Material Safety Data Sheet Fine Titanium Powder

Date prepared: August 14, 2008
LPW Technology Ltd

Date revised: 18 June, 2009 (Issue 1)
Conforms to EU Directive 91/155 EEC & 2001/58/EC

1. Identification of the substance and the company

Substance or preparation trade name: LPW metal alloy powders. Spherical Ti-6Al-4V Powder (Fine)

Unique reference number: Advised on unique Test Certificate

Company/undertaking name & address: LPW Technology Ltd
PO Box 768
Lymm, WA15 5EN
Cheshire
United Kingdom

Contact: Dr Philip A Carroll

Emergency telephone number: +44 (0) 845 539 0162

2. Composition

Hazardous Ingredient	CAS No.	Max. Content (wt %)	TWA / STEL Exposure Limits (mg/m3)
Aluminum	7429-90-5	60	4/-
Boron	7440-42-8	10	-/-
Chromium	7440-47-3	55	0.5/-
Cobalt	7440-48-4	90	0.1/-
Copper	7440-50-8	70	0.2/-
Hafnium	7440-58-6	5	0.5/-
Indium	7440-74-6	10	0.1/0.3
Iron	1309-37-1	99	5/-
Lanthanum	7439-91-0	2	Na
Manganese	7439-96-5	15	5/-
Molybdenum	7439-98-7	50	5/-
Nickel	7440-02-0	100	1/-
Niobium/Columbium	7440-03-1	10	Na
Rhenium	7440-15-5	10	Na
Silicon	7440-21-3	15	4
Sulphur	7704-34-9	0.5	Na
Tantalum	7440-25-7	20	5/10
Titanium	7440-32-6	92	10/-
Tungsten	7440-33-7	25	Na
Vanadium	7440-62-2	20	0.5/-
Yttrium	7440-65-5	2	1/3
Zirconium	7440-67-7	2	5/-

Additional elements may be present – advised on unique Test Certificate.
Na = not available. * = known carcinogen.

3. Hazards identification

This material is classified as dangerous according to Directive 67/548/EEC and its amendments

Classification: F, R11
Physical/Chemical Hazards: Flammable

4. First aid measures

Skin Contact: First aid procedure is to wash thoroughly with soap and water. Seek medical attention.
Eye Contact: First aid procedure is to irrigate eye with water for 20 minutes.
Inhalation: First aid procedure is to remove to fresh air. Seek medical attention.
Ingestion: First aid procedure is to induce vomiting and consult a physician. Seek medical attention.

5. Fire fighting measures

Extinguishing Media: Use Class "D" Fire Extinguisher. Do not use water, dry chemical, or Carbon Dioxide.
Special Firefighting Procedures: Self contained breathing apparatus (SCBA) should be worn.

6. Accidental release measures

Spill/Leak Cleanup: Use respiratory equipment during cleanup. Use equipment that keeps material from becoming airborne to minimize dust generation i.e. Wet mop, HEPA vacuum. Use non-sparking tools to clean up. Place material in non-sparking or anti-static containers using large quantities of sand. The use of plastic bags is not recommended.

7. Handling and storage

Handling: Eating, drinking and smoking should be prohibited in areas where this material is handled. Keep container tightly closed. Keep powder away from open flames and other sources of ignition. Try to maintain humidity above 50% to prevent electro-static build-up.

Ventilation: Dust pickup and ventilation is suggested.

8. Exposure controls

Goggles: Safety glasses or goggles are recommended when handling.
Gloves: Wear impervious gloves to prevent skin contact.
Respirator: Use a properly fitted, air-purifying or air-feed respirator complying with an approved standard.

9. Physical and chemical properties

Boiling Point: n/a
Freezing Point: n/a
Specific Gravity: n/a
Explosive Properties: Fine dust clouds may form explosive mixtures with air.
Vapor Pressure: n/a
Vapor Density: n/a
Percent Volatile: n/a
Solubility in Water: n/a
Appearance & Odor: gray metallic powder with no appreciable odor.
Flammable Limits: n/a
Flash Point: n/a

10. Stability and reactivity

This product is stable under normal storage conditions.

Conditions to avoid:	Static electricity, heat or ignition source
Materials to avoid:	Combustible materials, acid, oxidizing agents, halogenated hydrocarbons
Hazardous decomposition products:	None

11. Toxicological information

Skin Contact: May cause dermatitis.
Eye Contact: May cause irritation and redness.
Inhalation: May cause irritation to upper respiratory tract.
Ingestion: May cause nausea, vomiting and diarrhea.
Effects of Overexposure: Chronic skin contact may lead to lesions and redness. Chronic inhalation may cause fibrotic disease.

12. Ecological information

No none significant effects or critical hazards.

13. Disposal Considerations

Generation of waste should be avoid or minimised. Avoid dispersal of spilt material and contact with soil, waterways, drains, or sewers. Dispose in accordance with local, state, and national regulations.

14. Transport information

UN Number: UN 3089.

Class: 4.1
Packing Group: II

15. Regulatory information

Symbols:

Harmful

Highly Flammable

Risk Phrases:
R40 – Limited evidence of a carcinogenic effect
R11 – Highly flammable
R42/43 – May cause sensitisation by inhalation and skin contact

Safety Phrases:
S16 – Keep away from sources of ignition – No Smoking
S22 – Do not breathe dust
S23 – Do not breathe fumes
S24 – Avoid contact with skin
S33 – Take precautionary measures against static discharges
S36/37 – Wear suitable protective clothing, gloves and eye/face protection
S38 – In case of insufficient ventilation, wear suitable respiratory equipment
S43 – In case of fire, use sand
S51 – Use only in well ventilated areas
S60 – This material and its container must be disposed of as hazardous waste.

Water Hazard Class: Generally not hazardous

16. Other Information

Keep material containers closed and dry during storage.
No food or smoking in work areas.
Wash thoroughly after handling.
Install eye wash station.

The above data contained herein is believed to be accurate base on available tests and information. LPW Technology ltd assumes no liability in connection with the information supplied on this sheet.

Final determination of suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, this does not guarantee that these are the only hazards that exist.