Revision Date: 03/10/04

Aluminium Powder

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

Product Name:	Aluminium Powder
Chemical Name:	
Supplier:	Jacobson Chemicals Ltd Unit 4 Newman Lane Industrial Estate Alton Hants GU34 2QR
Telephone:	01420 86934
Fax:	01420 549574
E-mail:	sales@jacobsonchemicals.co.uk

2. COMPOSITION

This depends on the purity of the base material.

1. Commercial Purity i.e. 99.5 – 99.7% Aluminium.
2. Secondary i.e. 85.0 – 97.0% Alluminium.

Typical trace elements are Iron (Fe) and Silicon (Si) although other elements may be present. All elements are in a chemically combined form with the Aluminium and, with the possible exception of alloyed powders, are in such low concentrations as to pose no hazard to health.

Possibility of risk of fire and explosion if a dust cloud is allowed to develop in the presence of an ignition source.

3. HAZARD INDENTIFICATION

The most important hazards are:	Aluminium powder is potentially ignitable dependent on particle size. Avoid dust clouds and all possible ignition sources/
Inhalation:	There is no evidence that a specific health risk to the lungs or body is created by inhalation but, when handling, a suitable face mask should be used.
Skin Contact:	N/a
Eye Contact:	If the powder comes into eye contact, there is no specific risk, although irritation may be caused as with any dust entering the eye.
Ingestion:	N/a

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4. FIRST AID MEASURES

Immediate medical attention:	No
Professional assistance from physician required?	No
Inhalation:	Take patient into fresh air and administer oxygen to assist breathing.
Skin Contact:	Wash skin in normal way..
Eye Contact:	Wash out eyes using an eye bath and standard solution.
Ingestion:	Dispense water as an aid to clear any powder in the mouth.

In all cases at earliest convenience seek medical advice.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	A Class D dry powder extinguisher may be used carefully and dry sand or a suitable fire blanket may be used to smother the burning powder.
Unsuitable extinguishing media:	Water or halogenated extinguishing media must not be used.
Special protective equipment:	N/a
Special fire fighting procedures:	If aluminium powder is burning, carefully isolate the material and surround it with dry sand. It is essential that nothing is done to create a dust cloud.
Exposure Hazards:	N/a

6. ACCIDENTAL RELEASE MEASURES

Cleaning up of spillages, if they occur, is best done by a specifically designed vacuum cleaner, safe for this type of operation.

If sweeping is necessary, gentle movements, limiting the formation of dust clouds, should be used.

Do not use plastic bristles, or material likely to generate a significant static electrical charge.

Use non-sparking tools, i.e. scoops or shovels, when handling this powder and avoid sweeping into drain connections.

Dry sand or dry sawdust can carefully be added to the spillage to limit the possibility of dust cloud formation and fire.

Use a suitable face mask when cleaning up spillages.

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7. HANDLING & STORAGE

Keep containers of Aluminium Powder sealed until ready for use, and reseal immediately after use.

Avoid storage with materials with which Aluminium Powder will react i.e. acids, halogens or oxidizing agents.

Ensure electrical equipment, in areas where the Aluminium Powder is handled, is to an appropriate standard of dust tightness, i.e. IP 64 or IP 65.

Spark generating operations in the presence of Aluminium must be avoided, i.e. cutting, grinding or welding.

Smoking should be prohibited.

8. EXPOSURE CONTROLS

If large quantities of Aluminium Powder are being transferred from the supply packaging to the production plant on a regular basis, adequate enclosure of both the packaging and process plant should be installed in order to capture safely the airborne particles of Aluminium. Specialist advice should be sought on the design of the fan, ducting and any filtration system.

Damp/wet powder must be well ventilated to disperse gas generated.

Personnel should wear face masks and should apply a standard barrier cream for skin protection, although this latter precaution is only necessary for individuals with sensitive skin.

Any protective clothing worn by operators, contaminated by Aluminium Powder, should be cleaned/brushed off carefully before the operator leaves the operating area. Smoking in contaminated clothing is not advised, no matter how "clean" the workwear appears.

The levels of exposure to airborne dust of Aluminium metal are given in H & S.E. Guidance Note EH 40/93 as:-

Long Term Exposure Limit (8 hour TWA):	10mg/cu.m total inhalable dust. 5mg/cu.m. Respirable dust.
Short Term Exposure Limit (10 min TWA):	No limit quoted.

Recommended guidelines are 3 times the Long Term Limit.

Aluminium dust is regarded as a nuisance dust only. There is not evidence that a specific health risk to the lungs and body are created by inhalation. Handling procedures should be adopted that limit the escape of dust into the working environment. Problems of inhalation and risk of fire and explosion will then be minimal.

