

ROPUR RPI® Antiscalants

Manufactured in Germany under the EN ISO-9001/14001 quality standards, ROPUR RPI® Antiscalants are specifically formulated for membrane separation processes used in water treatment applications. Based on 30 years of application know-how, ROPUR RPI® Antiscalants increase reverse osmosis system performance and reliability through unmatched efficiency and quality.

Product Availability & Stock Location

ROPUR RPI® Antiscalants are readily available from stock located in Germany and in the UAE, helping to minimize customers' storage costs. Local ROPUR RPI® Antiscalants distributors also keep a stock of the most frequently used antiscalant products, making fast delivery possible.

Web Site Information:

Additional technical support is available 24 hours a day through the web site www.ropur.com. The site offers a wide range of technical information, data sheets and technical bulletins.



www.ropur.com



Designed for Performance

Aqua Filtration

Authorized Distributor for Eastern Region of India

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ROPUR
antiscalants

ROPUR
antiscalants

ROPUR RPI® Antiscalants

ROPUR RPI® Antiscalants feature superior scale control, dispersant capabilities as well as compatibility with commonly used membranes and chemicals for water treatment applications. ROPUR RPI® Antiscalants are used worldwide in hundreds of large reverse osmosis systems for water drinking purposes. ROPUR RPI® Antiscalants product range meets the expectations of NSF, KIWA and country-specific drinking water approvals.

ROPUR RPI® Antiscalants Table

ROPUR RPI® Antiscalants are in conformity with EU regulations: "Chemicals used for treatment of water intended for human consumption – Antiscalants for membranes".

Benefits

- ROPUR RPI® Antiscalants are designed to support plant designers, OEMs and end-users in optimizing RO, NF, UF and MF plant performance. ROPUR RPI® Antiscalants are
- Compatible with commercially available membranes
 - Certified for drinking water applications (NSF, KIWA, country-specific)
 - Cost effective by optimizing plant recovery/conversion, reducing system downtime and cleaning frequency
 - Protecting the membranes and investment
 - Safe to handle and easier to dose
 - Manufactured according to high quality standards ISO 9001 / 14001
 - Environmentally friendly

The performance of ROPUR® RPI Antiscalants is summarized in the following table:

ROPUR antiscalants	NSF Certified to NSF/ANSI 60			kiwa			NSF Certified to NSF/ANSI 60		
	RPI 2000	RPI 2800	RPI 3000A	RPI 4000A	RPI 4500A	RPI 4900	RPI 5000A	RPI 6000	RPI 7000
Feedwater source	BW/SW	SW	BW/SW	BW	BW	BW/SW	BW	BW	BW
CaCO ₃	●●●	●●●	●●●	●●●	●●	●●●	●	●●	●●●
CaSO ₄	●●	●	●●●	●●●	●●	●●	●	●●●	●
BaSO ₄ / SrSO ₄	●	●	●●●	●●●	●●	●●	●	●●	●
SiO ₂ -(H ₂ O) _x	○	○	●	●	●	●	●●●		●●
CaF ₂	●	○	●	●●	●	●●	○	●	●
Ca ₃ (PO ₄) ₂	●	●	○	●	●		●●	○	●●●
Fouling Inhibition	●●	●●	●●	●	●	○	●		●●
Fe/Mn/Al/Cu/Co	●●	●●	●●●	●●	●●	●●	●●	●	●●●

●●● Best ●● Very Good ● Good ○ Limited

All RPI Antiscalants fulfill the European regulations **UNE-EN 15039:2007** and **UNE-EN 15040:2007**

All RPI Antiscalants are listed on the German «Umwelt-Bundes-Amt» approvals list for use in drinking water production by Reverse Osmosis

5000A Highly effective on poorly soluble Silica (MgSiO₂), resulting in concentrate saturation of up to 250 mg/l

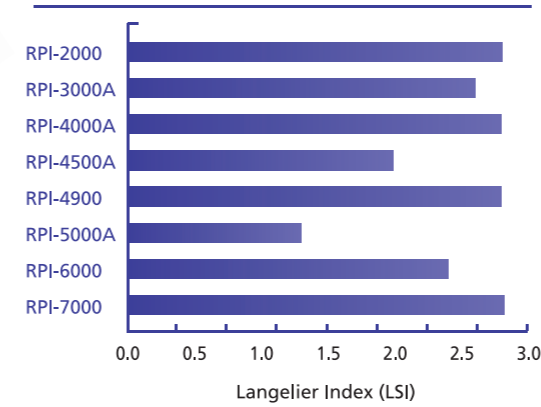
Up to 15000 ppm Calcium Sulfate saturation

