

PRODUCT DATA

gwkk Gesellschaft Wärme Kältetechnik mbH
www.gwkk.com

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BWT-DS-129-R5-AS 3

AS 3 Membrane system antiscalant

Use

AS 3 is a liquid antiscalant, specifically designed to control mineral scale deposits within membrane separation systems. The usage of this product provides longer run times and extended membrane element life, resulting in reduced operating and capital costs.

Features

AS 3 is a highly effective antiscalant preventing the build-up of membrane scaling like CaCO_3 , CaSO_4 , BaSO_4 , and SrSO_4 .

The main product features are:

- effective over a wide pH range
- liquid product, safe and simple to handle
- compatible with most leading membranes
- approved for drinking water applications
- environmental friendly P-free product
- program design via ROcalc software

Feeding

The gwkk Membrane treatment software will define the optimum product dosage for any given water quality. In calculating dosage rates, membrane specifications, product capability, operational data and feedwater quality are considered.

Typical dosage range is between 1 and 5 ppm in the membrane feed water. For potable water applications, the maximum dosage is 50 ppm in the concentrate or reject flow.

AS 3 may be fed neat or diluted. The optimum dosage point is into the feed water line, upstream of the high-pressure pumps and ensuring a good mixing with the membrane feed water.



Handling precautions

Wear suitable protective gloves and safety goggles. Avoid contact with eyes, skin and clothing. In case of contact, immediately flush with plenty of water. After eye contact seek medical advice. In case of spillage, absorb with inert material and sweep up. Then flush the area with plenty of water. Before use review the Material Safety Data Sheet for additional information.

Important Information

Typical Properties: Refer to MSDS.

Regulatory Information: Please refer to the MSDS or contact your sales representative for any additional regulatory and environmental information.

Safety: gwkk maintains Material Safety Data Sheets on all of its products. Material Safety Data Sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers.

BWT-DS-129-R5-AS3I

Our Material Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Ashland products in your facilities.

Packaging

AS 3 membrane system antiscalant is available in 30 kg pails, 240 kg drums and 1200 kg IBC containers.
All packaging and labels are fully recyclable.

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		Druckdatum: 27.10.2017
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Conforms to EU Regulation 1907/2006/EC as amended. - SDSGHS_DE

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

1.1 Product identifier

Trade name : as 3

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

Use of the Substance/Mixture : ANTISCALANT

<p>1.3 Details of the supplier of the safety data sheet gwk Gesellschaft Wärme Kältetechnik mbH Scherl 10 D-58540 Meinerzhagen Germany info@gwk.com</p>	<p>1.4 Emergency telephone number Emergency telephone number Berlin +49 (0) 30 30686700</p> <p>Product Information Contact your local gwk representative</p>
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.3 Other hazards

Additional advice

No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

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Hazardous components

Remarks : No hazardous ingredients

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : No hazards which require special first aid measures.
- If inhaled : If breathed in, move person into fresh air.
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Remove contact lenses.
Protect unharmed eye.
- If swallowed : Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water spray
Foam
Carbon dioxide (CO₂)
Dry chemical

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5.2 Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : carbon dioxide and carbon monoxide

5.3 Advice for firefighters

- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
- Specific extinguishing methods : Product is compatible with standard fire-fighting agents.
- Further information : Standard procedure for chemical fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal precautions : Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Comply with all applicable federal, state, and local regulations.

6.2 Environmental precautions

- Environmental precautions : Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

- For further information see Section 8 and Section 13 of the safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : General industrial hygiene practice.

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7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Electrical installations / working materials must comply with the technological safety standards.
- Advice on common storage : No materials to be especially mentioned.
- Storage class (TRGS 510) : 12, Non Combustible Liquids
- Other data : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

- Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Engineering measures

General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

- Eye protection : Not required under normal conditions of use. Wear splash-proof safety goggles if material could be misted or splashed into eyes.
- Hand protection
- Remarks : butyl-rubber
- Skin and body protection : Wear as appropriate:
Safety shoes
- Respiratory protection : No personal respiratory protective equipment normally required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

