hs 20 (hardness stabiliser) product information

**Application**

**hs 20** is a mixture of polycarboxylic acid and phosphonates. It is used as a corrosion inhibitor and hardness stabiliser. The product is compatible with most water treatment chemicals and remains unaffected by free chlorine under normal conditions. **hs 20** is mostly used in cooling water systems. However, it is also suitable for other systems where hardness salt deposits must be prevented and which require a product with low toxicity and high effectiveness.

Cooling water parameters:
- Calcium hardness = 8 – 35°dH
- m-value = 6 – 7.5 mmol/l
- LSI-value < 2.5
- Operating temperature (max.) = 60°C

**Characteristics**

- **hs 20** is an excellent hardness stabiliser and highly effective against calcium and magnesium carbonate deposits.
- It provides good cathodic corrosion protection for carbon steel.
- It disperses iron oxides and other suspended solids.
- It has excellent thermal stability.
- It is resistant against chlorine and compatible with most biocides.
- It can be analytically detected.

**Appearance:** colourless to slightly yellow liquid
**Density:** 1.1 kg/m³
**pH value:** 3-4
**Water solubility:** unlimited

The information given here is not a product specification; it is for informational purposes only.

**Dosage**

**hs 20** can be fed into the system in any location from where it can rapidly spread throughout the entire circuit. The dosing rate depends on the type of the system and technical data. The standard dosing rate for hardness stabilisation is 100 g/m³. Initial passivation with double concentration is recommended during the first two weeks of operation. To provide corrosion protection for carbon steel, the standard dosing rate is 200 g/m³.

**Handling**

Information about suitable personal protective measures is provided on the material safety data sheet.

**Important information**

A material safety data sheet is included with each of our products. Material safety data sheets contain important information on occupational health and safety on the basis of which our customers can generate appropriate work instructions to protect their employees and customers and prevent harmful effects when handling the substances. Before using the gwk products in your system, make sure that the material safety data sheets have been read and understood by your supervisory staff and the appropriate employees.

**Shelf life**

1 year in an unopened container.
3 months in an opened container.

The data applies to the following storage conditions: cool (5-20°C), frost-free, dark and dry conditions.

**Packaging**

**hs 20** is available in 10 kg and 25 kg canisters and in 200 kg barrels.

All of the descriptions, information and data contained herein are believed to be accurate and reliable. However, they do not constitute a warranty, express or implied warranty of any properties, nor do they represent a commitment to the commercial or technical suitability for any particular application. Therefore, we cannot accept any liability whatsoever. These descriptions, information and data should serve as a basis for your considerations, research and examinations. Statements and suggestions on our part regarding the possible use of our product are without a guarantee that such an application does not infringe on industrial property rights of third parties, and they should not be regarded as a suggestion for patent infringement.
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
   Product code: gwkhs20

1.2. Relevant identified uses of the substance or mixture and uses advised against
   Use of the substance/mixture
   Water treatment chemicals
   Uses advised against
   No information available.

1.3. Details of the supplier of the safety data sheet
   Company name: Gesellschaft Wärme und Kältetechnik mbH
   Street: Scherl 10
   Place: D-58540 Meinerzhagen
   Telephone: +49 2354 7060 - 0
   e-mail (Contact person): info@gwk.com
   Internet: www.gwk.com
   Responsible Department: Wassertechnik

1.4. Emergency telephone number: +49 (0) 30 30686700

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
   Regulation (EC) No. 1272/2008
   The mixture is not classified as hazardous within the meaning of Regulation (EC) No 1272/2008.

2.2. Label elements
   Regulation (EC) No. 1272/2008
   Hazard components for labelling
   None.
   Signal word: None
   Pictograms: None
Hazard statements

H290 Safety data sheet available on request.

Precautionary statements

None.

Additional advice on labelling

The product is classified and labelled according to EC directives or corresponding national laws.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Formulation of preparations (mixtures)

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>EC No</th>
<th>Index No</th>
<th>REACH No</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>6419-19-8</td>
<td>Amino-tris (methylenephosphonic acid)</td>
<td></td>
<td></td>
<td></td>
<td>&lt; 10 %</td>
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</tbody>
</table>

Full text of H and EUH statements: see section 16.

Further Information

No information available.

SECTION 4: First aid measures

4.1. Description of first aid measures
General information
Remove contaminated, saturated clothing immediately.

After inhalation
Move victim to fresh air. Instruct person to keep calm and warm.

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

After contact with eyes
If product gets into the eye, keep eyelid open and rinse immediately with large quantities of water, for at least 5 minutes. Subsequently consult an ophthalmologist.

After ingestion
Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps.

4.2. Most important symptoms and effects, both acute and delayed
No information available.

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

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media
Water. Foam. ABC powder. Carbon dioxide (CO2).

Unsuitable extinguishing media
High power water jet.

