERG No	153

International Maritime Dangerous Goods Code (IMDG)

UN number	2735
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.
Particulars in the shipper's declaration	UN2735, AMINES, LIQUID, CORROSIVE, N.O.S., (tetrasodium 2-(1,2-dicarboxylatoethylamino)butanedioate, 1-aminopropan-2-ol), 8, III
Class	8
Marine pollutant	-

Packing group	III
Danger label(s)	8
	
EmS	F-A, S-B
Segregation group	18 - Alkalis
Segregation codes	SG35
International Civil Aviation Organization (ICAO-IATA/DGR)	
UN number	2735
Proper shipping name	Amines, liquid, corrosive, n.o.s.
Particulars in the shipper's declaration	UN2735, Amines, liquid, corrosive, n.o.s., (tetrasodium 2-(1,2-dicarboxylatoethylamino)butanedioate, 1-aminopropan-2-ol), 8, III
Class	8
Environmental hazards	no
Packing group	III
Danger label(s)	8
	

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) all ingredients are listed or exempt from listing

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

none of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

none of the ingredients are listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

none of the ingredients are listed

Clean Air Act

none of the ingredients are listed

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New Jersey Worker and Community Right to Know Act

NJ-RTK List
<i>Name of substance</i>
Organic amine C

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

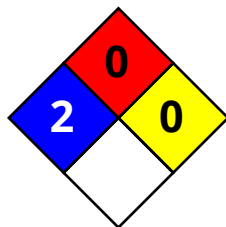
Hazardous Materials Identification System. American Coatings Association.

HEALTH	/ 2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

A "*" on the health line indicates a chronic health hazard is present.

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).



Additional information

Substance is listed in the following national inventories:

The contained substances are listed in the following national inventories:

- AICS (Australia)
- ASIA-PAC (Asia-Pacific Region)
- DSL (Canada)
- NDSL (Canada)
- DSL/NDSL (Canada)
- IECSC (China)
- EINECS/ELINCS/NLP (Europe)
- EINECS (European Union)
- REACH (Europe)
- ENCS, class 1 and 2 (MITI-inventory, Japan)
- CSCL-ENCS (Japan)
- ISHA-ENCS (Japan)
- KECL (Republic of Korea)
- INSQ (Mexico)
- NZIoC (New Zealand)
- PICCS (Philippines)
- CICR (Turkey)
- TCSI (Taiwan)
- TSCA (United States)

15.2 Chemical Safety Assessment

Chemical Safety Assessment: No.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

<i>Abbr.</i>	<i>Descriptions of used abbreviations</i>
49 CFR US DOT	49 CFR U.S. Department of Transportation
Acute Tox.	Acute toxicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DOT	Department of Transportation (USA)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
ERG No	Emergency Response Guidebook - Number
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NJ-RTK List	Hazardous Substance List (NJ-RTK)
NLP	No-Longer Polymer
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)

<i>Abbr.</i>	<i>Descriptions of used abbreviations</i>
PBT	Persistent, Bioaccumulative and Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STOT SE	Specific target organ toxicity - single exposure
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

ECHA: European Chemicals Agency, <http://echa.europa.eu/>.

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

<i>Code</i>	<i>Text</i>
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.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.