



SAFETY DATA SHEET

Zirconium(IV) hydrogenphosphate

According to the REACH etc. (Amendment etc.) (EU Exit) Regulations 2020 No. 1577, as amended.

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

1.1. Product identifier

| | |
|--------------|---------------------------------|
| Product name | Zirconium(IV) hydrogenphosphate |
| CAS number | 13772-29-7 |
| EC number | 237-401-7 |

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

| | |
|----------------------|--|
| Identified uses | For research purposes only. |
| Uses advised against | Not suitable for human consumption or veterinary purposes. |

1.3. Details of the supplier of the safety data sheet

| | |
|----------|---|
| Supplier | Molekula Ltd. Lingfield Way, Darlington, DL1 4XX, United Kingdom +44 (0) 3302000333 info@molekula.com |
|----------|---|

1.4. Emergency telephone number

+44 (0) 7769276927

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (SI 2019 No. 720)

| | |
|-----------------------|---------------------|
| Physical hazards | Not Classified |
| Health hazards | Skin Sens. 1 - H317 |
| Environmental hazards | Not Classified |

2.2. Label elements

| | |
|-----------|-----------|
| EC number | 237-401-7 |
|-----------|-----------|

Hazard pictograms



| | |
|-------------------|---|
| Signal word | Warning |
| Hazard statements | H317 May cause an allergic skin reaction. |

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|---------------------------------|--|
| Precautionary statements | P261 Avoid breathing dust. |
| | P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| | P302+P352 IF ON SKIN: Wash with plenty of water. |
| | P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. |
| | P362+P364 Take off contaminated clothing and wash it before reuse. |
| | P501 Dispose of contents/ container in accordance with national regulations. |

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current UK criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

| | |
|------------------|---|
| Product name | Zirconium(IV) hydrogenphosphate |
| CAS number | 13772-29-7 |
| EC number | 237-401-7 |
| Chemical formula | H ₂ O ₈ P ₂ Zr |

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|----------------------------|---|
| General information | Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel. |
| Inhalation | Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist. |
| Ingestion | Rinse mouth thoroughly with water. Get medical advice/attention if you feel unwell. Do not induce vomiting unless under the direction of medical personnel. |
| Skin contact | It is important to remove the substance from the skin immediately. In the event of any sensitisation symptoms developing, ensure further exposure is avoided. Remove contamination with soap and water or recognised skin cleansing agent. Get medical attention if symptoms are severe or persist after washing. |
| Eye contact | Remove any contact lenses and open eyelids wide apart. Rinse with water. Get medical attention if any discomfort continues. |
| Protection of first aiders | First aid personnel should wear appropriate protective equipment during any rescue. |

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

| | |
|---------------------|---|
| General information | The severity of the symptoms described will vary dependent on the concentration and the length of exposure. |
| Inhalation | A single exposure may cause the following adverse effects: Temporary irritation. |
| Ingestion | May cause sensitisation or allergic reactions in sensitive individuals. |
| Skin contact | May cause skin sensitisation or allergic reactions in sensitive individuals. Prolonged contact may cause dryness of the skin. |
| Eye contact | May be slightly irritating to eyes. |

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

| | |
|----------------------|--|
| Notes for the doctor | Treat symptomatically. May cause sensitisation or allergic reactions in sensitive individuals. |
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SECTION 5: Firefighting measures

Zirconium(IV) hydrogenphosphate

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards None known.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances:
Harmful gases or vapours.
Oxides of phosphorus.
Zirconium oxides

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

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Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions

Store away from incompatible materials (see Section 10). Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Storage class

Chemical storage.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

STEL:

TWA:

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection

It is recommended that chemical-resistant, impervious gloves are worn. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, wear gloves that are proven to be impervious to the chemical and resist degradation. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection

May cause skin sensitisation or allergic reactions in sensitive individuals. Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection

Ensure all respiratory protective equipment is suitable for its intended use and is 'UKCA'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges suitable for intended use should be used. Full face mask respirators with replaceable filter cartridges suitable for intended use should be used. Half mask and quarter mask respirators with replaceable filter cartridges suitable for intended use should be used.