High performance scale inhibitor for Calcium Phosphate and Fe / Mn

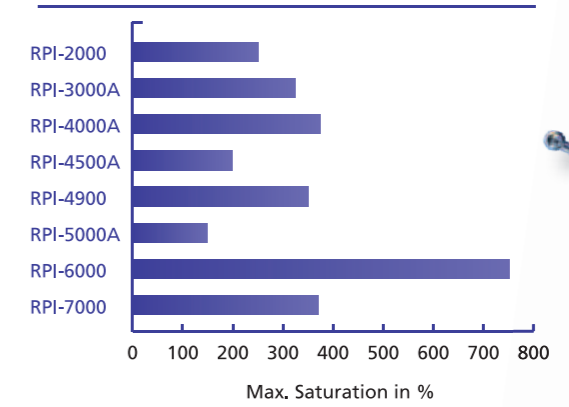
Ratings chart is based on equal concentration of antiscalant in RO brine

BW = Brackish water
SW = Sea water

Max. LSI (CaCO₃)



CaSO₄ Saturation



Service and Support

Our highly qualified and specialized staff provides our customers with the following added-value services and support:

RPI Calc® : Antiscalants Selection and Dosing Calculator

To increase the reverse osmosis performance and to minimize the antiscalant dosing rate, we offer a 24/7 access to the new RPI Calc® calculation platform. Since its official release in 2012, the RPI Calc® already demonstrated its precision and reliability for hundreds of plants. The RPI Calc® is the product of a 6-year R&D program driven by the desire to bring reliable and precise calculations to our antiscalants users.



Selection and Dosing Calculation of Antiscalants

Selection of the most appropriate antiscalant requires a thorough and comprehensive water analysis. To increase brackish or seawater reverse osmosis efficiency and to support trouble-free operation, we offer an evaluation of the water analysis data for correct selection and optimized dosing amount of ROPUR RPI® Antiscalants. We even take into account the complete pre-treatment phase in order to ensure full chemical compatibility.

Membrane Autopsy

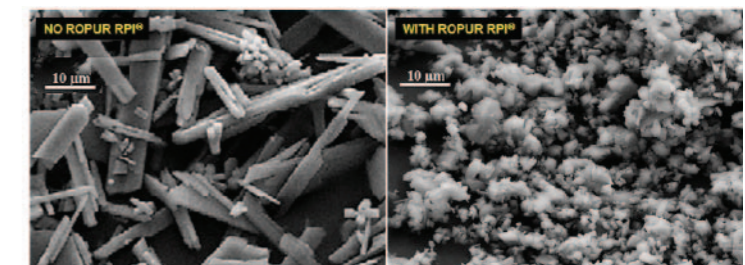
Membrane autopsy is a highly valuable service, which is used to determine the reasons for fluctuations or decline in plant performance. The autopsy will reveal if plant performance is affected by specific factors such as fouling, mineral scaling or chemical / physical damage to the membrane itself.

Plant Evaluation

We have a team of specialists, who perform on-site plant inspections to help determine if and why a plant might be performing below its fullest capacity.

Cleaning Recommendations

ROPUR has developed a complete set of cleaning chemicals and biocides to help sustain the initial performance of an RO plant. Based on the water composition, system evaluation and autopsy results, we provide optimal and personalized solutions for membrane cleaning and maintenance.



SEM Pictures of Calcium Sulfate precipitated from saturated solutions. Sharp needles like crystals are downsized by a factor 50 to safe round shape crystals.

How it works...

Scale inhibitors function based on one of the following mechanisms, in which they interfere with the crystal growth stages:

Threshold effect

Sub-stoichiometric amounts of the inhibitor prevent the precipitation of salts that have exceeded their solubility product.

Crystal distortion effect

Interference in normal crystal growth produces an irregular crystal structure, resulting in poor scale-forming ability.

Dispersancy (antifouling) effect

A single-pole charge is applied to the surface of the crystals, which causes the crystals to repel one another.



Customer satisfaction...

"The excellent characteristics of the RPI-Series inhibitors resulted in overwhelming satisfaction among our clients, and consequently our company could increase profits substantially."

