# SAFETY DATA SHEET

Atellica™ CH Iron_2 (Iron_2)

SIEMENS Healthineers

**SDS no.:** 11097601

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

### 1.1 Product identifier

**Product name** : Atellica™ CH Iron_2 (Iron_2)

**Product code** : 11097601

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

| | | |
|---|---|---|
| **Identified uses** | Iron_2 R1 Reagent | Diagnostic agents. |
| | Iron_2 R2 Reagent | Diagnostic agents. |
| **Restrictions on use** | For professional users only. | |

**Supplier** : Siemens Healthcare Diagnostics Limited
Park View,
Watchmoor Park,
Camberley,
Surrey,
GU15 3YL
United Kingdom

Phone: +44 (0) 345 600 1955

**e-mail address of person responsible for this SDS** : dx.msds.healthcare@siemens-healthineers.com

### 1.4 Emergency telephone number

CHEMTREC: +44 20 3807 3798

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

| | | |
|---|---|---|
| **Product definition** | Iron_2 R1 Reagent | Mixture |
| | Iron_2 R2 Reagent | Mixture |

**Classification according to UK CLP/GHS**

**Iron_2 R1 Reagent**
Acute Tox. 4, H302
Skin Irrit. 2, H315
Eye Irrit. 2, H319

**Iron_2 R2 Reagent**
Acute Tox. 4, H302
Skin Irrit. 2, H315
Eye Irrit. 2, H319

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

**Hazard pictograms** :

## SECTION 2: Hazards identification

| | | | |
|---|---|---|---|
| **Signal word** | : | Iron_2 R1 Reagent | Warning |
| | | Iron_2 R2 Reagent | Warning |
| **Hazard statements** | : | Iron_2 R1 Reagent | H302 - Harmful if swallowed.<br>H315 - Causes skin irritation.<br>H319 - Causes serious eye irritation. |
| | | Iron_2 R2 Reagent | H302 - Harmful if swallowed.<br>H315 - Causes skin irritation.<br>H319 - Causes serious eye irritation. |

**Precautionary statements**

| | | | |
|---|---|---|---|
| **Prevention** | : | Iron_2 R1 Reagent | P280 - Wear protective gloves/protective clothing/eye protection/face protection.<br>P264 - Wash hands thoroughly after handling. |
| | | Iron_2 R2 Reagent | P280 - Wear protective gloves/protective clothing/eye protection/face protection.<br>P264 - Wash hands thoroughly after handling. |
| **Response** | : | Iron_2 R1 Reagent | P337 + P313 - If eye irritation persists: Get medical advice/attention. |
| | | Iron_2 R2 Reagent | P337 + P313 - If eye irritation persists: Get medical advice/attention. |
| **Storage** | : | Iron_2 R1 Reagent | Not applicable. |
| | | Iron_2 R2 Reagent | Not applicable. |
| **Disposal** | : | Iron_2 R1 Reagent | Not applicable. |
| | | Iron_2 R2 Reagent | Not applicable. |
| **Supplemental label elements** | : | Iron_2 R1 Reagent | Not applicable. |
| | | Iron_2 R2 Reagent | Not applicable. |
| **Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** | : | Iron_2 R1 Reagent | Not applicable. |
| | | Iron_2 R2 Reagent | Not applicable. |

**2.3 Other hazards**

| | | | |
|---|---|---|---|
| **Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** | : | Iron_2 R1 Reagent | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| | | Iron_2 R2 Reagent | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| **Other hazards which do not result in classification** | : | Iron_2 R1 Reagent | None known. |
| | | Iron_2 R2 Reagent | None known. |
| **Additional information** | : | Not available. | |
| | | Not available. | |

## SECTION 3: Composition/information on ingredients

| | | | |
|---|---|---|---|
| **3.1 Substances** | : | Iron_2 R1 Reagent | Mixture |
| | | Iron_2 R2 Reagent | Mixture |