Environmental exposure controls

Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

Zirconium(IV) hydrogenphosphate

9.1. Information on basic physical and chemical properties

| | |
|--|---------------------------|
| Appearance | Powder. |
| Colour | White. |
| Odour | Not known. |
| Odour threshold | No information available. |
| pH | No information available. |
| Melting point | No information available. |
| Initial boiling point and range | No information available. |
| Flash point | No information available. |
| Evaporation rate | No information available. |
| Flammability (solid, gas) | No information available. |
| Upper/lower flammability or explosive limits | No information available. |
| Vapour pressure | No information available. |
| Vapour density | No information available. |
| Relative density | 3.3 g/ml @ 25°C/77°F |
| Solubility(ies) | No information available. |
| Partition coefficient | No information available. |
| Auto-ignition temperature | No information available. |
| Decomposition Temperature | No information available. |

9.2. Other information

| | |
|------------------|--------|
| Molecular weight | 283.18 |
|------------------|--------|

SECTION 10: Stability and reactivity

10.1. Reactivity

| | |
|------------|--|
| Reactivity | See the other subsections of this section for further details. |
|------------|--|

10.2. Chemical stability

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|-----------|---|
| Stability | Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions. |
|-----------|---|

10.3. Possibility of hazardous reactions

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|------------------------------------|--|
| Possibility of hazardous reactions | Violent reactions possible with: Strong oxidising agents. |
|------------------------------------|--|

10.4. Conditions to avoid

| | |
|---------------------|---|
| Conditions to avoid | There are no known conditions that are likely to result in a hazardous situation. |
|---------------------|---|

10.5. Incompatible materials

| | |
|--------------------|--------------------------|
| Materials to avoid | Strong oxidising agents. |
|--------------------|--------------------------|

10.6. Hazardous decomposition products

Zirconium(IV) hydrogenphosphate

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|---|--|
| Hazardous decomposition products | Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours. Zirconium oxides |
|---|--|

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

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

Acute toxicity - dermal

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

Acute toxicity - inhalation

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

Skin corrosion/irritation

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

Serious eye damage/irritation

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

Respiratory sensitisation

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

Skin sensitisation

Summary May cause an allergic skin reaction.

Germ cell mutagenicity

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

Carcinogenicity

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

IARC carcinogenicity

None of the ingredients are listed or exempt.

Reproductive toxicity

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

Specific target organ toxicity - single exposure

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

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

Summary Not relevant. Solid.

General information

The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation

A single exposure may cause the following adverse effects: Temporary irritation.

Ingestion

May cause sensitisation or allergic reactions in sensitive individuals.

Skin contact

May cause skin sensitisation or allergic reactions in sensitive individuals. Prolonged contact may cause dryness of the skin.

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| | |
|-------------------------------|--|
| Eye contact | May be slightly irritating to eyes. |
| Route of exposure | Ingestion Inhalation Skin and/or eye contact |
| Target organs | No specific target organs known. |
| Medical considerations | Skin disorders and allergies. |

SECTION 12: Ecological information

| | |
|--------------------|---|
| Ecotoxicity | Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment. |
|--------------------|---|

12.1. Toxicity

Acute aquatic toxicity

| | |
|----------------|--|
| Summary | Based on available data the classification criteria are not met. |
|----------------|--|

Chronic aquatic toxicity

| | |
|----------------|--|
| Summary | Based on available data the classification criteria are not met. |
|----------------|--|

12.2. Persistence and degradability

| | |
|--------------------------------------|--|
| Persistence and degradability | The degradability of the product is not known. |
|--------------------------------------|--|

12.3. Bioaccumulative potential

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|----------------------------------|---------------------------------------|
| Bioaccumulative potential | No data available on bioaccumulation. |
|----------------------------------|---------------------------------------|

| | |
|------------------------------|---------------------------|
| Partition coefficient | No information available. |
|------------------------------|---------------------------|

12.4. Mobility in soil

| | |
|-----------------|--------------------|
| Mobility | No data available. |
|-----------------|--------------------|

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

| | |
|------------------------------|-------------|
| Other adverse effects | None known. |
|------------------------------|-------------|

SECTION 13: Disposal considerations

13.1. Waste treatment methods

| | |
|----------------------------|--|
| General information | The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous. |
| Disposal methods | Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible. |

SECTION 14: Transport information

| | |
|----------------|--|
| General | The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID). |
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14.1. UN number

Not applicable.

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14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

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

National regulations

Health and Safety at Work etc. Act 1974 (as amended).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment
Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].
EH40/2005 Workplace exposure limits.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
IATA: International Air Transport Association.
ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
CAS: Chemical Abstracts Service.
ATE: Acute Toxicity Estimate.
LC50: Lethal Concentration to 50 % of a test population.
LD50: Lethal Dose to 50% of a test population (Median Lethal Dose).
EC₅₀: 50% of maximal Effective Concentration.
PBT: Persistent, Bioaccumulative and Toxic substance.
vPvB: Very Persistent and Very Bioaccumulative.

Zirconium(IV) hydrogenphosphate

| | |
|---|--|
| Classification abbreviations and acronyms | Skin Sens. = Skin sensitisation |
| Classification procedures according to SI 2019 No. 720 | Skin Sens. 1 - H317: : Expert judgement. |
| Training advice | Only trained personnel should use this material. |
| Revision date | 14/04/2023 |
| Revision | 1 |
| SDS number | 2232 |
| Hazard statements in full | H317 May cause an allergic skin reaction. |

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.