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Appearance : Aqueous solution
 Colour : yellow
 Odour : No data available
 Odour Threshold : No data available
 pH : ca. 7, (25 °C)
 Melting point/freezing point : < -1 °C
 Boiling point/boiling range : ca. 100 °C Flash
 point : Not applicable
 Evaporation rate : No data available
 Flammability (solid, gas) : No data available
 Upper explosion limit : No data available
 Lower explosion limit : No data available
 Vapour pressure : 23,33 hPa (20 °C)
 Calculated Vapor Pressure
 Relative vapour density : No data available
 Relative density : 1,195
 Density : 1,195 g/cm³
 Solubility(ies)
 Water solubility : completely soluble
 Solubility in other solvents : No data available
 Partition coefficient: n-octanol/water : No data available
 Thermal decomposition : No data available
 Viscosity
 Viscosity, dynamic : Not applicable
 Viscosity, kinematic : No data available
 Oxidizing properties : No data available

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9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Product will not undergo hazardous polymerization.

10.4 Conditions to avoid

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : LD 50 (Rat): Expected > 5.000 mg/kg
Remarks: Information refers to the main component.

Acute dermal toxicity : LD 50 (Rabbit): Expected > 5.000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

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Product:

Remarks: Expected

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Result: Slightly irritating to eyes

Remarks: Expected

Remarks: Unlikely to cause eye irritation or injury.

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration hazard

Not classified based on available information.

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC 50 (Fish): Expected > 100 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC 50 (Water flea (Daphnia)): Expected > 100 mg/l
aquatic invertebrates Exposure time: 48 h

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Toxicity to algae : NOEC (Green algae): Expected > 10 mg/l
Exposure time: 96 h

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Not readily biodegradable.

Physico-chemical removability : Remarks: The product can be eliminated from water by abiotic processes, e.g. adsorption on activated sludge.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Contaminated packaging : Empty remaining contents.

SECTION 14: Transport information

14.1 UN number

ADR: Not dangerous goods

ADNR: Not dangerous goods

RID: Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

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14.2 UN proper shipping name

ADR: Not dangerous goods

ADNR: Not dangerous goods

RID: Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.3 Transport hazard class(es)

ADR: Not dangerous goods

ADNR: Not dangerous goods

RID: Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.4 Packing group

ADR: Not dangerous goods

ADNR: Not dangerous goods

RID: Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

14.5 Environmental hazards

ADR: Not applicable

ADNR: Not applicable

RID: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS: Not applicable

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not applicable

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not applicable

14.6 Special precautions for user

Not applicable

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

Ship Type: Not applicable Hazard

code(s): Not applicable Pollutant

Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

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SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 57) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Water contaminating class (Germany) : WGK 1 slightly water endangering

TA Luft List (Germany) : Total dust, Not applicable
: Inorganic substances in powdered form, Not applicable
: Inorganic substances in vapour or gaseous form, Not applicable
: Organic Substances, Not applicable
: Carcinogenic substances, Not applicable
: Mutagenic, Not applicable
: Toxic to reproduction, Not applicable

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory

DSL All components of this product are on the Canadian DSL

AUSTR On the inventory, or in compliance with the inventory

ENCS On the inventory, or in compliance with the inventory

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KECL	On the inventory, or in compliance with the inventory
PHIL	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECL (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Further information

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Full text of H-Statements referred to under section 3.

Further information

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

Sources of key data used to compile the Safety Data Sheet

Key literature references and sources of data

SOLENIS Internal data

SOLENIS internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

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H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.

ICxx : Inhibitory Concentration for xx of a substance

Ecxx : Effective Concentration of xx

N.O.S.: Not Otherwise Specified

OECD : Organization for Economic Co-operation and Development

OEL : Occupational Exposure Limit

P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic

PPE : Personal Protective Equipment

STEL : Short-term exposure limit

STOT : Specific Target Organ Toxicity

TLV : Threshold Limit Value

TWA : Time-weighted average

vPvB : Very Persistent and Very Bioaccumulative

WEL : Workplace Exposure Level

ABM : Water Hazard Class for the Netherlands

ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.

ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine

CLP : Classification, Labelling and Packaging

CSA : Chemical Safety Assessment

CSR : Chemical Safety Report

DNEL : Derived No Effect Level.

EINECS : European Inventory of Existing Commercial Chemical Substances.

ELINCS : European List of Notified Chemical Substances

PEC : Predicted Effect Concentration

PEL : Permissible Exposure Limits

PNEC : Predicted No Effect Concentration

REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals

RID : Regulation Concerning the International Transport of Dangerous Goods by Rail

WGK : German Water Hazard Class