## SECTION 3: Composition/information on ingredients

| Product/ingredient name | Identifiers | % | Classification | Type |
|---|---|---|---|---|
| **Iron_2 R1 Reagent** | | | | |
| guanidinium chloride | EC: 200-002-3<br>CAS: 50-01-1<br>Index: 607-148-00-0 | ≥25 - ≤50 | Acute Tox. 4, H302<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319 | [1] |
| thiourea | EC: 200-543-5<br>CAS: 62-56-6<br>Index: 612-082-00-0 | <1 | Acute Tox. 3, H301<br>Carc. 2, H351<br>Repr. 2, H361d<br>Aquatic Chronic 2, H411 | [1] |
| **Iron_2 R2 Reagent** | | | | |
| guanidinium chloride | EC: 200-002-3<br>CAS: 50-01-1<br>Index: 607-148-00-0 | ≥25 - ≤50 | Acute Tox. 4, H302<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>**See Section 16 for the full text of the H statements declared above.** | [1] |

Type

[1] Substance classified with a health or environmental hazard

Occupational exposure limits, if available, are listed in Section 8.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**Eye contact** : Iron_2 R1 Reagent

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Iron_2 R2 Reagent

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

**Inhalation** : Iron_2 R1 Reagent

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Iron_2 R2 Reagent

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by

## SECTION 4: First aid measures

| | | | |
|---|---|---|---|
| | | | trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| **Skin contact** | : | Iron_2 R1 Reagent | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | | Iron_2 R2 Reagent | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| **Ingestion** | : | Iron_2 R1 Reagent | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | | Iron_2 R2 Reagent | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

## SECTION 4: First aid measures

| | | | |
|---|---|---|---|
| **Protection of first-aiders** | : | Iron_2 R1 Reagent | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| | | Iron_2 R2 Reagent | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |

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

**Over-exposure signs/symptoms**

| | | | |
|---|---|---|---|
| **Eye contact** | : | Iron_2 R1 Reagent | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| | | Iron_2 R2 Reagent | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| **Inhalation** | : | Iron_2 R1 Reagent | No specific data. |
| | | Iron_2 R2 Reagent | No specific data. |
| **Skin contact** | : | Iron_2 R1 Reagent | Adverse symptoms may include the following:<br>irritation<br>redness |
| | | Iron_2 R2 Reagent | Adverse symptoms may include the following:<br>irritation<br>redness |
| **Ingestion** | : | Iron_2 R1 Reagent | No specific data. |
| | | Iron_2 R2 Reagent | No specific data. |

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

| | | | |
|---|---|---|---|
| **Notes to physician** | : | Iron_2 R1 Reagent | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| | | Iron_2 R2 Reagent | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| **Specific treatments** | : | Iron_2 R1 Reagent | No specific treatment. |
| | | Iron_2 R2 Reagent | No specific treatment. |
| | | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

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

**Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous combustion products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds

### 5.3 Advice for firefighters

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## SECTION 6: Accidental release measures

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

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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

**Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. 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 (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

# SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

**Recommendations** : Not available.

**Industrial sector specific solutions** : Not available.

# SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational exposure limits**

No exposure limit value known.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**DNELs/DMELs**

| Product/ingredient name | Type | Exposure | Value | Population | Effects |
|---|---|---|---|---|---|
| **Iron_2 R1 Reagent** | | | | | |
| guanidinium chloride | DNEL | Long term Oral | 0.5 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 0.5 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 0.87 mg/m³ | General population | Systemic |
| | DNEL | Long term Dermal | 1 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Inhalation | 3.5 mg/m³ | Workers | Systemic |
| | DNEL | Short term Inhalation | 10.5 mg/m³ | Workers | Systemic |
| thiourea | DNEL | Long term Oral | 0.1 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 0.2 mg/m³ | General population | Systemic |
| | DNEL | Long term Inhalation | 1 mg/m³ | Workers | Systemic |
| | DNEL | Long term Dermal | 1.7 mg/kg bw/day | General population | Systemic |

# SECTION 8: Exposure controls/personal protection

| | | | | | |
|---|---|---|---|---|---|
| | DNEL | Long term Dermal | 3.4 mg/kg bw/day | Workers | Systemic |
| **Iron_2 R2 Reagent** | | | | | |
| guanidinium chloride | DNEL | Long term Oral | 0.5 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 0.5 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 0.87 mg/m³ | General population | Systemic |
| | DNEL | Long term Dermal | 1 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Inhalation | 3.5 mg/m³ | Workers | Systemic |
| | DNEL | Short term Inhalation | 10.5 mg/m³ | Workers | Systemic |

