Porcelain Etchant (4%HF)
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 08/10/2018 Version: 3.0

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

1.1. Product identifier
Product form : Mixture
Product name : Porcelain Etchant (4%HF)

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
Use of the substance/mixture : For RX only

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Manufacturer: Bisco, Inc. 1100 W Irving Park Road, Schaumburg, IL 60193 USA
1-847-534-6000, during normal business hours
www.bisco.com

EC Representative: Bisco France, 208, allée de la Coudoulette, 13680 Lançon de Provence, France
Telephone: 33-4-90-42-92-92

1.4. Emergency telephone number
Emergency number : CHEMTREC - 24-Hour Hazmat Emergency Communications Center
Domestic: 1-800-424-9300 Outside the U.S.: 1-703-527-3887, collect calls accepted

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acute toxicity (oral), Category 3 H301
Acute toxicity (dermal), Category 2 H310
Acute toxicity (inhalation:vapour) Category 3 H331
Skin corrosion/irritation, Category 1A H314

Full text of H statements : see section 16

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP): GHS05 GHS06

Signal word (CLP) : Danger
Hazardous ingredients : Hydrofluoric Acid, 7%<=conc<=60%, aqueous solutions; Sodium Fluoride
Hazard statements (CLP): H301+H331 - Toxic if swallowed or if inhaled
H310 - Fatal in contact with skin
H314 - Causes severe skin burns and eye damage.
Precautionary statements (CLP): P260 - Do not breathe vapours
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves, eye protection, face protection
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER
P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
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2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluoric Acid, 7% &lt;= conc &lt;= 60%, aqueous solutions</td>
<td>(CAS-No.) 7664-39-3 (EC-No.) 231-634-8 (EC Index-No.) 009-003-00-1</td>
<td>5 - 10</td>
<td>Acute Tox. 2 (Oral), H300 Acute Tox. 1 (Dermal), H310 Acute Tox. 2 (Inhalation), H330 Acute Tox. 2 (Inhalation: vapour), H330 Skin Corr. 1A, H314</td>
</tr>
<tr>
<td>Sodium Fluoride</td>
<td>(CAS-No.) 7681-49-4 (EC-No.) 231-667-8 (EC Index-No.) 009-004-00-7</td>
<td>&lt; 1</td>
<td>Acute Tox. 3 (Oral), H301 Skin Irrit. 2, H315 Eye Irrit. 2, H319</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrofluoric Acid, 7% &lt;= conc &lt;= 60%, aqueous solutions</td>
<td>(CAS-No.) 7664-39-3 (EC-No.) 231-634-8 (EC Index-No.) 009-003-00-1</td>
<td>0.1 &lt;= C &lt; 1 Eye Irrit. 2, H319 1 &gt;= C &lt; 7 Skin Corr. 1B, H314 C &gt;= 7 Skin Corr. 1A, H314</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a doctor.
First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Call a physician immediately. Rinse skin with water/shower.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Rinse mouth. Call a physician immediately. Do not induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact : Burns.
Symptoms/effects after eye contact : Serious damage to eyes.
Symptoms/effects after ingestion : Burns.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.
5.3. Advice for firefighters

