

## SAFETY DATA SHEET

# Ferro-Gem Liquid Iron

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

#### 1.1. Product identifier

##### Trade name

Ferro-Gem Liquid Iron

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

##### Relevant identified uses of the substance or mixture

Fertiliser

Restricted to professional and industrial use.

##### Uses advised against

None known.

#### 1.3. Details of the supplier of the safety data sheet

##### Company and address

###### **Agrigem Ltd**

Gem House, Riverside Enterprise Park, Skellingthorpe Road, Saxilby

LN1 2FU Lincoln

United Kingdom

01522246491

[www.agrigem.co.uk](http://www.agrigem.co.uk)

##### E-mail

[sales@agrigem.co.uk](mailto:sales@agrigem.co.uk)

##### Revision

19/03/2026

##### SDS Version

1.0

#### 1.4. Emergency telephone number

Healthcare professionals: Dial 0344 892 0111 to reach The National Poisons Information Service (NPIS) (24 hour service)

General public:

England - Dial 111 to reach NHS 111 (24 hour service)

Scotland - Dial 111 to reach NHS 24 (24 hour service)

Wales - Dial 111 or 0845 4647 to reach NHS Direct (24 hour service)

See section 4 "First aid measures".

### SECTION 2: Hazards identification

Classified according to Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

#### 2.1. Classification of the substance or mixture

Skin Irrit. 2; H315, Causes skin irritation.

Eye Irrit. 2; H319, Causes serious eye irritation.

#### 2.2. Label elements

Hazard pictogram(s)



Signal word

Warning

Hazard statement(s)

Causes skin irritation. (H315)

Causes serious eye irritation. (H319)

Precautionary statement(s)

General

Not applicable.

Prevention

Wash hands thoroughly after handling. (P264)

Wear eye protection/protective gloves/protective clothing. (P280)

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. (P305+P351+P338)

If eye irritation persists: Get medical advice/attention. (P337+P313)

Storage

Not applicable.

Disposal

Not applicable.

Hazardous substances

Contains no substances that need to be listed on the label.

Additional labelling

EUH208, Contains 1,2-benzisothiazol-3(2H)-one;1,2-benzisothiazolin-3-one, 2-methylisothiazol-3(2H)-one, reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1). May produce an allergic reaction.

2.3. Other hazards

Additional warnings

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2023/707.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable. This product is a mixture.

3.2. Mixtures

Product/substance	Identifiers	% w/w	Classification	Note
iron (II) sulfate (1:1) heptahydrate	CAS No.: 7720-78-7 EC No.: 231-753-5 UK-REACH: Index No.: 026-003-01-4	15-25%	Met. Corr. 1, H290 Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319	

According to REACH Regulation (EC) No 1907/2006, as retained and amended by SI 2019/758 and SI 2020/1577

bronopol (INN);2-bromo-2-nitropropane-1,3-diol	CAS No.: 52-51-7 EC No.: 200-143-0 UK-REACH: Index No.: 603-085-00-8	<0.05%	Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400 (M=10)
reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)	CAS No.: 55965-84-9 EC No.: 611-341-5 UK-REACH: Index No.: 613-167-00-5	<0.0015%	EUH071 Acute Tox. 3, H301 Acute Tox. 2, H310 Skin Corr. 1C, H314 (SCL: 0.60 %) Skin Irrit. 2, H315 (SCL: 0.06 %) Skin Sens. 1A, H317 (SCL: 0.0015 %) Eye Dam. 1, H318 (SCL: 0.60 %) Eye Irrit. 2, H319 (SCL: 0.06 %) Acute Tox. 2, H330 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

#### Other information

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### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

##### General information

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

##### Inhalation

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

##### Skin contact

IF ON SKIN: Wash with plenty of water and soap.

Remove contaminated clothing and shoes. Ensure to wash exposed skin thoroughly with water and soap. DO NOT use solvents or thinners.

If skin irritation occurs: Get medical advice/attention.

##### Eye contact

If in eyes: Flush eyes immediately with plenty of water or isotonic water (20-30 °C) for at least 5 minutes and continue until irritation stops. Remove contact lenses. Make sure to flush under upper and lower eyelids. If irritation continues, contact a doctor. Continue flushing during transport.