**PNECs**

No PNECs available

**8.2 Exposure controls**

**Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

**Individual protection measures**

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Skin protection**

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

# SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

**Appearance**

**Physical state** : Iron_2 R1 Reagent — Liquid.
Iron_2 R2 Reagent — Liquid.

**Colour** : Iron_2 R1 Reagent — Colourless.
Iron_2 R2 Reagent — Colourless.

**Odour** : Iron_2 R1 Reagent — Odorless.
Iron_2 R2 Reagent — Odorless.

**Odour threshold** : Not relevant/applicable due to nature of the product.

**Melting point/freezing point** : Not relevant/applicable due to nature of the product.

**Softening point** : Not relevant/applicable due to nature of the product.

**Sublimation temperature** : Not relevant/applicable due to nature of the product.

**Initial boiling point and boiling range** : Iron_2 R1 Reagent — Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent — Not relevant/applicable due to nature of the product.

**Flammability (solid, gas)** : Iron_2 R1 Reagent — Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent — Not relevant/applicable due to nature of the product.

**Upper/lower flammability or explosive limits** : Iron_2 R1 Reagent — Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent — Not relevant/applicable due to nature of the product.

**Flash point** : Iron_2 R1 Reagent — [Product does not sustain combustion.]
Iron_2 R2 Reagent — [Product does not sustain combustion.]

| | Closed cup | | | Open cup | | |
|---|---|---|---|---|---|---|
| **Ingredient name** | **°C** | **°F** | **Method** | **°C** | **°F** | **Method** |
| **Iron_2 R1 Reagent** | | | | | | |
| Dodecan-1-ol, ethoxylated | >109.85 | >229.7 | | | | |

**Auto-ignition temperature** :

| Ingredient name | °C | °F | Method |
|---|---|---|---|
| **Iron_2 R1 Reagent** | | | |
| thiourea | >240 | >464 | |
| **Iron_2 R2 Reagent** | | | |
| ascorbic acid | 660 | 1220 | |

**Decomposition temperature** : Not relevant/applicable due to nature of the product.

**pH** : Iron_2 R1 Reagent — 4.4
Iron_2 R2 Reagent — 5

**Viscosity** : Iron_2 R1 Reagent — Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent — Not relevant/applicable due to nature of the product.

**Solubility(ies)** :

Not available.

**Solubility in water** : Not relevant/applicable due to nature of the product.

**Miscible with water** : Not relevant/applicable due to nature of the product.

**Partition coefficient: n-octanol/water** : Not relevant/applicable due to nature of the product.

# SECTION 9: Physical and chemical properties

**Vapour pressure** :

| Ingredient name | Vapour Pressure at 20˚C | | | Vapour pressure at 50˚C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| **Iron_2 R1 Reagent** | | | | | | |
| water | 23.8 | 3.2 | | | | |
| **Iron_2 R2 Reagent** | | | | | | |
| water | 23.8 | 3.2 | | | | |

**Evaporation rate** : Not relevant/applicable due to nature of the product.

**Relative density** : Iron_2 R1 Reagent 1
Iron_2 R2 Reagent 1

**Density** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Vapour density** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Explosive properties** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Oxidising properties** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Particle characteristics**

**Median particle size** : Not relevant/applicable due to nature of the product.

**Aspect ratio** : Not relevant/applicable due to nature of the product.

**Specific surface area** : Not relevant/applicable due to nature of the product.

**Shape** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Crystallinity** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Percentage of particles with aerodynamic diameter ≤ 10 µm** : Not relevant/applicable due to nature of the product.

**Additional information** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**9.2 Other information**

**Fire point** : Iron_2 R1 Reagent Not relevant/applicable due to nature of the product.
Iron_2 R2 Reagent Not relevant/applicable due to nature of the product.