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures: Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up: Take up liquid spill into absorbent material.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Hydrofluoric Acid, 7%<=conc<=60%, aqueous solutions (7664-39-3) |
|-----------------|-----------------|-----------------|
| EU | IOELV TWA (mg/m³) | 1.5 mg/m³ (Hydrogen fluoride; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value) |
| EU | IOELV TWA (ppm) | 1.8 ppm (Hydrogen fluoride; EU; Time-weighted average exposure limit 8 h; Indicative occupational exposure limit value) |
| EU | IOELV STEL (mg/m³) | 2.5 mg/m³ (Hydrogen fluoride; EU; Short time value; Indicative occupational exposure limit value) |
| EU | IOELV STEL (ppm) | 3 ppm (Hydrogen fluoride; EU; Short time value; Indicative occupational exposure limit value) |
| Belgium | Limit value (mg/m³) | 1.5 mg/m³ (Hydrogène (fluorure d’); Belgium; Time-weighted average exposure limit 8 h) |
| Belgium | Limit value (ppm) | 1.8 ppm (Hydrogène (fluorure d’); Belgium; Time-weighted average exposure limit 8 h) |
| Belgium | Short time value (mg/m³) | 2.5 mg/m³ (Hydrogène (fluorure d’); Belgium; Short time value) |
| Belgium | Short time value (ppm) | 3 ppm (Hydrogène (fluorure d’); Belgium; Short time value) |
| France | VME (mg/m³) | 1.5 mg/m³ (Fluorure d'hydrogène; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante) |
| France | VME (ppm) | 1.8 ppm (Fluorure d'hydrogène; France; Time-weighted average exposure limit 8 h; VRC: Valeur réglementaire contraignante) |
| France | VLE (mg/m³) | 2.5 mg/m³ (Fluorure d'hydrogène; France; Short time value; VRC: Valeur réglementaire contraignante) |
| France | VLE (ppm) | 3 ppm (Fluorure d'hydrogène; France; Short time value; VRC: Valeur réglementaire contraignante) |
8.2. Exposure controls

**Appropriate engineering controls:**
Ensure good ventilation of the work station.

**Hand protection:**
Protective gloves

**Eye protection:**
Protective goggles

**Skin and body protection:**
Wear suitable protective clothing

**Respiratory protection:**
Wear respiratory protection

**Environmental exposure controls:**
Avoid release to the environment.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Appearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Gel</td>
</tr>
</tbody>
</table>

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**Hydrofluoric Acid, 7%<=conc<=60%, aqueous solutions (7664-39-3)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Limit Value (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>Grenswaarde TGG 15MIN (mg/m³)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Grenswaarde TGG 15MIN (ppm)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (mg/m³)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (ppm)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (mg/m³)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (ppm)</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH TWA (ppm)</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH Ceiling (ppm)</td>
</tr>
</tbody>
</table>

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**Sodium Fluoride (7681-49-4)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Limit Value (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>IIOELV TWA (mg/m³)</td>
</tr>
<tr>
<td>Belgium</td>
<td>Limit value (mg/m³)</td>
</tr>
<tr>
<td>France</td>
<td>VME (mg/m³)</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Grenswaarde TGG 15MIN (mg/m³)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (mg/m³)</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH TWA (mg/m³)</td>
</tr>
</tbody>
</table>
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Colour: Orange.
Odour: Odourless.
Odour threshold: No data available
pH: ~1
Relative evaporation rate (butylacetate=1): No data available
Melting point: Not applicable
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Not applicable
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: No data available
Solubility: No data available
Log Pow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral): Oral: Toxic if swallowed.
Acute toxicity (dermal): Dermal: Fatal in contact with skin.
Acute toxicity (inhalation): Inhalation:vapour: Toxic if inhaled.

ATE CLP (oral) 61.0328638498 mg/kg bodyweight
ATE CLP (dermal) 61.2745090339 mg/kg bodyweight
ATE CLP (vapours) 6.1274509804 mg/l/4h

Sodium Fluoride (7681-49-4)
LD50 oral rat 52 mg/kg (Rat)

Skin corrosion/irritation: Causes severe skin burns and eye damage.
  pH: <= 0
Serious eye damage/irritation: Serious eye damage, category 1, implicit
  pH: <= 0
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
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Carcinogenicity : Not classified  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity  
Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.  
Acute aquatic toxicity : Not classified  
Chronic aquatic toxicity : Not classified

<table>
<thead>
<tr>
<th>Sodium Fluoride (7681-49-4)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>&gt; 530 mg/l (LC50; 96 h)</td>
<td></td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>98 mg/l (EC50; 48 h)</td>
<td></td>
</tr>
</tbody>
</table>

12.2.Persistence and degradability

Hydrofluoric Acid, 7%<=conc<=60%, aqueous solutions (7664-39-3)  
Persistence and degradability : Biodegradability: not applicable. No (test)data on mobility of the components available.  
Biochemical oxygen demand (BOD) : Not applicable  
Chemical oxygen demand (COD) : Not applicable  
ThOD : Not applicable

<table>
<thead>
<tr>
<th>Sodium Fluoride (7681-49-4)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: not applicable.</td>
<td></td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

Hydrofluoric Acid, 7%<=conc<=60%, aqueous solutions (7664-39-3)  
Log Pow : -0.9 (Calculated)  
Bioaccumulative potential : Bioaccumulation: not applicable.

