SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description: Iron(II) bromide
Cat No.: 388720000; 388720100; 388720500
Synonyms: Ferrous bromide
CAS-No: 7789-46-0
EC-No: 232-168-8
Molecular Formula: Br2 Fe

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

Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

1.3. Details of the supplier of the safety data sheet

Company: Acros Organics BVBA
Janssen Pharmaceuticaan 3a
2440 Geel, Belgium
E-mail address: begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No.US: 001-800-424-9300 / Europe: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards
Based on available data, the classification criteria are not met

Health hazards
Skin Corrosion/irritation Category 1 C
Serious Eye Damage/Eye Irritation Category 1

Environmental hazards
Based on available data, the classification criteria are not met

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s): C - Corrosive
R-phrase(s): R34 - Causes burns

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

2.2. Label elements
SAFETY DATA SHEET

Iron(II) bromide

Signal Word Danger

Hazard Statements
H314 - Causes severe skin burns and eye damage

Precautionary Statements
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P280 - Wear eye protection/ face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician

2.3. Other hazards
No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| Component              | CAS-No  | EC-No.    | Weight % | CLP Classification - Regulation (EC) No 1272/2008 | DSD Classification - 67/548/EEC |
|------------------------|---------|-----------|----------|--------------------------------------------------|---------------------------------
| Iron bromide (FeBr2)   | 7789-46-0 | EEC No. 232-168-8 | >95      | Skin Corr. 1C (H314) Eye Dam. 1 (H318)          | C; R34                          |

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact
Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact
Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes.

Ingestion
Call a physician or Poison Control Center immediately. Do not induce vomiting.

Inhalation
Immediate medical attention is required. Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device.

Protection of First-aiders
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

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Iron(II) bromide  
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Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

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

Notes to Physician  
Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media  
Carbon dioxide (CO₂). Dry chemical. chemical foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Hydrogen halides.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with the skin and the eyes. Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Do not breathe dust. Use only in area provided with appropriate exhaust ventilation. Do not get in eyes, on skin, or on clothing. Do not ingest.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Corrosives area. Store under an inert atmosphere.

7.3. Specific end use(s)
Iron(II) bromide

Use in laboratories

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### 8.1. Control parameters

#### Exposure limits

List source(s):

<table>
<thead>
<tr>
<th>Component</th>
<th>European Union</th>
<th>The United Kingdom</th>
<th>France</th>
<th>Belgium</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron bromide (FeBr₂)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA / VLA-ED: 1 mg/m³ (8 horas)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Italy</th>
<th>Germany</th>
<th>Portugal</th>
<th>The Netherlands</th>
<th>Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron bromide (FeBr₂)</td>
<td>TWA: 1 mg/m³ 8 horas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Austria</th>
<th>Denmark</th>
<th>Switzerland</th>
<th>Poland</th>
<th>Norway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron bromide (FeBr₂)</td>
<td></td>
<td></td>
<td>TWA: 1 mg/m³ 8 Stunden</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Monitoring methods**

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

<table>
<thead>
<tr>
<th>Derived No Effect Level (DNEL)</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route of exposure</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>Acute effects (local)</td>
</tr>
<tr>
<td>Dermal</td>
<td>Acute effects (systemic)</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Chronic effects (local)</td>
</tr>
<tr>
<td></td>
<td>Chronic effects (systemic)</td>
</tr>
</tbody>
</table>

| Predicted No Effect Concentration (PNEC) | No information available |

### 8.2. Exposure controls

#### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

- **Eye Protection**: Goggles (European standard - EN 166)
- **Hand Protection**: Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>See manufacturers</td>
<td></td>
<td>EN 374</td>
<td></td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td></td>
<td></td>
<td></td>
<td>(minimum requirement)</td>
</tr>
</tbody>
</table>

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SKIN and BODY PROTECTION

Wear appropriate protective gloves and clothing to prevent skin exposure. Inspect gloves before use. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information.)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

RESPIRATORY PROTECTION

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001

When RPE is used a face piece Fit Test should be conducted.

HYGIENE MEASURES

Handle in accordance with good industrial hygiene and safety practice.

ENVIRONMENTAL EXPOSURE CONTROLS

No information available.

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>Dark yellow</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>684 °C / 1263.2 °F</td>
</tr>
<tr>
<td>Softening Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>937 °C / 1718.6 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity / Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>1090 g/L</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No information available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing Properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

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Iron(II) bromide

Molecular Formula  Br2 Fe
Molecular Weight  215.65

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
None known, based on information available

10.2. Chemical stability
Hygroscopic: Air sensitive

10.3. Possibility of hazardous reactions
Hazardous Polymerization
Hazardous polymerization does not occur.

10.4. Conditions to avoid
Incompatible products. Exposure to moist air or water. Exposure to air.

10.5. Incompatible materials
Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products
Hydrogen halides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects
Product Information
No acute toxicity information is available for this product

(a) acute toxicity;
Oral
Dermal
Inhalation
No data available
No data available
No data available

(b) skin corrosion/irritation;
Category 1 C

(c) serious eye damage/irritation;
Category 1

(d) respiratory or skin sensitization;
Respiratory
Skin
No data available
No data available

(e) germ cell mutagenicity;
No data available

(f) carcinogenicity;
No data available
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity;
No data available

(h) STOT-single exposure;
No data available

(i) STOT-repeated exposure;
Target Organs
No information available.

(j) aspiration hazard;
Not applicable
Solid
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Other Adverse Effects
The toxicological properties have not been fully investigated.

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects
Do not empty into drains.

12.2. Persistence and degradability
Ecotoxicity effects
Soluble in water, Persistence is unlikely, based on information available.

Degradability
Not relevant for inorganic substances.

12.3. Bioaccumulative potential
Bioaccumulation is unlikely

12.4. Mobility in soil
The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

12.5. Results of PBT and vPvB assessment
No data available for assessment.

12.6. Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant
This product does not contain any known or suspected substance

Ozone Depletion Potential
This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste from Residues / Unused Products
Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging
Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC)
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information
Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not dispose of waste into sewer. Large amounts will affect pH and harm aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number
UN3260

14.2. UN proper shipping name
CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S

14.3. Transport hazard class(es)
8

14.4. Packing group
III

ADR

14.1. UN number
UN3260

14.2. UN proper shipping name
CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S

14.3. Transport hazard class(es)
8

14.4. Packing group
III

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IATA

14.1. UN number UN3260
14.2. UN proper shipping name CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.*
14.3. Transport hazard class(es) 8
14.4. Packing group III
14.5. Environmental hazards No hazards identified
14.6. Special precautions for user No special precautions required
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code. Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron bromide (FeBr₂)</td>
<td>232-168-8</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

National Regulations

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
R34 - Causes burns

Full text of H-Statements referred to under sections 2 and 3
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
PNEC - Predicted No Effect Concentration
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

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ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 21-Feb-2012
Revision Date 21-Jan-2015
Revision Summary Update to Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet