

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 25-Sep-2009

Revision Date 24-Jan-2024

Revision Number 5

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

1.1. Product identifier

| Product Description: | Iron(III) sulfate hydrate |
|---------------------------|---------------------------|
| Cat No. : | 33316 |
| CAS No | 15244-10-7 |
| Molecular Formula | Fe2 O12 S3 . x H2 O |
| REACH registration number | - |

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

| Recommended Use | Laboratory chemicals. |
|--------------------------------|---|
| Sector of use | SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites |
| Product category | PC21 - Laboratory chemicals |
| Process categories | PROC15 - Use as a laboratory reagent |
| Environmental release category | ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates) |
| Uses advised against | No Information available |

1.3. Details of the supplier of the safety data sheet

Company

Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information US call: 001-800-227-6701 / 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 - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

Iron(III) sulfate hydrate

Health hazards

Acute oral toxicity Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16





Signal Word

Danger

Hazard Statements

H302 - Harmful if swallowed

H315 - Causes skin irritation

H318 - Causes serious eye damage

Precautionary Statements

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P332 + P313 - If skin irritation occurs: Get medical advice/attention

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

P280 - Wear protective gloves/protective clothing/eye protection/face protection

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

| Component | CAS No | EC No | Weight % | CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567 |
|---|------------|-------------------|----------|---|
| Sulfuric acid, iron(3+) salt (3:2), hydrate | 15244-10-7 | | > 97 | Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) |
| Sulfuric acid | 7664-93-9 | 231-639-5 | 1 - 3 | Skin Corr. 1A (H314) Eye Dam. 1 (H318) |
| Ferric sulfate | 10028-22-5 | EEC No. 233-072-9 | - | Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) |

| Component | Specific concentration limits | M-Factor | Component notes |
|-----------|-------------------------------|----------|-----------------|
| | | | |

Category 4 (H302) Category 2 (H315) Category 1 (H318)

Iron(III) sulfate hydrate

| | (SCL's) | | |
|---------------|----------------------------|---|---|
| Sulfuric acid | Skin Corr. 1A :: C>=15% | - | - |
| | Eye Irrit. 2 :: 5%<=C<15% | | |
| | Skin Irrit. 2 :: 5%<=C<15% | | |

| REACH registration number | - |
|---------------------------|---|

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| General Advice | If symptoms persist, call a physician. |
|------------------------------------|---|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur. |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| Self-Protection of the First Aider | No special precautions required. |
| 4.2. Most important symptoms and | effects, both acute and delayed |
| | Causes eye burns. Causes severe eye damage. |

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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant 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

Sulfur oxides.

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

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

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/face protection. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510 Class 13 Storage Class (LGK) (Germany)

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

| Component | The United Kingdom | European Union | Ireland |
|---|-------------------------------------|----------------------------------|-----------------------|
| Sulfuric acid, iron(3+) salt (3:2), hydrate | STEL: 2 mg/m ³ 15 min | | |
| | TWA: 1 mg/m ³ 8 hr | | |
| Sulfuric acid | STEL: 0.15 mg/m ³ 15 min | TWA: 0.05 mg/m ³ (8h) | TWA: 0.05 ppm 8 hr. |
| | TWA: 0.05 mg/m ³ 8 hr | | STEL: 0.15 ppm 15 min |
| Ferric sulfate | STEL: 2 mg/m ³ 15 min | | |
| | TWA: 1 mg/m ³ 8 hr | | |

Biological limit values

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

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|------------------------------------|---------------------------------|------------------------------------|-----------------------------------|---------------------------------------|
| Ferric sulfate 10028-22-5 (-) | | | | 2 mg/kg (ECHA AF Method) |
| | | | | 10 mg/kg (ECETOC AF method) |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|-----------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|
| Sulfuric acid 7664-93-9(1 - 3) | DNEL = 0.1mg/m ³ | | $DNEL = 0.05 mg/m^3$ | |

Predicted No Effect Concentration (PNEC)

See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | | , |
|-----------------|-------------|----------------------|--------------------|------------------|---|
| | | Sediment | | sewage treatment | |
| Sulfuric acid | PNEC = | PNEC = | | PNEC = 8.8mg/L | |
| 7664-93-9 (1-3) | 0.0025mg/L | 0.002mg/kg | | | |
| | | sediment dw | | | |