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9. PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Atomised Aluminium Powder
Odour:	N/a
Colour:	Dull to light grey.
Density:	60-90lb/cu.ft (0.96 – 1.44)
Density varies with specific grade:	Grade Range 1000 – 1 micron
Minimum Oxygen level to allow ignition:	6%
Minimum Explosive Concentration in Air:	30g/cu.m.
Minimum Ignition Energy:	500 millijoules
Maximum Explosion Pressure:	12.9 bar
K.S.T. Max:	650 bar m/s
K.S.T. Group:	3

These figures were determined from 63 microns to dust, dry, uncoated, unalloyed powder and are considered to be "worst case conditions".

10. STABILITY & REACTIVITY

Aluminium Powder is potentially ignitable dependent upon particle size. Generally coarser powders, i.e. above 75 microns (200 Mesh), are difficult to ignite and are considered safe in this respect.

The greater hazard is with fine particles and care must be taken to ensure that dispersion into a dust cloud is avoided.

If a dust cloud is generated with a fine powder of sufficient concentration in air, then even a small ignition source can lead to a violent explosion and considerable damage.

Aluminium Powder – stabilized – is not Pyrophoric.

Avoid possibilities of static electricity by well earthing all equipment used to package or process Aluminium.

Avoid contact with water, halogen acid or halogenated solvents or Ammonium Nitrate.

Aluminium Powder will react with water and will release Hydrogen. The reaction is slow initially, taking several days to generate noticeable quantities of gas, but can then escalate rapidly. It is dependent upon the ratio of Aluminium Powder to water. If the quantities of powder in water are small or the quantity of water in powder is small, then the hazard is equally small.

11. TOXICOLOGICAL INFORMATION

There is not evidence that a specific health risk to the lungs or body are created by inhalation or ingestion. Contact with the body through inhalation, ingestion or in the eyes will cause discomfort. Aluminium dust is regarded as a nuisance dust only.

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12. ECOLOGICAL INFORMATION

Possible effects:	N/a
Behaviour:	N/a
Environmental fate:	There are no known adverse environmental effects associated with the use of this product. However care should be taken to limit the escape into the air or into drains and watercourses.

13. DISPOSAL CONSIDERATIONS

Surplus or contaminated Aluminium Powder can be disposed of in an number of ways:

Landfill:	Check packaging requirements and seek a specialist in this field.
Incineration:	Check with the local authority and fire service for their advice.
Re-cyling:	Check with supplier or non-ferrous recycler to determine suitability.

Packaging should be emptied / cleaned of all product and is then considered safe for skip disposal.

14. TRANSPORT INFORMATION

Special carriage precautions in carriage:	N/a
Classification data:	N/a
UN Number:	N/a
Proper Shipping Name:	N/a
IMO – Sea:	N/a
ICAO – Air:	N/a
ADR – Road:	N/a
Transport Category:	N/a
Limited Quantity Size:	N/a
Additional Data:	Classified as Non-Hazardous for Transport whilst contained in packaging provided.
Emergency Action:	Notify the police and fire services. Stop the engine. No naked lights, No smoking. Make the road and warn other road users. Keep upwind. Keep public away from possible danger area.

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15. REGULATORY INFORMATION

Supply label information:	N/a
Hazard Symbol:	N/a
Risk Phrases:	N/a
Safety Phrases:	N/a

Users of Aluminium Powder should refer to other precautions that may at some time be relevant due to changes in legislation. They should also refer to the Health and Safety at Work Act (HSWA) and the Control of Substances Hazardous to Health Regulations (COSHH) regarding other relevant measures not covered here.

16. OTHER INFORMATION

a) Training needs:	For further information contact our office.
b) Recommended uses and restrictions:	
c) Further references:	
d) Key data sources:	Additional information is available from the Aluminium Federation, see "The Safe Handling and Storage of Aluminium Powder and Paste". All information is provided, without any representation or warranty expressed or implied, and is given in good faith as valid. Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.

The data contained in this Safety Data Sheet has been supplied as required, by the Chemicals (Hazard Identification and Packaging) Regulations 1994, as amended, for the purposes of protecting the health and safety of industrial and commercial users who are deemed capable of understanding and acting on the information provided.

Please ensure that it is passed to the appropriate person in your company, who is capable of acting on the information.

NOTE:
This data sheet does not constitute a user's assessment of workplace risk as required by HSW Act, COSHH, Management of Health and Safety at Work regulations, or other Health & Safety at Work regulations.