##### Ingestion

If the person is conscious, rinse the mouth with water and stay with the person. Never give the person anything to drink.

In case of malaise, seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the person lean forward with head down to avoid inhalation of or choking on vomited material.

##### Burns

Not applicable.

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

Sensitisation: This product contains substances, which may trigger allergic reaction upon dermal contact. Manifestation of allergic reactions typically takes place within 12-72 hours after exposure.

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

If eye irritation persists: Get medical advice/attention.

#### Information to medic

Bring this safety data sheet or the label from this product.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Not applicable.

#### 5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

#### 5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with spilled substances.  
Contaminated areas may be slippery.

#### 6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.  
Keep unauthorized persons away from the spill

#### 6.3. Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.  
Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

#### 6.4. Reference to other sections

See section 13 "Disposal considerations" on handling of waste.  
See section 8 "Exposure controls/personal protection" for protective measures.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Smoking, drinking and consumption of food is not allowed in the work area.  
See section 8 "Exposure controls/personal protection" for information on personal protection.

#### 7.2. Conditions for safe storage, including any incompatibilities

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

##### Recommended storage material

Keep only in original packaging.

##### Storage conditions

Dry, cool and well ventilated

##### Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

### 7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No substances are listed in the national list of substances with an occupational exposure limit.

#### DNEL

bronopol (INN);2-bromo-2-nitropropane-1,3-diol

Duration:	Route of exposure:	DNEL:
Long term – Local effects - General population	Dermal	4 µg/cm <sup>2</sup>
Long term – Local effects - Workers	Dermal	8 µg/cm <sup>2</sup>
Long term – Systemic effects - General population	Dermal	700 µg/kg bw/day
Long term – Systemic effects - Workers	Dermal	2 mg/kg bw/day
Short term – Local effects - General population	Dermal	4 µg/cm <sup>2</sup>
Short term – Local effects - Workers	Dermal	8 µg/cm <sup>2</sup>
Short term – Systemic effects - General population	Dermal	2.1 mg/kg bw/day
Short term – Systemic effects - Workers	Dermal	6 mg/kg bw/day
Long term – Local effects - General population	Inhalation	600 µg/m <sup>3</sup>
Long term – Local effects - Workers	Inhalation	2.5 mg/m <sup>3</sup>
Long term – Systemic effects - General population	Inhalation	600 µg/m <sup>3</sup>
Long term – Systemic effects - Workers	Inhalation	3.5 mg/m <sup>3</sup>
Short term – Local effects - General population	Inhalation	600 µg/m <sup>3</sup>
Short term – Local effects - Workers	Inhalation	2.5 mg/m <sup>3</sup>
Short term – Systemic effects - General population	Inhalation	1.8 mg/m <sup>3</sup>
Short term – Systemic effects - Workers	Inhalation	10.5 mg/m <sup>3</sup>
Long term – Systemic effects - General population	Oral	180 µg/kg bw/day
Short term – Systemic effects - General population	Oral	500 µg/kg bw/day

iron (II) sulfate (1:1) heptahydrate

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - General population	Dermal	1.4 mg/kg bw/day
Long term – Systemic effects - Workers	Dermal	2.8 mg/kg bw/day
Long term – Systemic effects - General population	Oral	280 µg/kg bw/day
Short term – Systemic effects - General population	Oral	20 mg/kg bw/day

reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)

Duration:	Route of exposure:	DNEL:
Long term – Local effects - General population	Inhalation	20 µg/m <sup>3</sup>
Long term – Local effects - Workers	Inhalation	20 µg/m <sup>3</sup>
Short term – Local effects - General population	Inhalation	40 µg/m <sup>3</sup>

According to REACH Regulation (EC) No 1907/2006, as retained and amended by SI 2019/758 and SI 2020/1577

Short term – Local effects - Workers	Inhalation	40 µg/m <sup>3</sup>
Long term – Systemic effects - General population	Oral	90 µg/kg bw/day
Short term – Systemic effects - General population	Oral	110 µg/kg bw/day