D. Leon Padilla
HIDROTEC (Spain)

Expert support
is just a click away!



info@toraywater.com



Comply with EU regulations
CEN/TS 164, EN 15039 and EN 15040 used for treatment of water intended for human consumption

Scale Inhibitor ROPUR RPI-3000A

Date: 01.11.2010

GENERAL

RPI-3000A is specially designed to inhibit the scale formation in RO-systems equipped with polyamide-, celluloseacetate- and polyethermembranes with anionically charged surface.

RPI-3000A is a stabilized solution of organic phosphonates and polyacrylates with high dispersing effect.

RPI-3000A is an excellent inhibitor for calcium sulphate and calcium carbonate. A further advantage is the excellent stabilizing effect for barium and strontium sulphate. In addition even iron may be stabilized. The contained copolymers act also as a dispersing agent for organic contaminants and metal oxides.

APPLICATION AND DOSAGE

RPI-3000A is designed and approved as a highly efficient scale inhibitor for use with cellulose acetate and polyamide membranes. There is no interaction with the membrane material.

The dosage is controlled proportionally to the feed water flow. Standard metering pumps are used. Fitting materials are PE, PP or coated steel. In order to avoid biological fouling, the containers have to be cleaned from time to time with a 10 % sodium bisulphate solution.

RPI-3000A can be diluted with water in any ratio. However, it is recommended to inject the antiscalant undiluted or as solution up to 10 %. The diluted solutions have to be consumed within 48 hours after preparation. The required dosage level depends on the operating conditions and water composition and varies in the range of 1 – 10 ppm as delivered.

RPI-3000A is easy to be handled and does not contain any aggressive component. The pH value of the product is slightly acidic.

PHYSICAL PROPERTIES

Appearance:	clear, dark yellow liquid
Density:	1,14 – 1,16 g/cm ³
pH-value:	4,8 – 5,3
Freezing point:	- 10° C
Boiling point/boiling range :	100 – 105 °C
Solubility in water:	unlimited



Comply with EU regulations **CEN/TS 164, EN 15039 and EN 15040** used for treatment of water intended for human consumption

STORAGE & HANDLING

RPI-3000A is not classified as a hazardous chemical (GGVE/GGVS, ICOA/IATA). Standard regulations and precautions when dealing with chemical products have to be followed.

RPI-3000A is easy to store. The storage temperature should be between +5 °C and 30 °C. The product is supplied in containers suitable for air or sea transportation.

The safety data sheet contains more information.

PACKAGING

Polyethylene container (PE)	23.5 kg net
Standard drum (PE)	240 kg net
Container (PE)	1.100 kg net

The data and information contained in this data sheet are based on technical data and tests we believe to be reliable. They are offered in good faith for use by persons having appropriate technical skill at their own discretion and risk. Supplier has no control of design and operating conditions and consequently cannot assume any reliability for results obtained or damage incurred through the use of the product presented. ROPUR RPI Antiscalants are continuously improved and therefore we reserve the right to modify or amend specifications without prior notice.



Safety Data Sheet

According to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP and GHS).

Comply with EU regulations
CEN/TS 164, EN 15039 and
EN 15040 used for treatment
of water intended for human
consumption

Version: 4 Language: EN Revision date: 01.06.2015
Labelling pursuant to CLP regulation

1. Identification of the substance or preparation

RPI-6000

REACH registration number: - Downstream User

Use of the substance / preparation: Reverse osmosis antiscalant

Company/undertaking identification

Manufacturer & Supplier:

Toray Membrane Europe AG
Grabenackerstrasse 8b

CH 4142 Münchenstein 1

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This number is serviced during office hours.

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Toray Membrane Europe AG

Department responsible for information:

Toray Membrane Europe AG

2. Hazards identification

Classification of the substance or mixture

Regulation (EC) No 1272/2008:

-

Directive 67/548/EEC:

-

Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms:

No Hazard Pictogram,
No Signal Word
No Precautionary

H phrases:

-

P phrases:

102 Keep out of reach of children.
270 Do no eat, drink or smoke when using this product.
305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Labelling according to Directive 67/548/EEC

Hazard symbols:

R phrases:

-

S phrases:

1/2 Keep locked up and out of the reach of children.
13 Keep away from food, drink and animal feeding stuffs.
20/21 When using do not eat, drink or smoke.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Other hazards

No risks worthy of mention. Please observe the information on the safety data sheet at all times.

3. Composition/information on ingredients

Chemical characterization (substance):

Solution of phosphonate(s) salt(s).

