ARIMA MINERALS

Material Safety Data Sheet

SECTION: I – IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product : Rutile Sand
Uses : Raw material for welding electrode and titanium metal industry.

Manufacture's Name : M/s. Arima Minerals Processing FZE,
Plot No. 1 J-42, Hamriyah Free Zone- Phase 1,
P.O.Box : 50421, Sharjah, United Arab Emirates.
Telephone : + 971 6 88 53000
E.Mail : labuae@arimaminerals.com
Website : www.arimaminerals.com

SECTION: II – MINERALS / CHEMICAL COMPOSITION

Rutile sand is a natural mineral and it is collected from Inland and sea shore area. Rutile sand purity and other mixed trace minerals

Minerals / Chemical composition	CAS.No.	Proportion by weight
Rutile (TiO_2)	1317-80-2	> 98.00 %
Zircon ($ZrSiO_4$)	14940-68-2	< 2.00 %
Ilmenite ($FeTiO_3$)	103170-28-1	< 0.50 %
Leucoxene ($FeTiO_3$ Altered TiO_2)	12173-81-8	< 0.50 %
Sillimanite (Al_2SiO_4)	12141-45-6	< 0.50 %
Quartz (SiO_2)	14808-60-7	< 0.50 %

SECTION: III - HAZARDS INFORMATION

Non-Hazardous and non-dangerous cargo according to criterion NOHSC: 1008(2004). Because it is natural minerals.

SECTION: IV - HEALTH HAZARDS & FIRST AID PROCEDURES

Swallowed: Nontoxic. There are no known health hazard effects resulting from accidental ingestion as that may occur while the workers normal handling. Absorb the larger amounts may cause irritation due to abrasiveness. First aid is unlikely to be required, but, if necessary, wash mouth with water ensuring the mouthwash is not swallowed. Contact medical consultant, if any problems develop.

Eye: Materials and dust contact can cause eye irritation due to abrasiveness. Normal force with lot of clean water for at least 10 minutes or until the abrasive is removed. Also, can contact medical consultant, if any problems develop.

Skin: There are no known health effects from skin contact that may happen during normal handling. Contact medical consultant, if any problems develop. Also, while blasting the material contact with skin under pressure will damage skin. Gently remove the contamination clothing to avoid dust, then wash the skin. If the irritation resists, Contact medical advice.

Inhaled: Normally regarded as general nuisance dust, but can be irritating it inhaled in high concentration may cause lung irritation. Shift to fresh air and blow nose to remove particulates from nasal passages. Contact medical consultant, if any problems found.

SECTION - V - STABLITY & REACTIVITY DATA

Stability	-	Stable
Polymerization	-	Cannot occur
Incompatibility	-	None Known
Hazardous Reactions	-	None Known
Decomposition	-	Not applicable

SECTION –VI - FIRE AND EXPLOSION HAZARD DATA

Flammability	-	Non-flammable solid
Flash Point	-	Not applicable
General Hazard	-	Non-flammable and does not support burning
LEL	-	Not applicable
UEL	-	Not applicable
Extinguishing Media	-	Use appropriate extinguishing media for the surrounding fire.

SECTION – VII – PHYSICAL & CHEMICAL CHARACTERISTICS

1) Physical Characteristics: -

Melting point	-	> 1850 °C
Specific gravity	-	4.0 to 4.5
Bulk density	-	2.3 – 2.7 g/cc
Solubility in water	-	Insoluble
Acid solubility	-	< 0.5 %
Appearances & Odour	-	Black & No odour
Physical state	-	Solid
Viscosity	-	Not Applicable
Boiling point	-	Not Applicable
Vapour Pressure	-	Not Applicable
PH	-	Neutral
Hardness	-	> 7 Moh scale
Free metal	-	< 0.01 %
Water soluble Chloride	-	< 25 ppm
Conductivity	-	< 15 mS/m
Moisture	-	< 0.20 % (Dry solid)
Grade Shape	-	Sub angular
Grain Size	-	90 micron to 1700 micron

2) Composition: -

TiO_2	-	94 - 97 %
Fe_2O_3	-	< 1.00 %
SiO_2	-	< 2.00 %
Al_2O_3	-	< 1.00 %
$ZrO_2 + HfO_2$	-	< 2.00 %
CaO	-	< 0.10 %
MgO	-	< 1.00 %
MnO	-	< 0.50 %
Cr_2O_3	-	< 0.06 %
V_2O_5	-	< 0.20 %
P_2O_5	-	< 0.10 %
SO_3	-	< 0.10 %
U	-	< 100 ppm
Th	-	< 100 ppm

SECTION – VIII – PERSONAL PROTECTION

Crystalline silica	-	0.10 mg/m^3
Repairable dust	-	5 mg/m^3
Nuisance dust	-	15 mg/m^3

If these levels are exceeding respiratory protection must be applied

Personal Protection: Safety glasses, Gloves, and nose mask. Maintain a clean and safe work place and monitor effectiveness.

Engineering controls: Dust collector and ventilation requirements will depend on handling methods and the amount in use, but should be sufficient maintain dust levels exposure limit. Points of dust generation such as conveyor and hopper discharges should be equipped with an effective extraction system.

SECTION – IX – HANDLING AND STORAGE

Adopt good housekeeping practices to reduce dust. Use approved hand, eye and respiratory protection devices while the material handling. No special safety measures required. Storage place should be ventilated and dust generation minimized when handling.

SECTION – X – CONTROL MEASURES

Respiratory Protection (Specify type)

NIOSH / MSHA – Approved filters and air supplied goods for blasters

Ventilation	Local Exhaust	Special
Yes	Use when process	None
	Mechanical (General)	Other
	Meet dust TLV	None

Protection Gloves: Leather gloves, cabs and paper mask.

Eye Protection: Safety glasses with side shields approved by central.

Other Protective clothing or Equipment: Normal safety protection is adopted.
Work / Hygienic Practices: keep a clean and safe work place and monitor work practices.

SECTION – XI – TRANSPORT

No special precautions, it is suggested to keep bags closed and covered using tarpaulin or any sheet while the transporting to avoid dust generation.

SECTION – XII – DISPOSAL PROCEDURES

As per the local, state and central rules for the disposal of inert solid waste. Material contaminated in use may require special handling and disposal.

SECTION – XIII - REQULATORY INFORMATION

This product is natural and dry mineral and the material collected from inland and sea shore. It is non- hazardous and non-dangerous cargo and does not require any special precautions.

SECTION – XIV – ENVIRONMENTAL INFORMATION

This material is a natural mineral with no known ecotoxicity. It is insoluble in water, because it is very heavy material and it should not contaminate waterways and food materials. Also, it does not dangerous to animals and plants.

SECTION – XV – TOXIC INFORMATION

This product is non-toxic with no known sensitive health effects relating to human exposure.

SECTION – XVI – SPECIAL COMMENTS & PRECAUTIONS

The above said information is believed to be accurate, but is not warranted with respect to the accuracy of the information or recommendations. As per the work safety rule, each user should reconsider the above information while product using.

Abbreviations

Mg/m^3 - Milligram per cubic metre
NOHSC - National Occupational Health & Safety Commission
TLV - Threshold Limit Value
mS/m - milli Siemens per meter
ppm - Parts per million
g/cm^3 - Gram per cubic centimetres

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End of MSDS