#### PNEC

bronopol (INN);2-bromo-2-nitropropane-1,3-diol

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		10 µg/L
Freshwater sediment		41 µg/kg
Intermittent release (freshwater)		2.5 µg/L
Marine water		800 ng/L
Marine water sediment		3.28 µg/kg
Sewage treatment plant		430 µg/L
Soil		500 µg/kg

reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		3.39 µg/L
Freshwater sediment		27 µg/kg
Intermittent release (freshwater)		3.39 µg/L
Intermittent release (marine water)		3.39 µg/L
Marine water		3.39 µg/L
Marine water sediment		27 µg/kg
Sewage treatment plant		230 µg/L
Soil		10 µg/kg

#### 8.2. Exposure controls

Apply general control to prevent unnecessary exposure

##### General recommendations

Smoking, drinking and consumption of food is not allowed in the work area.

##### Exposure scenarios

There are no exposure scenarios implemented for this product.

##### Exposure limits

Occupational exposure limits have not been defined for the substances in this product.

##### Appropriate technical measures

Apply standard precautions during use of the product. Avoid inhalation of vapours.

##### Hygiene measures

Take off contaminated clothing and wash it before reuse.

##### Measures to avoid environmental exposure

No specific requirements.

#### Individual protection measures, such as personal protective equipment

##### Generally

Use only UKCA marked protective equipment.


##### Respiratory Equipment

According to REACH Regulation (EC) No 1907/2006, as retained and amended by SI 2019/758 and SI 2020/1577

Type	Class	Colour	Standards
Respiratory protection is not needed in the event of adequate ventilation.			


#### Skin protection

Recommended	Type/Category	Standards
Wear appropriate protection clothing, e.g. coveralls in polypropylene or working clothes in cotton or polyester.	-	-




#### Hand protection

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards
Nitrile	2,0	> 480	EN374-2, EN16523-1, EN388, EN407



#### Eye protection

Type	Standards
Safety glasses with side shields.	EN166



## SECTION 9: Physical and chemical properties

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

#### Physical state

Liquid

#### Colour

Brown

#### Odour / Odour threshold

Characteristic

#### pH

3.0 - 5.0

#### Density (g/cm<sup>3</sup>)

1.19 - 1.23

#### Kinematic viscosity

No data available.

#### Particle characteristics

Does not apply to liquids.

#### Phase changes

##### Melting point/Freezing point (°C)

No data available.

##### Softening point/range (°C)

Does not apply to liquids.

**Boiling point (°C)**

No data available.

**Vapour pressure**

No data available.

**Relative vapour density**

No data available.

**Decomposition temperature (°C)**

No data available.

**Data on fire and explosion hazards**

**Flash point (°C)**

No data available.

**Flammability (°C)**

No data available.

**Auto-ignition temperature (°C)**

No data available.

**Lower and upper explosion limit (% v/v)**

No data available.

**Solubility**

**Solubility in water**

Miscible

**n-octanol/water coefficient (LogKow)**

No data available.

**Solubility in fat (g/L)**

No data available.

**9.2. Other information**

**Oxidizing properties**

No data available.

**Other physical and chemical parameters**

No data available.

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

No data available.

**10.2. Chemical stability**

The product is stable under the conditions, noted in section 7 "Handling and storage".

**10.3. Possibility of hazardous reactions**

None known.

**10.4. Conditions to avoid**

None known.

**10.5. Incompatible materials**

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

**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 hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law**

#### Acute toxicity

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

#### Skin corrosion/irritation

Causes skin irritation.

#### Serious eye damage/irritation

Causes serious eye irritation.

#### Respiratory sensitisation

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

#### Skin sensitisation

This product contains substances that may trigger an allergic reaction in already sensitized persons.

#### Germ cell mutagenicity

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

#### Carcinogenicity

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

#### Reproductive toxicity

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.

#### Symptoms related to the physical, chemical and toxicological characteristics

Irritation effects: This product contains substances, which may cause irritation upon exposure to skin, eyes or lungs. Exposure may result in an increased absorption potential of other hazardous substances at the area of exposure.

#### 11.2. Information on other hazards

##### Endocrine disrupting properties

This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

##### Other information

None known.

## SECTION 12: Ecological information

#### 12.1. Toxicity

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

#### 12.2. Persistence and degradability

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

#### 12.3. Bioaccumulative potential

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

#### 12.4. Mobility in soil

No data available.