Contains components listed below:

Phosphonate, Potassium salt

Content: 20 - 50 Wt-%

EINECS-No.: -

CAS-No.: -

Classification: -

Additional information:

This preparation does not contain harmful substances and/or substances hazardous to the environment in accordance with the substance directive 67/548/EC or substances to which occupational exposure limit values are allocated.

4. First Aid measures

General information:

No special measures are necessary.

After inhalation:

Provide fresh air. Seek medical attention if problems persist.

After skin contact:	After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, seek medical treatment.
After eye contact:	In case of contact with eyes, rinse immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.
After ingestion:	Rinse mouth immediately and drink large quantities of water. Do not induce vomiting. Seek medical attention if problems persist.
Self-protection of the first aider:	No special measures are necessary.
Information to physician:	
Symptoms:	No symptoms known up to now.
Nature of Hazard:	None
Treatment:	Treat symptomatically.

5. Fire fighting measures

General information:

Extinguishing materials should be selected according to the surrounding area. The product itself is not combustible.

Suitable extinguishing media:

Carbon dioxide (CO₂). Dry extinguishing powder. Water fog. Foam.

Extinguishing media which must not be used for safety reasons:

High power water jet.

Special exposure hazards arising from the substance itself, combustion products, resulting gases:

Carbon dioxide. Carbon monoxide. Nitrogen oxides (NO_x). Phosphorus oxides. Pyrolysis products, toxic.

Special protective equipment for fire-fighters:

In case of fire: Wear self-contained breathing apparatus. Protective clothing.

Additional information:

Contaminated fire-fighting water must be collected separately.

6. Accidental release measures

Personal precautions:

See protective measures under point 7 and 8.

Environmental precautions:

No special environmental protection measures are necessary.

Methods for cleaning up:

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the assimilated material according to the section on waste disposal.

Additional information:

None

7. Handling and storage

Handling

Information for safe handling:

No special handling instructions are necessary.

Technical measures and storage conditions:

Provide for sufficient ventilation and punctiform suction at critical points.

Precautions against fire and explosion:

No special precautionary measures are necessary.

Additional information:

None

Storage**Technical measures and storage conditions:**

Maximum storage temperature: 30-35 °C

Minimum storage temperature: 5 °C (avoid freeze conditions)

Packaging materials:

Keep only in the original container.

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place. Protect against: frost.

Information about storage in one common storage facility:

Do not store together with: Food and fodder

Further information concerning storage conditions:

None

Storage class: 12

Specific use(s):

Observe instructions for use.

8. Exposure controls / Personal protection

Critical values of exposure:

Does not contain substances above concentration limits fixing an occupational exposure limit.

Components with workplace or biological limit values to be monitored:**Limitation and monitoring of exposure****Exposure limit values:**

Refer to chapter 7. No further action is necessary.

Respiratory protection:

With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection:

Suitable gloves type: Pull-over gloves of rubber.

Eye protection:

Splash proof safety goggles.

Body protection:

Protective clothing.

Environmental exposure controls:

Refer to chapter 7. No further action is necessary.

General protection and hygiene measures:

Do not eat, drink, smoke or sniff at the workplace. Wash hands before breaks and at the end of work.

Apply skin care products after work. Wash contaminated clothing prior to re-use.

9. Physical and chemical properties

Form:	liquid
Colour:	yellow
Odour:	characteristic
pH:	6 - 8
Melting point / melting range:	- 15 °C
Boiling point / boiling range:	105 - 108 °C
Flash point:	100 °C
Flammability:	No data available
Explosion hazard:	No data available
Lower explosion limit:	No data available
Upper explosion level:	No data available
Ignition temperature (AIT):	No data available
Oxidizing properties:	No data available
Vapour pressure:	No data available
Relative density:	1,3 g/cm ³
Solubility in water: (g/l):	No data available
Fat solubility: (g/l):	No data available
Solubility in organic solvent:	No data available
Partition coefficient (n-octanol / water) (log P O/W):	No data available
Viscosity:	No data available
Relative vapour density at 20°C :	No data available
Speed of vaporization/evaporation rate:	No data available
Solvent separation test (%):	No data available
Solvent content (%):	No data available
Bulk density:	Not applicable

Additional information:

None

10. Stability and reactivity

Conditions to avoid:

None

Materials to avoid:

Strong oxidizing agents, acid.

Dangerous reactions:

None

Hazardous decomposition products:

Carbon dioxide. Carbon monoxide. Nitrogen oxides (NOx). Phosphorus oxides. Pyrolysis products, toxic.