**Burning time** : Not relevant/applicable due to nature of the product.

**Fundamental burning velocity** : Not relevant/applicable due to nature of the product.

## SECTION 9: Physical and chemical properties

**Burning rate** : Not relevant/applicable due to nature of the product.

**SADT** : Not relevant/applicable due to nature of the product.

**SAPT** : Not relevant/applicable due to nature of the product.

**Heat of reaction** : Not relevant/applicable due to nature of the product.

**Heat of combustion** : Not relevant/applicable due to nature of the product.

**Flow time (ISO 2431)** : Not relevant/applicable due to nature of the product.

**Molecular weight** : Not relevant/applicable due to nature of the product.

## SECTION 10: Stability and reactivity

**10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.

**10.2 Chemical stability** : The product is stable.

**10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** : No specific data.

**10.5 Incompatible materials** : No specific data.

**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**

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| **Iron_2 R1 Reagent** | | | | |
| guanidinium chloride | LD50 Oral | Rat | 475 mg/kg | - |
| thiourea | LD50 Oral | Rat | 125 mg/kg | - |
| **Iron_2 R2 Reagent** | | | | |
| guanidinium chloride | LD50 Oral | Rat | 475 mg/kg | - |

**Conclusion/Summary** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Acute toxicity estimates**

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|---|---|---|---|---|
| **Iron_2 R1 Reagent** | | | | | |
| Iron_2 R1 Reagent | 1055.1 | N/A | N/A | N/A | N/A |
| guanidinium chloride | 475 | N/A | N/A | N/A | N/A |
| thiourea | 125 | N/A | N/A | N/A | N/A |
| **Iron_2 R2 Reagent** | | | | | |
| Iron_2 R2 Reagent | 1250 | N/A | N/A | N/A | N/A |
| guanidinium chloride | 475 | N/A | N/A | N/A | N/A |

**Irritation/Corrosion**

## SECTION 11: Toxicological information

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|---|---|---|---|---|
| **Iron_2 R1 Reagent** | | | | | |
| guanidinium chloride | Eyes - Moderate irritant | Rabbit | - | 81400 ug | - |
| | Skin - Severe irritant | Rabbit | - | 24 hours 500 mg | - |
| **Iron_2 R2 Reagent** | | | | | |
| guanidinium chloride | Eyes - Moderate irritant | Rabbit | - | 81400 ug | - |
| | Skin - Severe irritant | Rabbit | - | 24 hours 500 mg | - |

**Conclusion/Summary**

**Skin** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Eyes** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Respiratory** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Sensitisation**

**Conclusion/Summary**

**Skin** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Respiratory** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Mutagenicity**

**Conclusion/Summary** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Carcinogenicity**

**Conclusion/Summary** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Teratogenicity**

**Conclusion/Summary** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

**Information on likely routes of exposure** : Iron_2 R1 Reagent — Not available.
Iron_2 R2 Reagent — Not available.

**Potential acute health effects**

**Eye contact** : Iron_2 R1 Reagent — Causes serious eye irritation.
Iron_2 R2 Reagent — Causes serious eye irritation.

**Inhalation** : Iron_2 R1 Reagent — No known significant effects or critical hazards.
Iron_2 R2 Reagent — No known significant effects or critical hazards.

**Skin contact** : Iron_2 R1 Reagent — Causes skin irritation.
Iron_2 R2 Reagent — Causes skin irritation.

## SECTION 11: Toxicological information

| | | | |
|---|---|---|---|
| **Ingestion** | : | Iron_2 R1 Reagent | Harmful if swallowed. |
| | | Iron_2 R2 Reagent | Harmful if swallowed. |

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

| | | | |
|---|---|---|---|
| **Eye contact** | : | Iron_2 R1 Reagent | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| | | Iron_2 R2 Reagent | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| **Inhalation** | : | Iron_2 R1 Reagent | No specific data. |
| | | Iron_2 R2 Reagent | No specific data. |
| **Skin contact** | : | Iron_2 R1 Reagent | Adverse symptoms may include the following:<br>irritation<br>redness |
| | | Iron_2 R2 Reagent | Adverse symptoms may include the following:<br>irritation<br>redness |
| **Ingestion** | : | Iron_2 R1 Reagent | No specific data. |
| | | Iron_2 R2 Reagent | No specific data. |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Short term exposure**

| | | | |
|---|---|---|---|
| **Potential immediate effects** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Potential delayed effects** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