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|-----------------|--------------|--------------------------|------------------------------|------------|-----|
| Sulfuric acid | PNEC = | PNEC = | | | |
| 7664-93-9 (1-3) | 0.00025mg/L | 0.002mg/kg | | | |
| | | sediment dw | | | |

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.

| rsonal protective equi Eye Protection | | (European standard | 1 - EN 166) | |
|---|------------------------------------|---------------------------|-----------------------|---|
| Hand Protection | Protective gloves | | | |
| Glove material Natural rubber Nitrile rubber Neoprene PVC Butyl rubber | Breakthrough time > 480 minutes | Glove thickness 0.6 mm | EU standard EN 374 | Glove comments (minimum requirement) |

Skin and body protection

ction Long sleeved clothing.

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 compatability, 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.

Iron(III) sulfate hydrate

Remove gloves with care avoiding skin contamination.

| Respiratory Protection | When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. |
|----------------------------|--|
| 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: Particle filter Particulates filter conforming to EN 143 |
| Small scale/Laboratory use | Maintain adequate ventilation 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 |

Environmental exposure controls Clean contaminated objects and areas thoroughly observing environmental regulations.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| Physical State | Solid | |
|--|--|-----------------------------------|
| Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits | Beige Odorless No data available No data available No data available No information available Not applicable Not flammable No data available | Solid |
| Flash Point Autoignition Temperature Decomposition Temperature pH | Not applicable No data available 480 °C Strongly acidic | Method - No information available |
| Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wat | Not applicable Soluble in water No information available | Solid |
| Vapor Pressure Density / Specific Gravity | No data available | |
| Bulk Density Vapor Density Particle characteristics | ~480 kg/m³ Not applicable No data available | Solid |
| 9.2. Other information | | |
| Molecular Formula Molecular Weight Evaporation Rate | Fe2 O12 S3 . x H2 O 399.88 Not applicable - Solid | |

SECTION 10: STABILITY AND REACTIVITY

Iron(III) sulfate hydrate

| 10.2. Chemical stability | Stable under normal conditions. |
|---|---|
| 10.3. Possibility of hazardous react | ions |
| Hazardous Polymerization Hazardous Reactions | Hazardous polymerization does not occur. None under normal processing. |
| 10.4. Conditions to avoid | Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water. |
| 10.5. Incompatible materials | Strong oxidizing agents. |

10.6. Hazardous decomposition products

Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

| (a) acute toxicity; | |
|---------------------|-------------------|
| Oral | Category 4 |
| Dermal | Based on availabl |
| Inhalation | Based on availabl |

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

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|----------------|------------------------|-------------|----------------------------|
| Sulfuric acid | 2140 mg/kg (Rat) | - | LC50 = 0.375 mg/L (Rat)4 h |
| Ferric sulfate | 500-2000 mg/kg (Rat) | - | - |

| Category 2 |
|------------|
| |

| (c) serious eye damage/irritation; | Category 1 |
|------------------------------------|------------|
|------------------------------------|------------|

| (d) respiratory or skin sensitization; Respiratory Skin | Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met |
|---|--|
| (e) germ cell mutagenicity; | Based on available data, the classification criteria are not met |

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | EU | UK | Germany | IARC | |
|-----------------------------|------------------|--|----------------------|---------|--|
| Sulfuric acid | | | | Group 1 | |
| | | | | | |
| (g) reproductive toxicity; | Based on availab | le data, the classification | criteria are not met | | |
| (g) reproductive toxicity, | Dased on availab | | chiena are not met | | |
| | | | | | |
| (h) STOT-single exposure; | Based on availab | Based on available data, the classification criteria are not met | | | |
| | | | | | |
| | | | | | |
| (i) STOT-repeated exposure; | Based on availab | le data, the classification | criteria are not met | | |
| T | Name Income | | | | |
| Target Organs | None known. | | | | |

Based on available data, the classification criteria are not met

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(j) aspiration hazard;

Solid

Not applicable

Symptoms / effects,both acute and No information available. delayed

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Do not empty into drains. .