5.2. Special hazards arising from the substance or mixture
In the event of a fire: Nitrogen oxides (NOx). Hydrogen chloride (HCl). Carbon monoxide

5.3. Advice for firefighters
In case of fire: Wear self-contained breathing apparatus.

Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear personal protection equipment.

6.2. Environmental precautions
Prevent spread over a wide area (e.g. by containment or oil barriers).

6.3. Methods and material for containment and cleaning up
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections
Take up mechanically, placing in appropriate containers for disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
No special measures are necessary.

Advice on protection against fire and explosion
No special fire protection measures are necessary.

Further information on handling
No special handling instructions are necessary.
7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep/Store only in original container.

Advice on storage compatibility
Keep away from food, drink and animal feedingstuffs.

Further information on storage conditions
Conditions to avoid: frost.

7.3. Specific end use(s)
No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
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</table>

Additional advice on limit values
No information available.

8.2. Exposure controls

Appropriate engineering controls
No information available.

Protective and hygiene measures
Do not eat, drink, smoke or sneeze at the workplace.

Eye/face protection
Tightly sealed safety glasses.

Hand protection
Passenger-LQ

Skin protection
No information available.

Respiratory protection
No information available.

Environmental exposure controls
No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
Colour: yellow
Odour: characteristic

pH-Value (at 20 °C): 3 - 4 DIN 19268

Test method
9.2. Other information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
No information available.

10.2. Chemical stability
No information available.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

10.5. Incompatible materials

10.6. Hazardous decomposition products
No information available.

Further information
No information available.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicokinetics, metabolism and distribution
No information available.

Acute toxicity
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
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<tbody>
<tr>
<td>619-19-5</td>
<td>Amino-tris (methylene phosphonic acid)</td>
<td>oral</td>
<td>LD50</td>
<td>Rat</td>
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Irritation and corrosivity
Based on available data, the classification criteria are not met.

Sensitising effects
Based on available data, the classification criteria are not met.
Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

STOT-single exposure
Based on available data, the classification criteria are not met.

STOT-repeated exposure
Based on available data, the classification criteria are not met.

Aspiration hazard
Based on available data, the classification criteria are not met.

Specific effects in experiment on an animal
No information available.

Additional information on tests
Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Practical experience
Observations relevant to classification
No information available.

Other observations
No information available.

Further information
No information available.

SECTION 12: Ecological information

12.1. Toxicity
The product has not been tested.

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<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Aquatic toxicity</th>
<th>Dose</th>
<th>([h])</th>
<th>([d])</th>
<th>Species</th>
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12.2. Persistence and degradability
Technically correct releases of minimal concentrations to adapted biological sewage treatment facility, will not disturb the biodegradability of activated sludge.

12.3. Bioaccumulative potential
Does not accumulate in organisms.

Partition coefficient n-octanol/water

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
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</table>
12.4. Mobility in soil
No information available.

12.5. Results of PBT and vPvB assessment
No information available.

12.6. Other adverse effects
No information available.

Further information
No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Advice on disposal
Waste key product: Dispose of waste according to "Kreislaufwirtschafts- und Abfallgesetz (KrW-/AbfG)".

Contaminated packaging
Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of.

SECTION 14: Transport information

Land transport (ADR/RID)
14.1. UN number: .
14.2. UN proper shipping name: .
14.3. Transport hazard class(es): .
14.4. Packing group: .
Hazard label: .
Classification code: .
Special Provisions: .
Limited quantity: .
Excepted quantity: .
Transport category: .
Hazard No: .
Tunnel restriction code: .

Inland waterways transport (ADN)
14.1. UN number: .
14.2. UN proper shipping name: .
14.3. Transport hazard class(es): .
14.4. Packing group: .
Hazard label: .
Classification code: .
Special Provisions: .
Limited quantity: .
Excepted quantity: .

Marine transport (IMDG)
14.1. UN number: .
14.2. UN proper shipping name: .
14.3. Transport hazard class(es): .
14.4. Packing group: .
Hazard label: .
Special Provisions: .

No dangerous good in the sense of these transport regulations.
Limited quantity: 
Excepted quantity: 

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: 
14.2. UN proper shipping name: No dangerous good in the sense of these transport regulations.
14.3. Transport hazard class(es): 
14.4. Packing group: 
Hazard label: 
Special Provisions: 
Limited quantity Passenger: 
Passenger LQ: 
Excepted quantity: 
IATA-packing instructions - Passenger: 
IATA-max. quantity - Passenger: 
IATA-packing instructions - Cargo: 
IATA-max. quantity - Cargo: 
Danger releasing substance: 

14.6. Special precautions for user 

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

Other applicable information 

SECTION 15: Regulatory information

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

EU regulatory information
Additional information 
No information available.

National regulatory information
Water contaminating class (D): 1 – slightly water contaminating
Biocide registry number: 

SECTION 16: Other information

Relevant H and EUH statements (number and full text)

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
EUH210 Safety data sheet available on request.

Further Information 
The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights.
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. 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.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)