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 CaCO₃, CaSO₄, BaSO₄, and SrSO₄. 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

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: gwk 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-AS3

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 palls, 240 kg drums and 1200 kg IBC containers. All packaging and labels are fully recyclable.
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

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

1.4 Emergency telephone number
   Emergency telephone number
   Berlin +49 (0) 30 30686700

   Product Information
   Contact your local gwk representative

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
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
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.
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage:
- Electrical installations / working materials must comply with the technological safety standards.
- 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: 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
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Aqueous solution</td>
</tr>
<tr>
<td>Colour</td>
<td>yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>ca. 7, (25 °C)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>&lt; -1 °C</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>ca. 100 °C, Flash</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
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<tr>
<td>Vapour pressure</td>
<td>23,33 hPa (20 °C)</td>
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<tr>
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<tr>
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<tr>
<td>Density</td>
<td>1,195 g/cm³</td>
</tr>
<tr>
<td>Water solubility</td>
<td>completely soluble</td>
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<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Thermal decomposition</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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.
**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

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**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 aquatic invertebrates: EC 50 (Water flea (Daphnia)): Expected > 100 mg/l
Exposure time: 48 h
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
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.
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
- Water contaminating class (Germany): WGK 1 slightly water endangering
  - 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
15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Further information
Revision Date: 03.06.2016

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.
Safety Data Sheet

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