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|---------------|---|-------------------|------------------|
| Sulfuric acid | LC50: > 500 mg/L, 96h static (Brachydanio rerio) | EC50: 29 mg/L/24h | - |

| Component | Microtox | M-Factor |
|---------------|----------|----------|
| Sulfuric acid | - | |

| 12.2. Persistence and degradability Persistence Degradability | Soluble in water, Persistence is unlikely, based on information available. Not relevant for inorganic substances. |
|--|--|
| 12.3. Bioaccumulative potential | Bioaccumulation is unlikely |
| <u>12.4. Mobility in soil</u> | 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 |
| <u>12.5. Results of PBT and vPvB</u> assessment | No data available for assessment. |
| <u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information | This product does not contain any known or suspected endocrine disruptors |

<u>12.7. Other adverse effects</u> Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected substance 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 Catalog, 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 flush to sewer.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

| <u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u> | UN3260 Corrosive solid, acidic, inorganic, n.o.s. Iron (III) Sulfate 8 III |
|--|--|
| ADR | |
| <u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u> | UN3260 Corrosive solid, acidic, inorganic, n.o.s. Iron (III) Sulfate 8 III |
| IATA | |
| <u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u> | UN3260 Corrosive solid, acidic, inorganic, n.o.s. Iron (III) Sulfate 8 III |
| 14.5. Environmental hazards | No hazards identified |
| 14.6. Special precautions for user | No special precautions required. |
| 14.7. Maritime transport in bulk according to IMO instruments | Not applicable, packaged goods |

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|-------------------------------------|------------|-----------|--------|-----|-------|------|----------|------|------|
| Sulfuric acid, iron(3+) salt (3:2), | 15244-10-7 | - | - | - | Х | Х | - | - | - |
| hydrate | | | | | | | | | |
| Sulfuric acid | 7664-93-9 | 231-639-5 | - | - | Х | Х | KE-32570 | Х | Х |
| Ferric sulfate | 10028-22-5 | 233-072-9 | - | - | Х | Х | KE-10900 | Х | Х |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|--|------------|------|---|-----|------|------|-------|-------|
| Sulfuric acid, iron(3+) salt (3:2), hydrate | 15244-10-7 | - | - | - | - | Х | Х | - |
| Sulfuric acid | 7664-93-9 | Х | ACTIVE | Х | - | Х | Х | Х |

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| Ferric sulfate | 10028-22-5 | Х | ACTIVE | Х | - | Х | Х | Х |
|----------------|------------|---|--------|---|---|---|---|---|

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|--|------------|---|--|---|
| Sulfuric acid, iron(3+) salt (3:2), hydrate | 15244-10-7 | - | - | - |
| Sulfuric acid | 7664-93-9 | - | Use restricted. See item 75. (see link for restriction details) | - |
| Ferric sulfate | 10028-22-5 | - | - | - |

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|------------------------------|------------|---|--|
| Sulfuric acid, iron(3+) salt | 15244-10-7 | Not applicable | Not applicable |
| (3:2), hydrate | | | |
| Sulfuric acid | 7664-93-9 | Not applicable | Not applicable |
| Ferric sulfate | 10028-22-5 | Not applicable | Not applicable |

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

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 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|----------------|---------------------------------------|-------------------------|
| Sulfuric acid | WGK1 | |
| Ferric sulfate | WGK1 | |

| Component | Switzerland - Ordinance on the | Switzerland - Ordinance on | Switzerland - Ordinance of the |
|-----------|--------------------------------|-----------------------------|--------------------------------|
| | Reduction of Risk from | Incentive Taxes on Volatile | Rotterdam Convention on the |
| | handling of hazardous | Organic Compounds (OVOC) | Prior Informed Consent |
| | substances preparation (SR | • • | Procedure |

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| | 814.81) | |
|----------------|---------------------------|--|
| Sulfuric acid | Prohibited and Restricted | |
| 7664-93-9(1-3) | Substances | |

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed

H315 - Causes skin irritation

H318 - Causes serious eye damage

H314 - Causes severe skin burns and 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 | TSCA - United States Toxic Substances Control Act Section 8(b) Inventory al 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 |
|---|--|
| 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 | TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50% EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative |
| 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 | ICAO/IATA - International Civil Aviation Organization/International Air Transport Association MARPOL - International Convention for the Prevention of Pollution from Ships ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound) |

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

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.

| Prepared By | Health, Safety and Environmental Department |
|------------------|--|
| Creation Date | 25-Sep-2009 |
| Revision Date | 24-Jan-2024 |
| Revision Summary | New emergency telephone response service provider. |

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in 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 guidance for safe handling, use, processing, storage,

transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text

End of Safety Data Sheet