#### 12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

#### 12.6. Endocrine disrupting properties

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

#### 12.7. Other adverse effects

None known.

## SECTION 13: Disposal considerations

### Waste treatment methods

Product is covered by the regulations on hazardous waste.  
 HP 4 - Irritant (skin irritation and eye damage)  
 Dispose of contents/container to an approved waste disposal plant.  
 Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

### EWC code

Not applicable.

### Specific labelling

### Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

## SECTION 14: Transport information

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR/A DN/RID	-	-	-	-	-	-
IMDG	-	-	-	-	-	-
IATA	-	-	-	-	-	-

\* Packing group

\*\* Environmental hazards

### Additional information

Not dangerous goods according to ADR/ADN/RID, IATA and IMDG.

### 14.6. Special precautions for user

Not applicable.

### 14.7. Maritime transport in bulk according to IMO instruments

No data available.

## SECTION 15: Regulatory information

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

#### Restrictions for application

Restricted to professional users.

#### Demands for specific education

No specific requirements.

#### Control of Major Accident Hazards (COMAH) - Categories / dangerous substances

Not applicable.

#### Additional information

Not applicable.

#### Sources

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

## 15.2. Chemical safety assessment

No

### SECTION 16: Other information

#### Full text of H-phrases as mentioned in section 3

EUH071, Corrosive to the respiratory tract.  
H290, May be corrosive to metals.  
H301, Toxic if swallowed.  
H302, Harmful if swallowed.  
H310, Fatal in contact with skin.  
H312, Harmful in contact with skin.  
H314, Causes severe skin burns and eye damage.  
H315, Causes skin irritation.  
H317, May cause an allergic skin reaction.  
H318, Causes serious eye damage.  
H319, Causes serious eye irritation.  
H330, Fatal if inhaled.  
H335, May cause respiratory irritation.  
H400, Very toxic to aquatic life.  
H410, Very toxic to aquatic life with long lasting effects.

#### Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
ATE = Acute Toxicity Estimate  
BCF = Bioconcentration Factor  
CAS = Chemical Abstracts Service  
CE = Conformité Européenne (European conformity)  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
CSA = Chemical Safety Assessment  
CSR = Chemical Safety Report  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
EC = Effective concentration  
ED = Effective dose  
EINECS = European Inventory of Existing Commercial chemical Substances  
EL = Effective Loading  
ErC = Concentration associated with x% growth rate response  
ES = Exposure Scenario  
EUH statement = CLP-specific Hazard statement  
EuPCS = European Product Categorisation System  
EWC = European Waste Catalogue  
GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
GWP = Global warming potential  
HP = Hazardous Property code  
IARC = International Agency for Research on Cancer (IARC)  
IATA = International Air Transport Association  
IBC = Intermediate Bulk Container  
IC = X maximum inhibitory concentration  
IMDG = International Maritime Dangerous Goods  
LC = Lethal concentration

LCLo = Value is the lowest concentration of a material in air reported to have caused the death of animals or humans  
LD = Lethal dose  
LOAEC = Lowest Observed Adverse Effect Concentration  
LOAEL = Lowest Observed Adverse Effect Level  
LOEC = Lowest Observed Effect Concentration  
LogKow = logarithm of the n-octanol/water coefficient  
LL = Lethal Loading  
M = For multiplication factor  
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
NOAEC = No Observed Adverse Effect Concentration  
NOAEL = No Observed Adverse Effect Level  
NOEC = No Observed Effect Concentration  
NOELR = No Observable Effect Loading Rate  
OECD = Organisation for Economic Co-operation and Development  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
RRN = REACH Registration Number  
SCL = A specific concentration limit  
SVHC = Substances of Very High Concern  
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure  
STOT-SE = Specific Target Organ Toxicity - Single Exposure  
TWA = Time weighted average  
UN = United Nations  
UVBC = Unknown or variable composition, complex reaction products or of biological materials  
VOC = Volatile Organic Compound  
vPvB = Very Persistent and Very Bioaccumulative

#### Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

#### The safety data sheet is validated by

Paul Smith

#### Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a triangle.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.

Country-language: GB-en