11. Toxicological information

Acute toxicity:

There are no data available on the preparation/mixture itself.

Specific symptoms from animal test:

Acute toxicity, oral (LD50): Rat > 12800 mg/kg

Acute toxicity, dermal (LD50): Rabbit > 7940 mg/kg

Irritation and etching

Irritation effect on the skin:

Not an irritant.

Irritation effect on the eye:

Not an irritant.

Sensitization:

There are no data available on the preparation/mixture itself.

Effect after repeated or prolonged exposure:

There are no data available on the preparation/mixture itself.

CMR effects (carcinogen, mutagenic and toxicity for reproduction):

There are no data available on the preparation/mixture itself.

Additional information:

There are no data available on the preparation/mixture itself.

Practical experience:

None

Other observations:

None

General remarks:

According to our experience and the information available to us, the product has no negative impact on health.

12. Ecological information

General information:

None

Ecotoxicity:

Acute fish toxicity (LC50): *Silurus glanis* (Wels catfish) > 2400 mg/kg

Acute *Daphnia* toxicity (EC50): *Daphnia magna* (Water Flea) 555 mg/kg

Chemical Oxygen Demand (COD): n.a.

Biochemical Oxygen Demand (BOD): n.a.

Mobility:

There are no data available on the mixture itself.

Persistence and Biodegradation:

Technically correct releases of minimal concentrations to adapted biological sewage treatment facility will not disturb the biodegradability of activated sludge.

Bioaccumulative potential:

There are no data available on the mixture itself.

Results of PBT assessment:

There are no data available on the mixture itself.

Other harmful effects:

There are no data available on the mixture itself.

Further ecological information:

none

13. Disposal considerations

General information:

Can be incinerated together with household waste in compliance with official regulations after consulting approved waste disposal companies and authorities in charge.

Waste Code

The assignment of waste codes / waste designations is done according to the European directory of waste codes (AVV) and to specific processes. The final user must redefine and assign the most appropriate Waste Catalogue Code.

Contaminated packaging:

Cleaned and empty containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Additional information:

Waste disposal according to official state regulations.

14. Transport information

Overland transport (ADR/RID)**Technical name:**

ROPUR RPI-6000

-

UN-No.: -

Label: -

Packing Group: -

warning sign: -

Remark: Not a hazardous material with respect to these transportation regulations.

Transport by sea (IMDG)**Proper Shipping name:**

ROPUR RPI-6000

-

UN-No.: -

Label: -

Packing group: -

EmS-No.: -

MFAG: -

Marine pollutant: no

Special

Provisions:

Remark: Not a hazardous material with respect to these transportation regulations.

Air transport (ICAO-TI / IATA-DGR)**Proper Shipping name:**

ROPUR RPI-6000

-

UN/ID-No.: -
Label: - **Packing group:** -
Remark: Not a hazardous material with respect to these transportation regulations.
Postage: -

15. Regulatory information

Classification:

Product is classified and labelled in accordance with EC regulations or the corresponding national laws.

A safety evaluation was conducted: -

Hazardous component(s) for labelling:

Special labelling of particular preparations:

None

EU-Regulations:

Data concerning the Directive 1999/13/EC on the limitation of emissions of volatile organic compounds (VOC-RL):

None

Data concerning the decree (EG) No. 648/2004 (Detergents Regulations)

None

National regulations:

Moreover, national legislation has to be observed!

Restrictions of use:

None

Statutory order on hazardous incidents:

None

Storage class:

12 Non-flammable liquids

Water Hazard Class:

1 Slightly water polluting substance

Technical Instructions on Air Quality (TA-Air):

None

Further regulations, limitations and legal requirements:

None

16. Other information

Wording of the H and R-phrases under paragraph 3

Regulation (EC) No 1272/2008

-

Directive 67/548/EEC

-

Training advices:

None

Recommended restrictions of use:

Refer to chapter 1.

Further remarks:

The information in this safety data sheet is correct to the best of our knowledge at the time of printing. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

There is no liability or warranty, expressed or implied, assumed regarding merchantability, operational capability for a particular purpose, use, or any other kind hereafter with respect to the information or the product to which the information relates.

Changes:

None

Data sources:Data arise from reference works and literature.



