

Material Safety Data Sheet (MSDS)

Aluminium Powder (Flake / Atomized)

Chemical Name: Aluminium (Al) | CAS No. 7429-90-5

1. Identification of the Substance and Supplier

Product Name	Aluminium Powder (Special Grade Flake / Atomized Spherical)
Chemical Formula	Al
CAS No.	7429-90-5
Synonyms	Aluminium powder, aluminum powder, flake aluminium powder, atomized aluminium powder
Product Use	Agriculture, pyrotechnics, pigments, metallurgy, foundry, 3D printing, coatings
Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
Contact	projects@ochnology.com bd@ochnology.com

2. Hazards Identification

GHS Classification: Flam. Sol. 1 (H228); Water-react. 2 (H261 – in contact with water releases flammable gas). Fine dust may form explosive dust clouds. Signal word: DANGER.

- Flammable solid (H228) – fine powder ignites readily
- In contact with water releases flammable hydrogen gas (H261)
- Fine aluminium dust can form an explosive dust cloud (dust-explosion hazard)
- Dust may cause mechanical irritation to eyes and respiratory tract
- Reacts dangerously with acids, alkalis, and oxidisers

3. Composition / Information on Ingredients

Component	CAS No.	Concentration
Aluminium (Al)	7429-90-5	>99%
Surface oxide (Al ₂ O ₃) / coating	1344-28-1	Minor (passivating layer)
Lubricant (flake grades, e.g. stearin)	Various	Trace (grade dependent)

4. First-Aid Measures

Inhalation: Move to fresh air. Seek medical attention if respiratory irritation persists.

Skin Contact: Brush off powder; wash with water. For any burns from ignited powder, seek immediate medical attention.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses if present. Seek medical attention if irritation persists.

Ingestion: Rinse mouth with water. Seek medical attention if discomfort occurs.

5. Fire-Fighting Measures

- Use DRY extinguishing media: dry sand, dry powder (Class D), or graphite – NEVER water
- Water, foam, CO₂, and halogenated agents are unsuitable / dangerous on burning aluminium
- Burning aluminium reacts with water to release explosive hydrogen
- Wear full protective equipment and self-contained breathing apparatus (SCBA)

6. Accidental Release Measures

- Eliminate all ignition sources; do NOT use water
- Avoid creating dust clouds; collect gently with non-sparking tools into dry containers
- Keep collected material dry and away from water, acids, and oxidisers
- Wear full PPE; ground equipment to prevent static discharge

7. Handling and Storage

- Keep strictly DRY – contact with water / moisture releases flammable hydrogen
- Keep away from heat, sparks, open flame, oxidisers, acids, and alkalis
- Avoid dust generation and dust clouds; use earthed, non-sparking equipment
- Store in sealed containers in a cool, dry, well-ventilated area; full PPE

8. Exposure Controls / Personal Protection

- Aluminium metal / powder (as Al, respirable): 1 mg/m³ (8-hr TWA) – typical reference value
- Aluminium (total dust): 5 – 10 mg/m³ – typical reference value
- Provide local exhaust ventilation with explosion-protected, earthed equipment
- Respiratory protection (N95/P2), goggles, gloves, anti-static / flame-resistant clothing

9. Physical and Chemical Properties

Property	Value
Appearance	Silvery-grey fine powder (flake or spherical)
Odour	Odourless
pH	Not applicable
Melting Point	Approx. 660°C
Flammability	Flammable solid; explosive as a dust cloud
Solubility in Water	Insoluble but reacts, releasing hydrogen

10. Stability and Reactivity

- Stable when kept dry, sealed, and away from ignition sources
- Reacts with water / moisture, acids, and alkalis to release flammable hydrogen
- Reacts violently with strong oxidisers (thermite-type reactions possible)
- Fine dust is subject to dust-explosion hazard

11. Toxicological Information

- Low chronic systemic toxicity; the primary hazards are physical (fire / explosion)
- Dust may cause mechanical irritation to eyes and respiratory tract
- Prolonged heavy inhalation of fine dust may affect the lungs
- Not classified as carcinogenic under normal use

12. Ecological Information

- Aluminium metal is not classified as significantly hazardous to the environment
- Avoid release of large quantities; fines may react in water releasing hydrogen
- Prevent uncontrolled release into watercourses
- Recover and recycle metal where possible

13. Disposal Considerations

- Dispose of in accordance with local, state, and national regulations
- Do not dispose of with water or acidic / oxidising wastes (gas / fire risk)
- Use a licensed contractor for reactive-metal waste where required; recycle where possible

14. Transport Information

UN Number	UN1396 (Aluminium powder, uncoated) / UN1309 (coated) – verify by grade
Proper Shipping Name	ALUMINIUM POWDER, UNCOATED / COATED
Hazard Class	4.3 (uncoated, water-reactive) / 4.1 (coated, flammable solid)
Packing Group	II / III (grade dependent)
Remarks	Regulated dangerous goods – confirm UN number, class, and PG for the specific grade before shipping

15. Regulatory Information

- Classified as flammable solid and (uncoated) water-reactive under GHS
- Subject to dangerous-goods transport regulations (Class 4.1 / 4.3)
- Subject to dust-explosion and occupational exposure regulations

16. Other Information

This MSDS has been prepared in accordance with the GHS 16-section format and covers flake (special grade) and atomized (spherical) aluminium powder. The principal hazards are flammability, water-reactivity (hydrogen release), and dust explosion. NEVER use water on burning aluminium. Information relates to the specific material designated.

Disclaimer: The information in this MSDS is provided in good faith and is based on current knowledge. It is intended as a guide for safe handling, use, storage, and disposal, and is not a warranty of quality. Ochnology Solution Pvt. Ltd. accepts no liability for loss or damage arising from its use. Users are responsible for ensuring suitability and safety for their own conditions of use.