<table>
<thead>
<tr>
<th>Sodium Fluoride (7681-49-4)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>2.3 (BCF)</td>
<td></td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not bioaccumulative.</td>
<td></td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

Sodium Fluoride (7681-49-4)  
Ecology - soil : Toxic to flora.

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

12.6. Other adverse effects  
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods  
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number  
UN-No. (ADR) : 1790  
UN-No. (IMDG) : 1790  
UN-No. (IATA) : 1790
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UN-No. (ADN) : Not applicable  
UN-No. (RID) : 1790

14.2. UN proper shipping name 
Proper Shipping Name (ADR) : HYDROFLUORIC ACID  
Proper Shipping Name (IMDG) : Not applicable  
Proper Shipping Name (IATA) : Not applicable  
Proper Shipping Name (ADN) : Not applicable  
Proper Shipping Name (RID) : Not applicable 
Transport document description (ADR) : UN 1790 HYDROFLUORIC ACID, 8 (6.1), II, (E)  
Transport document description (IMDG) : UN 1790, 8  
Transport document description (IATA) : UN 1790, 8  
Transport document description (RID) : UN 1790, 8 (6.1)

14.3. Transport hazard class(es) 
ADR 
Transport hazard class(es) (ADR) : 8 (6.1)  
Danger labels (ADR) : 8, 6.1

IMDG 
Transport hazard class(es) (IMDG) : 8

IATA 
Transport hazard class(es) (IATA) : 8

ADN 
Transport hazard class(es) (ADN) : Not applicable

RID 
Transport hazard class(es) (RID) : 8 (6.1)  
Danger labels (RID) : 8, 6.1

14.4. Packing group 
Packing group (ADR) : II 
Packing group (IMDG) : Not applicable  
Packing group (IATA) : Not applicable  
Packing group (ADN) : Not applicable  
Packing group (RID) : Not applicable

14.5. Environmental hazards 
Dangerous for the environment : No 
Marine pollutant : No  
Other information : No supplementary information available

14.6. Special precautions for user 
- Overland transport 
Classification code (ADR) : CT1  
Limited quantities (ADR) : 1l  
Excepted quantities (ADR) : E2
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Vehicle for tank carriage : AT
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 86
Orange plates : [86 1790]

Tunnel restriction code (ADR) : E
EAC code : 2X

- Transport by sea
  No data available
- Air transport
  No data available
- Inland waterway transport
  No data available
- Rail transport
  No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations

Germany
VwVwS Annex reference : Water hazard class (WGK) 3, severe hazard to waters (Classification according to VwVwS, Annex 4)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands
SZW-lijst van kankerverwekkende stoffen : None of the components are listed
SZW-lijst van mutagene stoffen : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : None of the components are listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : None of the components are listed

Denmark
Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Revision date : 07/17/2018
Full text of H- and EUH-statements:

| Acute Tox. 1 (Dermal) | Acute toxicity (dermal), Category 1 |

2/1/2018 EN (English) 8/9
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<table>
<thead>
<tr>
<th>Acute Tox. 2 (Inhalation)</th>
<th>Acute toxicity (inhal.), Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 2 (Inhalation:vapour)</td>
<td>Acute toxicity (inhalation:vapour) Category 2</td>
</tr>
<tr>
<td>Acute Tox. 2 (Oral)</td>
<td>Acute toxicity (oral), Category 2</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
<td>Acute toxicity (oral), Category 3</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>Skin Corr. 1A</td>
<td>Skin corrosion/irritation, Category 1A</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation, Category 2</td>
</tr>
<tr>
<td>H300</td>
<td>Fatal if swallowed</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H310</td>
<td>Fatal in contact with skin</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation</td>
</tr>
<tr>
<td>H330</td>
<td>Fatal if inhaled</td>
</tr>
<tr>
<td>H331</td>
<td>Toxic if inhaled</td>
</tr>
</tbody>
</table>

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.