

SAFETY DATA SHEET



Promethean Particles®

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Section 1: Identification of the Substance and of the Company

1.1 Product Identifiers

Product Name: ProMOF® 1100 Powder

AlFu, Metal-Organic Framework

CAS Number: 1370461-06-5

1.2 Relevant Identified Use of the Substance or Mixture and Uses Advised Against

Identified Use: Use in industrial applications and for research and development.

Uses advised against: Non-professional user, non-industrial applications.

1.3 Details of the Supplier of the Safety Data Sheet

Company: Promethean Particles Ltd

Address: Units 1-3 Genesis Park, Midland Way, Nottingham, NG7 3EF, United Kingdom.

Website: www.prometheanparticles.co.uk

Emergency Telephone Number: +44 (0) 115 9678119

Section 2: Hazard Identification

2.1 Classification of the Substance or Mixture

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

Eye Irritation (Category 2), H319

2.2 Label Elements

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

<i>Pictogram(s)</i>	
<i>Signal Word</i>	WARNING
<i>Hazard Statement(s)</i>	H319 Cause serious eye irritation
<i>Precautionary Statement(s)</i>	P261 Avoid breathing dust/fumes/gas/mist/vapours/spray.

	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
<i>Supplemental Hazard Statement(s)</i>	None

2.3 Other Hazards

Due to the stability of the MOF, assume persistent in the environment. None of the components are considered to be, PMT, vPvB or vPvM. Not known to have endocrine system toxicity.

Section 3: Composition / Information on Ingredients

3.1 Substance

Synonyms: AlFu or AlFum
Aluminium Fumarate
[(2E)-2-Butenedioato(2-)-κO¹]hydroxyaluminum

Product Name	% by Weight	Classification	CAS No.	EC No.
ProMOF® 1100 Powder	100	Eye Irritation (Cat 2), H319	1370461-06-5	810-213-8

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16.

3.2 Mixtures

Not applicable. Material is a substance.

Section 4: First Aid Measures

4.1 Description of First Aid Measures

<i>General Advice</i>	First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.
<i>Eye Contact</i>	Flush eyes with water for at least 15 minutes. Remove contact lenses. Consult a physician.
<i>Skin Contact</i>	Take off contaminated clothing and shoes immediately. Wash skin with soap and copious amounts of water. Consult a physician.
<i>Inhalation</i>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<i>Ingestion</i>	Do NOT induce vomiting. Wash out mouth with water and drink up to 200 mL of water, provided person is conscious. Consult a physician.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Based on available data, causes serious eye irritation.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available. Symptomatic treatment as required.

Section 5: Fire Fighting Measures

5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2 Special Hazards Arising from the Substance

Aluminium Oxides.

5.3 Advise for Firefighters

Wear a self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use proper personal protective equipment as described in Section 8. Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist, or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containing and Cleaning Up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed container for disposal (see Section 13).

6.4 Reference to Other Sections

For disposal see Section 13.

Section 7: Handling & Storage

7.1 Precautions for Safe Handling

Use good hygienic work practices and wash hands thoroughly after use. Avoid contact with eyes, skin, and clothing. Avoid formation of dust and aerosols. Avoid exposure – obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Store in a cool, dry place. Store in a tightly closed container, keep upright, and well-ventilated place.

7.3 Specific End Use(s)

Use for R&D or in industrial applications.

Section 8: Exposure Controls / Personal Protection

8.1 Control Parameters

No data available for this product.

8.2 Exposure Controls

Engineering Controls: Safety shower and eye bath.

General Hygiene Measures: Wash thoroughly after handling.

Personal Protective Equipment:

<i>Eye Protection</i>	Wear appropriate chemical safety goggles tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).
<i>Clothing</i>	Wear appropriate protective clothing, like coveralls, to minimise contact with skin.
<i>Gloves</i>	Wear chemical protective gloves suitable for solid material (nitrile gloves), to prevent skin exposure. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
<i>Respirator</i>	Use a NIOSH/MSHA or European Standard EN 149 approved respirator.