Comply with EU regulations
**CEN/TS 164, EN 15039 and EN
15040** used for treatment of
water intended for human
consumption

Scale Inhibitor ROPUR RPI-6000

Date: 24.04.2014

GENERAL

RPI-6000 is specially designed to inhibit the scale formation in RO-systems equipped with polyamide-, celluloseacetate- and polyethermembranes with anionically charged surface.

RPI-6000 is based on stabilized anionic charged phosphonates.

RPI-6000 is an excellent inhibitor for calcium sulphate scaling of waters with extremely high sulphate content (up to 15.000 mg/l). **RPI-6000** is also effective against calcium carbonate scales. The product prevents effectively the deposition of metal oxides through sequestration.

APPLICATION AND DOSAGE

RPI-6000 is designed and approved as a highly efficient scale inhibitor for use with cellulose acetate and polyamide membranes. There is no interaction with the membrane material.

The dosage is controlled proportionally to the feed water flow. Standard metering pumps are used. Fitting materials are PE, PP or coated steel. In order to avoid biological fouling, the containers have to be cleaned from time to time with a 10 % sodium bisulphate solution.

RPI-6000 can be diluted with water in any ratio. However, it is recommended to inject the antiscalant undiluted or as solution up to 10 %. The diluted solutions have to be consumed within 48 hours after preparation. The required dosage level depends on the operating conditions and water composition and varies in the range of 0,5 – 10 ppm as delivered.

RPI-6000 is easy to be handled and does not contain any aggressive component. The product is hydrolytically stable.

PHYSICAL PROPERTIES

Appearance:	clear, yellowish liquid
Density:	1,27 – 1,31 g/cm ³
pH-value:	6,0 – 8,0
Freezing point:	- 15° C
Boiling point/boiling range :	105 – 108 °C
Solubility in water:	unlimited



Comply with EU regulations
**CEN/TS 164, EN 15039 and EN
15040** used for treatment of
water intended for human
consumption

STORAGE & HANDLING

RPI-6000 is not classified as a hazardous chemical (GGVE/GGVS, ICOA/IATA). Standard regulations and precautions when dealing with chemical products have to be followed.

RPI-6000 is easy to store. The storage temperature should be between +2 °C and 35 °C. The product is supplied in containers suitable for air or sea transportation.

The safety data sheet contains more information.

PACKAGING

Polyethylene container (PE)	23.5 kg net
Standard drum (PE)	240 kg net
Container (PE)	1.200 kg net

The data and information contained in this data sheet are based on technical data and tests we believe to be reliable. They are offered in good faith for use by persons having appropriate technical skill at their own discretion and risk. Supplier has no control of design and operating conditions and consequently cannot assume any reliability for results obtained or damage incurred through the use of the product presented. ROPUR RPI Antiscalants are continuously improved and therefore we reserve the right to modify or amend specifications without prior notice.



Certified by
NSF International

For use in drinking water
treatment

Comply with EU regulations
CEN/TS 164, EN 15039 and
EN 15040 used for treatment
of water intended for human
consumption

Version: 4 Language: EN Revision date: 01.06.2015
Labelling pursuant to CLP regulation

1. Identification of the substance or preparation

RPI-3000A

REACH registration number: - Downstream User

Use of the substance / preparation: Reverse Osmosis Antiscalant

Company/undertaking identification

Manufacturer & Supplier:

Toray Membrane Europe AG
Grabenackerstrasse 8b

CH 4142 Münchenstein 1

Telephone: +41 (0) 61 415 87 10

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Telefax: +41 (0) 61 415 87 20 (CH)

E-mail: info@toraywater.com

Emergency telephone:

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Telephone: Your local Emergency Services

Telephone: +41 (0) 61 415 87 10 (CH)

Toray Membrane Europe AG

Department responsible for information:

Toray Membrane Europe AG

2. Hazards identification

Classification of the mixture

Regulation (EC) No 1272/2008:

-

Directive 67/548/EEC:

-

Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms:

No Pictogram,
No Signal Word
No Precautionary Statement

Signal word: -

H phrases: -

P phrases: 102 Keep out of reach of children.
270 Do not eat, drink or smoke when using this product.
305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Labelling according to Directive 67/548/EEC

Hazard symbols:

R phrases: -

S phrases: -

S phrases: 1/2 Keep locked up and out of the reach of children.
13 Keep away from food, drink and animal feedingstuffs.
20/21 When using do not eat, drink or smoke.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Other hazards

No risks worthy of mention. Please observe the information on the safety data sheet at all times.

