PRODUCT SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifiers

Product Name:	**Iron Powder**
CAS-No.:	7439-89-6
EC No.:	231-096-4
Reach Registration Number	01-2119462838-24-xxxx

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

Relevant identified uses: Powder Metallurgy, Decorative Castings/Coatings, chemical reagent.

Uses advised against: None identified

1.3. Company/undertaking identification

Ronald Britton Ltd
Buckley Road
Rochdale, Lancs
OL12 9DT
United Kingdom

Tel: +44 (0)1706 717 321 & +44 (0)1706 717 336
Email: info@ronalbritton.co.uk
Web: www.ronaldbritton.co.uk

1.4. Emergency Contact Information

+44 (0)1706 717 336 (Office hours 0815 – 1600 GMT/BST - English)
E-mail info@ronalbritton.co.uk

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Not classified

2.2. Label elements

Labeling according to Regulation (EC) No 1272/2008 [CLP]

Pictogram: None

Signal word: None

Hazard statement(s) None

Precautionary statement(s) None

2.3. Other hazards

The substances does not meet the criteria for PBT or vPvB substances according to Regulation (EC) 1907/2006, annex XIII

Substance is not identified as having endocrine disrupting properties according to Regulation (EU) 2017/2100

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances:

Description of Material: Iron Powder

Chemical Composition:

Substance	EC No.	CAS No.	REACH Registration Number	Conc. (% w/w)	Hazard Class and Category	Specific concentration limit (SCL), M-Factor, Acute toxicity estimate (ATE)
Iron	231-096-4	7439-89-6	01-2119462838-24-xxxx	>97%	Not classified	Not applicable

3.2 Mixtures

Not applicable

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4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice: If exposed or concerned: Get medical advice/attention. Show this safety data sheet to the doctor in attendance.

Inhalation: Move exposed person to fresh air. Keep warm and at rest. Seek medical attention as soon as possible.

Skin contact: Wash with mild soap and water. Generally the product does not irritate the skin. Seek medical advice if irritation occurs/persists.

Eye Contact: Rinse opened eye for several minutes under running water. Also under the eyelids. If symptoms persist seek medical attention.

Ingestion: Wash mouth out with water, seek medical attention if symptoms occur.

4.2 Most Important Symptoms and effects, both acute and delayed

Symtoms: No information available

4.3 Indication of any immediate medical attention and special treatment needed

Treat Symptomatically

5. FIRE FIGHTING MEASURES

5.1 Suitable Extinguishing Media:
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Keep containers and surroundings cool with water spray. Confining and smothering metal fires is preferable rather than applying water. Use: Special powder for metal fires, Dry powder, dry chemical.

Extinguishing Media not suitable for safety reasons:
Do not use a solid water stream as it may scatter and spread fire. Do not use water foam or CO_2.

5.2 Special hazards arising from the substance or mixture:

Specific hazards arising from the substance or mixture:	Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Hazardous combustion products:	None known

5.3 Advice for firefighters:
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:	Wear protective equipment. Keep unprotected persons away. Avoid formation of dust Remove all sources of ignition.
Other information:	Refer to sections 8 and 13

6.2 Environmental precautions:
Should not be released into the environment. Do not allow product to reach ground water, water bodies or sewerage system.

6.3 Methods for cleaning up:
Sweep up and shovel. Avoid generation of dust. Contain spillage, and then collect and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections:
See also sections 8 and 13

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling:

Protective measures

Advice on safe handling
Avoid generation of dust. Ensure adequate ventilation. Avoid contact with skin and eyes. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Fine dust dispersed in air in sufficient concentrations in the presence of an ignition source is a potential explosion hazard. Provide appropriate exhaust ventilation at places where dust is formed. See also section 8.

General hygiene considerations
Close containers carefully after use
Do not eat, drink or smoke in areas where this material is handled, stored or processed.
Remove contaminated clothing and protective equipment before entering work areas
See also section 8.

7.2 Conditions for safe storage including any incompatibilities:
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep away from acids and strong oxidising agents. Keep away from open flames, hot surfaces and sources of ignition.

