The Kerala Minerals and Metals Ltd.

KMML Spreading Splendour

MATERIAL SAFETY DATA SHEET

TITANIUM DIOXIDE

1. PRODUCT IDENTIFICATION

TRADE NAME	:	KEMOX RC 800 / RC 800 PG / RC800PG+ / RC 808 / RC 822 / RC 822+ / RC 813 / RC 820 /RC 829
CHEMICAL NAME	:	TITANIUM DIOXIDE (Different Grades)
SYNONYMS	:	TITANIUM (IV) OXIDE

2. HAZARD IDENTIFICATION

Classification :	:	Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)
Label Elements:	:	None
Other Hazards	:	No known Hazards
Specific Hazards	:	Occupational exposure to the substance or mixture may cause adverse health effects like irritation of skin, respiratory tract and eye. Frequent/Excessive inhalation of fume/dust may aggravate pre-existing respiratory conditions and develop lung diseases.

3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL OR COMPONENT	CAS NO.	Variation (%)	
		From	To
Titanium Dioxide (Different grades)	13463-67-7	80	96
Aluminum Hydroxides[1]	21645-51-2	1.2	5.0
Amorphous Silica[2]	7631-86-9	0	8.0
Zirconium Dioxide [3]	1314-23-4	0	0.8

[1] Present in above all grades
[2] Present in RC 808, RC 822, RC822+, RC 813, and RC 820
[3] Present in RC 808 and RC 829
The products also contain a fractional percentage of organic additives.

4. FIRST AID MEASURES

Inhalation	:	Move to fresh air. Get medical attention if any discomfort continues
Eye contact	:	Flush with large amounts of water. If irritation persists, seek medical attention.
Skin contact	:	Wash with water and mild soap.
Ingestion	:	No adverse health effects anticipated by this route during proper industrial handling.

5. FIRE-FIGHTING MEASURES		
Suitable extinguishing media	:	No fire hazard
Extinguishing media which must not be used	:	Not applicable since no fire hazard
Fire and explosion hazard	:	Precaution against the discharge of static electricity should be taken during powder handling operations.
Special protective equipment	:	No special protective equipment required

6. ACCIDENTAL RELEASE MEASURES
Use any feasible mechanical means (e.g. vacuum, sweeping) but avoid dusting during clean-up. Prevent run-off from entering storm sewers and ditches which lead to natural water ways.

7. HANDLING AND STORAGE		
Handling	:	Minimising inhalation of dust and contact with skin. Take suitable precautions against the discharge of static electricity during powder handling operation
Storage	:	Store in dry area. Can cause slippery conditions when wet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION		
Exposure control	:	Good natural ventilation will be sufficient in most circumstances. Local exhaust ventilation may be necessary if airborne dust concentration approaches the occupational exposure standard.
Respiratory protection	:	Use approved dust respirator.
Hand protection	:	Gloves may be worn when prolonged or repeated contact is likely.
Eye protection	:	Safety glasses or goggles to protect against airborne dust.
Skin protection		Individuals having sensitive skin may find it beneficial to use a barrier cream or moisturiser when excessive or prolonged contact with the skin is likely.

9. PHYSICAL AND CHEMICAL PROPERTIES		
Appearance	:	Fine white powder
Odour	:	Odourless
pH	:	5.5 – 8.5 (10 g/100 ml aqueous solution)
Boiling point/range	:	2500 - 3000 °C Melting
point/range	:	1830 - 1850 °C
Flash point	:	Not applicable (Not a flammable material)
Flammability	:	Not applicable (Not a flammable material)

Auto flammability	:	Not applicable (Not a flammable material)
Explosive properties	:	Not applicable (Not a flammable material)
Oxidising properties	:	This is a fully oxidized mineral product.
Vapour pressure	:	Not applicable (Material is a solid)
Relative density	:	3.6 - 4.2
Partition coefficient	:	Not relevant for solids
Water solubility	:	Insoluble
Fat solubility	:	Insoluble
Other data	:	Nil

10. STABILITY AND REACTIVITY

Stability	:	Chemically stable and non-reactive
Conditions to avoid	:	Generation of dusting
Materials to avoid	:	Not applicable (Chemically stable)
Hazardous decomposition products	:	None (Chemically stable)

11. TOXICOLOGICAL INFORMATION

OCCUPATIONAL EXPOSURE LIMITS:

COMPONENT	MEL or OES	LIMIT
Titanium Dioxide	OES	10mg/m^3 total inhalable (8 hr TWA) 5 mg/m^3 respirable (8 hr TWA)
Aluminium Hydroxide	OES	10mg/m^3 total inhalable (8 hr TWA) 5 mg/m^3 respirable (8 hr TWA)

Skin	:	Titanium dioxide is not classifiable as a skin corrosive or irritant based on the studies.
Eye	:	Titanium dioxide was not classifiable as an eye irritant based on the studies.
Mutagenicity	:	Did not cause genetic damage in animals
Carcinogenicity	:	Titanium dioxide is listed by IARC as possibly carcinogenic to humans (Group 2B). This listing is based on inadequate evidence of carcinogenicity in humans and sufficient evidence in experimental animals. However, The conclusions of several epidemiology studies on more than 20000 TiO_2 industry workers did not suggest a carcinogenic effect of TiO_2 dust on the human lung.
Reproductive Toxicity	:	Titanium dioxide was not classifiable as a reproductive hazard based on test results animals.

12. ECOLOGICAL INFORMATION

Available evidence indicates that titanium dioxide does not cause any significant adverse environmental effects.
Titanium Dioxide does not cause aquatic toxicity, not readily bio-degradable and does not bio-accumulate.

13. DISPOSAL

This product is not considered hazardous for disposal into sanitary landfill or industrial waste disposal landfill.
Please review appropriate national and local waste regulations.

14. TRANSPORT INFORMATION

UN Number	:	Not a regulated material
Packing group	:	Not a regulated material
Other	:	Not a regulated material

15. REGULATORY INFORMATION

CLASSIFICATION, PACKAGING & LABELLING REGULATIONS:

CLASSIFICATION	:	Not applicable (Not a hazardous substance or mixture)
RISK PHRASES	:	Not applicable (Not a hazardous substance or mixture)
SAFETY PHRASES	:	Not applicable (Not a hazardous substance or mixture)

CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH REGULATIONS:

The Health & Safety Executive have assigned an occupational exposure standard to titanium dioxide and it is therefore a hazardous substance for the purpose of these regulations.

16. OTHER INFORMATION

Disclaimer	:	The information in the sheet was written based on the best knowledge and experience currently available.
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Issued by	:	Titanium dioxide Pigment Unit, The Kerala Minerals and Metals Ltd.