MATERIAL SAFTY DATA SHEET

Rare Earth Silicide
(ReSi)

1. Identification Substance

Product name : Rare Earth Silicide ;

2. composition / information on ingredients

Rare Earth Silicide is produced in several qualities and grading with somewhat varying composition. Typical chemical composition:

Silicon	(Si)	:	30-40%
Rare Earth	(Re)	:	33% min
Aluminum	(Al)	:	1% max
Calcium	(Ca)	:	2% max

Other Ti Mn

For further information about the exact chemical composition of the various qualities, consults the producer's technical data sheet.

3. Hazards Identification

ReSi is not characterized as a dangerous product and is unlikely to cause harmful effect neither to man nor environment when handled and stored as advised.

4. First Aid Measures

General Reference	:	None.
Inhalation	:	No particular precaution necessary, unless FeSiBa has been exposed to acids or water
Skin Contact	:	Wash with water or a mild soap.
Eye Contact	:	Flush with water / saline solution If continued Discomfort ,contact doctor.
Ingestion	:	No particular precautions necessary.

5. Fire Fighting Measures

ReSi itself does not burn, but keep away from sparks / ignitions when there is a possibility for dusty handing.
Extinguishing media : not applicable, but if involved in fire, water can be used.
Unsuitable extinguishing medias :none.

6. Accidental Release Measures

Avoid dusty handing. Use personal protection equipment (see section 8). Spillage can be collected mechanically and be stored in an environmentally, legitimate way, No special precautions for cleaning up.

7. Handing & storage

Handing	:	Avoid arise of dust (see section 5). By normal practice in handing, storage and transport, there is no risk of dusk exposure.
Storage	:	**Keep away from acids and alkalies.** Keep away from water. Keep stored in an airy area

8. Exposure Controls / Personal Protection

Engineering Measures	:	No particular references.
Control Parameters Limit Value	:	Occupational Exposure Standard (DES) for nuisance dust is 10mg/m^3 and 4 mg/m^3 for repairable dust (see section 16)
Personal Protective Equipment	:	Fine dust mast (P2/P3) to be used when OES value is exceeded, or by working in dusty area over a longer period. Use hand protection gloves and eye protecting glass.

Occupation exposure levels at set by the Health & Safety Executive are as follows:

Element	CAS No	Exposure	
Silicon (Si)	7440-21-3	10mg.m^3	* +
		4mg.m^3	* ++
Phosphine (PH_3)	7803-51-2	0.3ppm	**
		0.4mg.m^3	**
Arsine (A_5H_3)	7784-42-1	0.05ppm	*
		0.2mg.m^3	*
Iron Oxide, fume (Fe_2O_3)	1309-37-1	5mg.m^3	*
		10mg.m^3	**

*	=	Long term exposure limit (8 hour TWA reference period).
**	=	Short term exposure limit (15 minute reference period).
+	=	Total inhalable dust.
++	=	Respirable dust.

Reference : HSE guidance note EH40, Occupational Exposure Limits`, latest issue.

9. Physical & Chemical Properties

Physical State

Form	:	Solid material, in pieces, grain or powder
Colour	:	Silvery grey metallic
Odour	:	None

Safety Related Data

Condition	:	Solid until>1000℃
Decomposition	:	Starts>2000℃ if kept dry
Flashpoint	:	None
Auto ignition temp	:	None
Explosion prop	:	None
Vapour pressure	:	Not relevant
Specific density	:	-4200 kg/ m^3
Bulk density	:	-2200 kg/ m^3
Solubility in water	:	Insoluble
Odano/water part	:	Not relevant

10. Stability & Reactivity

By appropriate storage and handling, there are no known risks for hazardous reactions.

Conditions To Avoid-Avoid storing in wet places when kept indoors. Avoid processes that can ignite ReSi dust.

Materials To Avoid-Keep separated from water, acids (F) and alkalies.

Hazardous Decamp, Prod-ReSi reacts with hydrofluoric acid(HF) to form toxic gas (SiF). In contact with water, arsine and phosphine gasses can be evolved through disintegration. MSAG 601, 805.

11. Toxicological Information

ReSi is a non toxic material. By appropriate handling, storage and use, (see Section 10 and 16), there is according to our knowledge no possible damage to expected.

Acute toxicity and local effects: none when kept dry.

12. Ecological Information

ReSi is not characterised as dangerous for the environment. Segregation can be made by sedimentation.

13. Disposal Considerations

Prior to disposal of large quantities of this material advice should be sought from the relevant waste regulation authority.

14. Transport Information

The substance has not been listed in《International Maritime Dangerous Goods Code》, It is stable under ordinary conditions of use and storage, handling and storage according to common goods.

Rare Earth Silicide must be stored for at least 72 hours for purposes of ventilation prior to transport from the producer.

Bulk transportation must only take place with approved means of transport (air, railroad, sea and road). Only strong, suitable and approved packing must be used (any sift-proof, tear-proof receptacles).

15. Regulatory Information

Special marking required when there is danger of the material getting wet. Local regulations in the country of recipient may exist.

16. Other Information

Poisoning accidents as a result of the evolution of Phosphine and arsine have been reported when FeSi alloys disintegrate. The toxic mechanism for phosphine is not clear. Chronical effects such as difficulties in moving and speaking problems after prolonged exposure have been observed. The acute toxic effect of arsine is due to homolysis. Edema of the lungs can appear after 24 h – 4 days. Symptomatic treatment: corticosteroids, prophylactic for edema of the lungs.

Information contained herein does not constitute the users own assessment of work Place risk as required by other health and safety legislation.

This safety data sheet is issued in accordance with ISO 11014-1 1984.

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