7.3 Specific end uses:
No information available.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters:

Occupational exposure limits

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

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

DNEL's

Derived No Effect Level (DNEL)								
Iron (7439-89-6)								
Exposure Route of Relevance	Long term, local effects workers	Long term, systemic effects workers	Short term, local effects workers	Short term, systemic effects workers	Long term, local effects consumer	Long term, systemic effects consumer	Short term, local effects consumer	Short term, systemic effects consumer
Human oral	-	-	-	-	-	0,71 mg/kg bw/day	-	-
Human inhalation	3 mg/m^3	-	-	-	1,5 mg/m^3	-	-	-

PNEC's
Not required

8.2 Exposure Controls:

8.2.1 Appropriate engineering controls

Ensure adequate ventilation. Local exhaust ventilation (LEV) must be sufficient to keep concentration below occupational exposure limit. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Ensure eye flushing stations are located close to the workplace.

8.2.2 Individual protection measures such as personal protective equipment

Eye/face protection:	Use eye protection according to EN 166, designed to protect against dusts.
Skin protection:	
Hand protection:	Wear butyl or nitrile gloves conforming to EN 374.
Body Protection:	Wear suitable coveralls to prevent exposure to the skin. Recommended: Safety shoes or boots - chemical resistant.
Respiratory protection:	Particulates filter conforming to EN 143.
Thermal hazards:	The product does not represent a thermal hazard, thus special consideration is not required.
General hygiene considerations:	Do not eat, smoke or drink when using this product. Wash hands and face before breaks and immediately after handling the product.
Environmental Exposure Controls:	Dust from exhaust ventilation should be separated out in order to avoid release to the natural environment. Do not allow into any sewer, onto the ground or into any body of water.

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9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Physical state:	solid (powder)
b)	Colour:	light grey
c)	Odour:	Odourless
d)	Melting point/freezing point:	1538°C @ 1013hPa
e)	Boiling point or initial boiling point and boiling range:	2861°C (solid that melts >300 °C)
f)	Flammability:	not flammable
g)	Lower and upper explosion limit:	not applicable
h)	Flash point:	not applicable
i)	Auto ignition temperature:	not applicable
j)	Decomposition temperature:	no data available
k)	pH:	no data available
l)	Kinematic viscosity:	no data available
m)	Solubility (water):	0.015 mg/l at 22°C

n)	Partition coefficient: n octanol/water:	not applicable – inorganic solid
o)	Vapour pressure:	not applicable – solid
p)	Density and/or relative density:	7.387 g/cm^3 at 20°C
q)	Relative vapour density:	not applicable – solid
r)	Particle characteristics:	Particle size 5-300 microns

9.2 Other Safety Information

VOC Content (%):	Not applicable
Bulk Density:	2.0 -3.0 g/cm^3
Fines fraction:	5-30% <45um
Dust explosion class:	St 1
Self-heating substances and mixtures:	No information available

10. STABILITY AND REACTIVITY

10.1 Reactivity
Stable under normal conditions

10.2 Chemical stability
Stable under normal handling and storage conditions

10.3 Possibility of hazardous reactions
None under normal processing conditions

10.4 Conditions to avoid
Avoid generating dust; fine dust in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

10.5 Incompatible materials
Strong oxidizing agents and strong acids

10.6 Hazardous decomposition products
The product will not decompose.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

General
The principal risk to human health presented by iron dust is related to the concentration of dust in the air acting as a nuisance dust. The higher the concentration of dust the greater the risk of irritation to the respiratory system and mechanical irritation to the eyes.

Acute toxicity - Ingestion
Not classified

Acute toxicity – Inhalation
Not classified. Dust may cause cough, shortness of breath and irritation of respiratory tract

Acute toxicity - Skin Contact
Not classified

Skin corrosion/irritation
Not irritating.

Serious eye damage/eye irritation
OECD 405: Not irritating. Dust contact with the eye can lead to mechanical irritation.

Respiratory or skin sensitization
Not sensitizing.

Germ cell mutagenicity
Ames test OECD 471 negative.

Carcinogenicity
Not classified according to the criteria of the Globally Harmonized System (GHS)

Reproductive toxicity
Testing of metallic iron for reproductive toxicity is not appropriate due to a lack of systemic exposure.