3. Composition/information on ingredients

Chemical characterization (substance):

Aqueous Solution of salts of a polyacrylate(s) and phosphonate(s).

Contains adjacent substances:

Polyacrylate, Sodium salt

Content: 1 - 40 Wt-%

EINECS-No.: -

CAS-No.: 9003-04-7

Classification: -

Phosphonate, Sodium salt

Content: 10 - 50 Wt-%

EINECS-No.: Confidential

CAS-No.: Confidential. As a guidance, the CAS could be 37971-36-1, 15142-96-8, 22042-96-2, 6419-19-8

Classification: -

Additional information:

This preparation does not contain harmful substances and/or substances hazardous to the environment in accordance with the substance directive 67/548/EC or substances to which occupational exposure limit values are allocated.

4. First Aid measures

General information:	No special measures are necessary.
After inhalation:	-Provide fresh air. Seek medical attention if problems persist.
After skin contact:	-Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if skin irritation develops or persists.
After eye contact:	-Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Subsequently consult an ophthalmologist.
After ingestion:	-Do not feed anything by mouth to an unconscious or convulsive victim. Rinse mouth immediately. When conscious drink large quantities of water. Do not induce vomiting. Seek medical attention.
Self-protection of the first aider:	No special measures are necessary.
Information to physician:	
Symptoms:	No symptoms known up to now.
Nature of Hazard:	None
Treatment:	Treat symptomatically.

5. Fire fighting measures

General information:	Extinguishing materials should be selected according to the surrounding area. The product itself is not combustible.
Suitable extinguishing media:	Carbon dioxide (CO ₂). Dry extinguishing powder. Water fog. Foam.
Extinguishing media which must not be used for safety reasons:	High power water jet.
Special exposure hazards arising from the substance itself, combustion products, resulting gases:	Oxides of carbon, nitrogen and phosphorus.
Special protective equipment for fire-fighters:	In case of fire. Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).
Additional information:	Contaminated fire-fighting water must be collected separately.

6. Accidental release measures

Personal precautions:	See protective measures under point 7 and 8.
Environmental precautions:	No special environmental protection measures are necessary.
Methods for cleaning up:	Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the assimilated material according to the section on waste disposal.

Additional information:None

7. Handling and storage

Handling**Information for safe handling:**

The following must be prevented: metals

Technical measures and storage conditions:

Provide for sufficient ventilation and punctiform suction at critical points.

Precautions against fire and explosion:

No special precautionary measures are necessary.

Additional information:

None

Storage**Technical measures and storage conditions (avoid freezing conditions):**

Maximum storage temperature: 30 °C

Minimum storage temperature: 5 °C

Packaging materials:

Keep only in the original container.

Requirements for storerooms and containers:

Keep container tightly closed in a cool, well-ventilated place.

Information about storage in one common storage facility:

Do not store together with: Food and fodder

Further information concerning storage conditions:

None

Storage class: 12**Specific use(s):**Observe instructions for use.

8. Exposure controls / Personal protection

Critical values of exposure:

Does not contain substances above concentration limits fixing an occupational exposure limit.

Components with workplace or biological limit values to be monitored: -**Limitation and monitoring of exposure****Exposure limit values:**

Refer to chapter 7. No further action is necessary.

Respiratory protection:With correct and proper use, and under normal conditions, breathing protection is not required.

Hand protection:

Suitable gloves type: Pull-over gloves of rubber.

Eye protection:

Splash proof safety goggles.

Body protection:

Protective clothing.

Environmental exposure controls:

Refer to chapter 7. No further action is necessary.

General protection and hygiene measures:

Do not eat, drink, smoke or sniff at the workplace. Wash hands before breaks and at the end of work. Apply skin care products after work. Wash contaminated clothing prior to re-use.

9. Physical and chemical properties

Form:	liquid
Colour:	amber
Odour:	characteristic
pH:	4,8 - 5,3
Melting point / melting range:	-10 °C
Boiling point / boiling range:	100 - 105 °C
Flash point:	100 °C
Flammability:	No data available
Explosion hazard:	No data available
Lower explosion limit:	No data available
Upper explosion level:	No data available
Ignition temperature (AIT):	No data available
Oxidizing properties:	No data available
Vapour pressure:	No data available
Relative density:	1,14 - 1,17 g/cm ³
Solubility in water: (g/l):	Unlimited
Fat solubility: (g/l):	No data available
Solubility in organic solvent:	No data available
Partition coefficient (n-octanol / water) (log P O/W):	No data available
Viscosity:	50 mPas (20 °C)
Relative vapour density at 20°C:	No data available
Speed of vaporization/evaporation rate:	No data available
Solvent separation test (%):	No data available
Solvent content (%):	No data available
Bulk density:	Not applicable

Additional information:

none

10. Stability and reactivity

Conditions to avoid:

None

Materials to avoid:

None

Dangerous reactions:

A slow reaction with some metallic surfaces might occur.