Section 9: Physical & Chemical Properties

9.1 Information on Basic and Chemical Properties

<i>a) Physical State</i>	Powder.
<i>b) Colour</i>	White – Off white.
<i>c) Odour</i>	Odourless.
<i>d) MP/MP Range</i>	Decomposes without melting, 400°C - 500°C.
<i>e) BP/BP Range</i>	Not applicable.
<i>f) Flammability</i>	Not applicable.
<i>g) Lower and Upper Explosion Limit</i>	No data available.
<i>h) Flash Point</i>	Not applicable.
<i>i) Auto-Ignition Temperature</i>	Not applicable.

<i>j) Decomposition Temperature</i>	400°C - 500°C.
<i>k) pH</i>	Not applicable.
<i>l) Kinematic Viscosity</i>	Not applicable.
<i>m) Solubility in Water</i>	Insoluble in water.
<i>n) Partition Coefficient n-octanol/ water (log value)</i>	No data available.
<i>o) Vapour Pressure</i>	Not applicable.
<i>p) Density</i>	Bulk density, 0.45 g/cm ³
<i>q) Relative Vapour Density</i>	Not applicable.
<i>r) Particle Characteristics</i>	Solid.

9.2 Other Information

No other information to add.

Section 10: Stability and Reactivity

10.1 Reactivity

No data available. Not considered to be dangerously reactive.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No specific conditions to avoid. Product isn't flammable, oxidising, or explosive.

10.5 Incompatible Materials

No data available.

10.6 Hazardous Decomposition Products

No data available.

Section 11: Toxicological Information

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

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated. The product has not been tested. Judgements on the expected toxicity of this product have been made based upon considerations of its major components.

- (a) Acute toxicity: No test data available, not believed to be toxic.
- (b) Skin corrosion/irritation: Based on available data, not believed to be corrosive, may cause irritation.
- (c) Serious eye damage/irritation: Based on available data, may cause eye irritation.
- (d) Respiratory/skin sensitisation: No test data available, not believed to cause respiratory issues or skin sensitisation.
- (e) Germ cell mutagenicity: No test data available, not believed to be mutagenic.
- (f) Carcinogenicity: No test data available, not believed to be carcinogenic.
- (g) Reproductive toxicity: No test data available, not believed to be toxic to the reproductive system
- (h) STOT-single exposure: No test data available, not believed to be toxic to specific organs.
- (i) STOT-repeated exposure: No test data available, not believed to be toxic to specific organs.
- (j) Aspiration hazard: No test data available, not believed to be an aspiration hazard.

11.2 Information on Other Hazards

No other health hazards identified.

Section 12: Ecological Information

12.1 Toxicity

Not tested. In view of stability, may be toxic within the environment.

12.2 Persistence and Degradability

Not tested. In view of stability, may be persistent within the environment.

12.3 Bioaccumulative Potential

Not tested.

12.4 Mobility in Soil

Not tested. In view of insolubility in water. Product expected to be immobile in soil.

12.5 Results of PBT and vPvB Assessment

Not tested.

12.6 Endocrine Disrupting Properties

Not tested.

12.7 Other Adverse Effects

No data available.

12.8 Additional Information

No data available.

Section 13: Disposal Considerations

13.1 Waste Treatment Methods

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. Dispose of contaminated packaging as unused product.

Section 14 - Transport Information

Non Dangerous Goods

	ADR	IMDG	IATA
<i>14.1 UN Number or ID Number</i>	N/A	N/A	N/A
<i>14.2 UN Proper Shipping Name</i>	N/A		
<i>14.3 Transport Hazard Class(es)</i>	N/A	N/A	N/A
<i>14.4 Packing Group</i>	N/A	N/A	N/A
<i>14.5 Environmental Hazards</i>	N/A	N/A	N/A
<i>14.6 Special Precautions for User</i>	N/A	N/A	N/A
<i>14.7 Maritime Transport in Bulk According to IMO Instruments</i>	N/A	N/A	N/A

Section 15 - Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

Caution: Substance not yet fully tested. Observe the normal safety regulations when handling chemicals.

15.2 Chemical Safety Assessment

Caution: Substance not yet fully tested. Observe the normal safety regulations when handling chemicals. A Chemical Safety Assessment has not been carried out for this product.

Section 16 - Other Information

Text of H-code(s) and R-phrase(s) in Section 2.

Eye Irritation (Category 2), H319

Method used for classification: Component/ingredient-based approach.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Promethean Particles shall not be held liable for any damage resulting from handling or from contact with the above product.

Disclaimer

For R&D use only. Not for drug, household, or other uses.