Developmental toxicity
No information available

Teratogenicity
No information available

Specific target organ toxicity - single exposure
Not classified according to the criteria of the Globally Harmonized System (GHS)

Specific target organ toxicity - repeated exposure
Not classified according to the criteria of the Globally Harmonized System (GHS)

Aspiration hazard
Not classified according to the criteria of the Globally Harmonized System (GHS)

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties
Substance is not identified as having endocrine disrupting properties with respect to humans

11.2.2 Other information

Subchronic toxicity: No information available

Neurological effects: No information available

Other adverse effects: No information available

Additional Information
LD50 Oral 7500 mg/kg bw (Rat)
LD50 Dermal -
LD50 Inhalation -

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12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity
Not classified as hazardous according to Regulation (EC) 1272/2008

Chemical Name	Algae/aquatic plants	Fish	Toxic to microorganisms	Crustacea
Iron	-	LC50 96h = 13.6mg/l (Morone saxatalis – static)	-	-

12.2 Persistence and degradability
Not applicable for inorganic substances

12.3 Bio-accumulative potential
Iron and its compounds are essential compounds. Iron is an essential trace element, well regulated in all living organisms. The available evidence shows the absence of iron biomagnification across the trophic chain both in the aquatic and terrestrial food chains. The existing information suggests not only that iron does not biomagnify, but rather that it tends to exhibit biodilution.

12.4 Mobility in soil
Iron and its compounds are found in the form of hydroxides in the environment. They are stabilized in the form of oxides in the long term.

12.5 Results of PBT and vPvB assessment
As iron is not bio-available, owing to its extreme insolubility in water, it is not systematically available or bio-accumulative, and hence it does not fulfill either of the PBT or vPvB criteria for classification.

12.6 Other adverse effects
Endocrine disruptor information: none known.

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13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: This product is not classified as hazardous waste according to directive 2008/98/EC and national or regional provisions. Remove in accordance with local official regulations.

Used packaging material: Containers may be recycled or re-used. Observe local/state/federal regulations.

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14. TRANSPORT INFORMATION:

Not classified as hazardous for transport

	ADR/RID	ADN	IMDG	IATA/ICAO
14.1 UN or ID number	Not regulated	Not applicable	Not regulated	Not applicable
14.2 UN Proper shipping name	Not applicable	Not applicable	Not applicable	Not applicable
14.3 Transport Hazard Class(es)	Not classified as hazardous for transport	Not classified as hazardous for transport	Not classified as hazardous for transport	Not classified as hazardous for transport
14.4 Packing group	Not applicable	Not applicable	Not applicable	Not applicable
14.5 Environmental Hazards	Not classified as hazardous	Not classified as hazardous	Not classified as hazardous	Not classified as hazardous
14.6 Special Precautions for user	None applicable			
14.7 Transport in Bulk according to Annex II of Marpol73/78 and the IBC code	Not applicable	Not applicable	No information available	Not applicable

14.8 Additional Information	Not applicable

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006 including the amendment regulation 2020/878.

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

No data available

15.1.1 EU Regulations

EC Regulation (EC) No. 1907/2006 (REACH):

Annex XIV - List of substances subject to authorization:	None of the components are listed.
Substances of very high concern (SVHC's):	None of the components are listed
Annex XVII – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not applicable
Authorisations:	Not required

Other EU regulations

VOC content:	Not applicable
Ozone depleting substances (1005/2009/EU):	Not listed
Prior Informed Consent (PIC) (649/2012/EU):	Not listed
Persistent Organic Pollutants 2012/18/EU:	Not applicable (inorganic)
Seveso Directive:	This product is not controlled under the Seveso Directive

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.
Take note of Directive 94/33/EC on the protection of young people at work.
Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work.
Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this product

International Inventories

All of the components in the product are on the following Inventory lists:

TSCA	Complies
EINECS/ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS	Complies
KECL	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
AICS - Australian Inventory of Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances

16. OTHER INFORMATION

Products covered by this data sheet include:

Iron Powder - 100#

Iron Powder - 300#

Atomised Iron Powder -300#

Iron Powder Electrolytic -325#

(This list is not exhaustive)

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Revision Number	:	4c (registered address amended)
Safety Data Sheet N^{O}.	:	RB24

Key or legend to abbreviations and acronyms used in the safety data sheet

EC50 (- UVA): median effective concentration
LC50: Median lethal concentration
LD50: Median lethal dose
NOEC: No Observable Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
PNEC: Predicted No Effect Concentration (PNEC)
STEL: Short-Term Exposure Limit
TWA: time weighted average
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals
NGV: Level threshold
SVHC: Substances of Very High Concern for Authorisation:
Ceiling: Maximum limit value

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

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