Hazardous decomposition products:

Carbon dioxide. Carbon monoxide. Nitrogen oxides (NO_x). phosphorus oxides.

11. Toxicological information

Acute toxicity:

There are no data available on the preparation/mixture itself.

Specific symptoms from animal test:

Acute toxicity, oral (LD50): Rat > 5000 mg/kg

Acute toxicity, dermal (LD50): Rabbit > 5000 mg/kg

Irritation and etching

Irritation effect on the skin: Not an irritant.

Irritation effect on the eye: Not an irritant.

Sensitization:

There are no data available on the preparation/mixture itself.

Effect after repeated or prolonged exposure:

There are no data available on the preparation/mixture itself.

CMR effects (carcinogen, mutagenic and toxicity for reproduction):

There are no data available on the preparation/mixture itself.

Additional information:

There are no data available on the preparation/mixture itself.

Practical experience:

None

Other observations:

None

General remarks:

According to our experience and the information available to us, the product has no negative impact on health.

12. Ecological information

General information:

None

Ecotoxicity:

Acute fish toxicity (LC50): *Oncorhynchus mykiss* (Rainbow Trout) > 290 mg/l (96 h)

Bacterial toxicity (EC0): n.a.

Mobility:

There are no data available on the mixture itself.

Persistence and Biodegradation:

Technically correct releases of minimal concentrations to adapted biological sewage treatment facility will not disturb the biodegradability of activated sludge.

Bioaccumulative potential:

There are no data available on the mixture itself.

Results of PBT assessment:

There are no data available on the mixture itself.

Other harmful effects:

There are no data available on the mixture itself.

Further ecological information:

None

13. Disposal considerations

General information:

Can be incinerated together with household waste in compliance with official regulations after consulting approved waste disposal companies and authorities in charge.

Waste Code

The assignment of waste codes / waste designations is done according to the European directory of waste codes (AVV) and to specific processes. The final user must redefine and assign the most appropriate Waste Catalogue Code.

Contaminated packaging:

Cleaned and empty containers may be recycled. Handle contaminated packaging in the same way as the substance itself.

Additional information:

Waste disposal according to official state regulations.

14. Transport information

Overland transport (ADR/RID)

Technical name: ROPUR RPI-3000A

Not classified as a dangerous good under transport regulations

Transport by sea (IMDG)

Proper Shipping name: ROPUR RPI-3000A

Not classified as a dangerous good under transport regulations

Air transport (ICAO-TI / IATA-DGR)

Proper Shipping name: ROPUR RPI-3000A

Not classified as a dangerous good under transport regulations

15. Regulatory information

Classification:

Product is classified and labelled in accordance with EC regulations or the corresponding national laws.

A safety evaluation was conducted:

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Hazardous component(s) for labelling:**Special labelling of particular preparations:**

None

EU-Regulations:**Data concerning the Directive 1999/13/EC on the limitation of emissions of volatile organic compounds (VOC-RL):**

None

Data concerning the decree (EG) No. 648/2004 (Detergents Regulations)

None

National regulations:

Moreover, national legislation has to be observed!

Restrictions of use:

None

Statutory order on hazardous incidents:

None

Storage class:

12 Non-flammable liquids

Water Hazard Class:

1 Slightly water polluting substance

Technical Instructions on Air Quality (TI-Air):

None

Further regulations, limitations and legal requirements:None

16. Other information**Wording of the H and R-phrases under paragraph 3****Regulation (EC) No 1272/2008**

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Directive 67/548/EEC

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Training advices:

None

Recommended restrictions of use:

Refer to chapter 1.

Further remarks:

The information in this safety data sheet is correct to the best of our knowledge at the time of printing. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the

information on this safety data sheet is not necessarily valid for the new made-up material.

There is no liability or warranty, expressed or implied, assumed regarding merchantability, operational capability for a particular purpose, use, or any other kind hereafter with respect to the information or the product to which the information relates.

Changes:

None

Data sources:

Data arise from reference works and literature.



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