**Long term exposure**

| | | | |
|---|---|---|---|
| **Potential immediate effects** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Potential delayed effects** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

**Potential chronic health effects**

Not available.

| | | | |
|---|---|---|---|
| **Conclusion/Summary** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **General** | : | Iron_2 R1 Reagent | No known significant effects or critical hazards. |
| | | Iron_2 R2 Reagent | No known significant effects or critical hazards. |
| **Carcinogenicity** | : | Iron_2 R1 Reagent | No known significant effects or critical hazards. |
| | | Iron_2 R2 Reagent | No known significant effects or critical hazards. |
| **Mutagenicity** | : | Iron_2 R1 Reagent | No known significant effects or critical hazards. |
| | | Iron_2 R2 Reagent | No known significant effects or critical hazards. |

# SECTION 11: Toxicological information

| | | | |
|---|---|---|---|
| **Reproductive toxicity** | : | Iron_2 R1 Reagent | No known significant effects or critical hazards. |
| | | Iron_2 R2 Reagent | No known significant effects or critical hazards. |
| **Interactive effects** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Toxicokinetics** | | | |
| **Absorption** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Distribution** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Metabolism** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Elimination** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Other information** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

# SECTION 12: Ecological information

### 12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| **Iron_2 R1 Reagent** | | | |
| thiourea | Acute EC50 4800 µg/l Fresh water | Algae - Green algae - Scenedesmus abundans | 96 hours |
| | Acute LC50 9000 µg/l Fresh water | Daphnia - Water flea - Daphnia magna | 48 hours |
| | Acute LC50 >100 mg/l Fresh water | Fish - Fathead minnow - Pimephales promelas | 96 hours |
| | Chronic EC10 0.3 mg/l Fresh water | Algae - Green algae - Desmodesmus subspicatus | 96 hours |
| | Chronic NOEC 0.1 mg/l Fresh water | Daphnia - Water flea - Daphnia magna | 21 days |

| | | | |
|---|---|---|---|
| **Conclusion/Summary** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

### 12.2 Persistence and degradability

| | | | |
|---|---|---|---|
| **Conclusion/Summary** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

### 12.3 Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| **Iron_2 R1 Reagent** | | | |
| guanidinium chloride | -1.7 | - | low |
| thiourea | -1.08 | 2 | low |
| **Iron_2 R2 Reagent** | | | |
| guanidinium chloride | -1.7 | - | low |

### 12.4 Mobility in soil

| | | | |
|---|---|---|---|
| **Soil/water partition coefficient ($K_{OC}$)** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |
| **Mobility** | : | Iron_2 R1 Reagent | Not available. |
| | | Iron_2 R2 Reagent | Not available. |

# SECTION 12: Ecological information

**12.5 Results of PBT and vPvB assessment**

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

# SECTION 13: Disposal considerations

**13.1 Waste treatment methods**

**Product**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

**Packaging**

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

# SECTION 14: Transport information

**ADR/RID**

| | | |
|---|---|---|
| **14.1 UN number** | Iron_2 R1 Reagent | Not regulated. |
| | Iron_2 R2 Reagent | Not regulated. |
| **14.2 UN proper shipping name** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.3 Transport hazard class(es)** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.4 Packing group** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.5 Environmental hazards** | Iron_2 R1 Reagent | No. |
| | Iron_2 R2 Reagent | No. |
| **Additional information** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |

**ADN**

| | | |
|---|---|---|
| **14.1 UN number** | Iron_2 R1 Reagent | Not regulated. |
| | Iron_2 R2 Reagent | Not regulated. |
| **14.2 UN proper shipping name** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.3 Transport hazard class(es)** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |

## SECTION 14: Transport information

| | | |
|---|---|---|
| **14.4 Packing group** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.5 Environmental hazards** | Iron_2 R1 Reagent | No. |
| | Iron_2 R2 Reagent | No. |
| **Additional information** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |

**IMDG**

| | | |
|---|---|---|
| **14.1 UN number** | Iron_2 R1 Reagent | Not regulated. |
| | Iron_2 R2 Reagent | Not regulated. |
| **14.2 UN proper shipping name** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.3 Transport hazard class(es)** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.4 Packing group** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.5 Environmental hazards** | Iron_2 R1 Reagent | No. |
| | Iron_2 R2 Reagent | No. |
| **Additional information** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |

**IATA**

| | | |
|---|---|---|
| **14.1 UN number** | Iron_2 R1 Reagent | Not regulated. |
| | Iron_2 R2 Reagent | Not regulated. |
| **14.2 UN proper shipping name** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.3 Transport hazard class(es)** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.4 Packing group** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |
| **14.5 Environmental hazards** | Iron_2 R1 Reagent | No. |
| | Iron_2 R2 Reagent | No. |
| **Additional information** | Iron_2 R1 Reagent | - |
| | Iron_2 R2 Reagent | - |

**14.6 Special precautions for user** : Iron_2 R1 Reagent

**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Iron_2 R2 Reagent

**Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

## SECTION 14: Transport information

**14.7 Transport in bulk according to IMO instruments** Not applicable.

## SECTION 15: Regulatory information

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

**UK (GB) /REACH**

**Annex XIV - List of substances subject to authorisation**

**Annex XIV**

None of the components are listed.

**Substances of very high concern**

None of the components are listed.

**Ozone depleting substances**

Not listed.

**Prior Informed Consent (PIC)**

Not listed.

**Persistent Organic Pollutants**

Not listed.

| | | | |
|---|---|---|---|
| **Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** | : | Iron_2 R1 Reagent | Not applicable. |
| | | Iron_2 R2 Reagent | Not applicable. |

**Seveso Directive**

This product is not controlled under the Seveso Directive.

**National regulations**

**EU regulations**

| | | | |
|---|---|---|---|
| **Industrial emissions (integrated pollution prevention and control) - Air** | : | Iron_2 R1 Reagent | Not listed |
| | | Iron_2 R2 Reagent | Not listed |
| **Industrial emissions (integrated pollution prevention and control) - Water** | : | Iron_2 R1 Reagent | Not listed |
| | | Iron_2 R2 Reagent | Not listed |

**International regulations**

**Montreal Protocol**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**

Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

**15.2 Chemical safety assessment** : Not applicable.

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate
GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = GB CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
SGG = Segregation Group
vPvB = Very Persistent and Very Bioaccumulative

**Procedure used to derive the classification**

| Classification | Justification |
|---|---|
| **Iron_2 R1 Reagent** | |
| Acute Tox. 4, H302 | Calculation method |
| Skin Irrit. 2, H315 | Calculation method |
| Eye Irrit. 2, H319 | Calculation method |
| **Iron_2 R2 Reagent** | |
| Acute Tox. 4, H302 | Calculation method |
| Skin Irrit. 2, H315 | Calculation method |
| Eye Irrit. 2, H319 | Calculation method |

**Full text of abbreviated H statements**

| | |
|---|---|
| **Iron_2 R1 Reagent** | |
| H301 | Toxic if swallowed. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H351 | Suspected of causing cancer. |
| H361d | Suspected of damaging the unborn child. |
| H411 | Toxic to aquatic life with long lasting effects. |
| **Iron_2 R2 Reagent** | |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |

**Full text of classifications**

| | |
|---|---|
| **Iron_2 R1 Reagent** | |
| Acute Tox. 3 | ACUTE TOXICITY - Category 3 |
| Acute Tox. 4 | ACUTE TOXICITY - Category 4 |
| Aquatic Chronic 2 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 |
| Carc. 2 | CARCINOGENICITY - Category 2 |
| Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Repr. 2 | REPRODUCTIVE TOXICITY - Category 2 |
| Skin Irrit. 2 | SKIN CORROSION/IRRITATION - Category 2 |
| **Iron_2 R2 Reagent** | |
| Acute Tox. 4 | ACUTE TOXICITY - Category 4 |
| Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Skin Irrit. 2 | SKIN CORROSION/IRRITATION - Category 2 |

## SECTION 16: Other information

| | | |
|---|---|---|
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