ZIRCOPAX PLUS
JOHNSON MATTHEY INC.
MSDS ID: 51453

Section I (General Information)

MANUFACTURER'S NAME:
Johnson Matthey Inc.
Colours and Coatings Division
EMERGENCY TELEPHONE NUMBER:
Regulatory Information: (610) 873-3265 (Weekdays 8:00am-5:00pm EST)
Emergency Telephone Number: (610) 648-8185 (24 hrs.)
ADDRESS (NUMBER,STREET,CITY,STATE,ZIP):
11400 New Berlin Road, Jacksonville, FL 32226 (904) 751-2828
CHEMICAL NAME AND SYNONYMS:
Zircopax Plus
TRADE NAME AND SYNONYMS:
Zircon, Zirconium silicate
CHEMICAL FAMILY:
Rare Earth Oxide
FORMULA:
Proprietary
DATE OF PREPARATION:
08/06/98
PREPARED BY:
Environmental, Health and Safety Department
DISCLAIMER:
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgements of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Section II - Hazardous Ingredients

NAME	WT%	CAS#	ACGIH TLV	OSHA PEL
Zirconium Silicate	95-100	14940-68-2	*5 mg/m3	*5 mg/m3
Silica (Free)	0.1-1	7631-86-9	0.1 mg/m3 (a)	5 mg/m3 (a)

* Exposure limits for Zirconium Silicate have not been establisehed by the ACGIH or OSHA. The exposure limits for Crystalline silica is recomended.
(a) Respirable Fraction
(b) Total Dust

Section III - Physical Data

MELTING POINT:
2,100 C(3,812 F) to 2,300 C(4,172 F)
VAPOR PRESSURE(mm Hg):
Not applicable
VAPOR DENSITY (AIR = 1):
Not applicable

Section V - Health Hazard Data (Cont.)

Zircon is exempt from NRC regulations for source material per 10 CFR 40, since it falls under the definition of unprocessed material containing <0.05% Uranium or Thorium. However observance of 2.2-2.8 mg/m3 of respirable dust, will under voluntary guidelines, ensure that intake is less than 10% of the Annual Limit on Intake(ALI) specified in 10 CFR 20.1502(b) and NRC Standards for protection against radiation for uranium, thorium, radium and radioactive daughter decay products.

EMERGENCY AND FIRST AID PROCEDURES:
Eyes: Flush with plenty of water for 15 minutes. If irritation persists, contact a physician.
Skin: In case of contact, wash skin with soap and water. Remove any contaminated clothing and shoes. Wash or clean properly before reuse.
Inhalation: Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, give oxygen. Contact a physician immediately.
Ingestion: Give milk or water. Do not induce vomiting if person is unconscious. Contact a physician immediately.

Section VI - Reactivity Data

STABILITY (choose one): ( )UNSTABLE
(x)STABLE

INCOMPATIBILITY (MATERIALS TO AVOID):
Acidic conditions and acids
HAZARDOUS DECOMPOSITION PRODUCTS:
Not applicable
HAZARDOUS POLYMERIZATION (choose one): ( )MAY OCCUR
(x)WILL NOT OCCUR

Section VII - Spill or Leak Procedures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Evacuate area. Use appropriate personal protective equipment during clean up. Use a wet mop or vacuum cleaner equiped with a HEPA filter. Prevent entry into waterways. If reportable quantity is exceeded, contact the National Response Center.
WASTE DISPOSAL METHOD:
Follow all Federal, State and Local regulations for removal and disposal.

Section VIII - Special Protection Information

RESPIRATORY PROTECTION (SPECIFY TYPE):
A NIOSH/MSHA approved respirator equipped with a High Efficiency Particulate (HEPA) filter, approved for redionuclides, is recommended when the exposure limits in section II are exceeded.
VENTILATION:

LOCAL EXHAUST: At source of generation to remove dust from breathing

Section III - Physical Data (Cont.)

SPECIFIC GRAVITY (H2O=1)
4.7 g/cm3
PERCENT VOLATILE BY VOLUME (%):
Not applicable
EVAPORATION RATE (BuAc = 1):
Not applicable
SOLUBILITY IN WATER:
Insoluble
APPEARANCE AND ODOR:
Free-flowing finely milled white sand particles, no odor

Section IV - Fire and Explosion Hazard Data

FLASH POINT (METHOD USED):
Not applicable
EXTINGUISHING MEDIA:
This Material will not burn, however water may be used to cool down metal containers.
SPECIAL FIRE FIGHTING PROCEDURES:
Fire fighters should wear self-contained breathing apparatus. Use water spray to cool metal containers. Use care when approaching advanced or massive fires. Run off from fire control may cause environmental pollution
UNUSUAL FIRE AND EXPLOSION HAZARDS:
Toxic fumes may be evolved during a fire.

Section V - Health Hazard Data

PRIMARY ROUTES OF EXPOSURE:
Skin: No Eyes: no Inhalation: Yes Ingestion: Yes
TARGET ORGAN(S) EFFECTS:
Zircconium compounds-Skin, respiratory system
Silica-Respiratory system
CARCINOGENICITY STATUS:
The following compound(s) are listed as carcinogens by NTP, IARC, OSHA or all:
Crystaline Silica (IARC)
POTENTIAL HEALTH EFFECTS:
WARNING! DO NOT INHALE DUST!
This product contains small amounts of Crystalline Silica. Crystalline Silica is known to cause cancer and is associated with the chronic lung disease Silicosis. Symptoms of silicosis include chronic cough, dyspnea, wheezing and respiratory tract infections, such as tuberculosis. Individuals with pre-existing respiratory conditions may have increased sensitivity to crystalline silica exposure.

This product contains trace amounts of naturally occurring Uranium and Thorium trace amounts of naturally occuring Uranium and Thorium(90-110pCi/g) and Radium(109-114 pCi/g. Overexposure by inhalation to respirable dusts containig radioactive Uranium, Thorium and Radium may cause lung cancer.

Section VIII - Special Protection Information (Cont.)

zone.
MECHANICAL (GENERAL): Acceptable for small quantities

PROTECTIVE GLOVES:
Impervious gloves
EYE PROTECTION:
Safety glasses or goggles
OTHER PROTECTIVE EQUIPMENT:
Safety shower and eye bath. Disposable coveralls to prevent contaminated clothing.

Section IX - Special Precautions

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Store in sealed, closed containers. Prevent moisture inside containers.
OTHER PRECAUTIONS:
Do not eat, drink or smoke while using this material. Use in accordance with good industrial hygiene standards.

Section X - Regulatory Information

REGULATORY INFORMATION:

TSCA Status: Components on Inventory

SARA Title III Section 313 Reportable Chemicals:
Not Applicable

HMIS Rating: Health 1
Fire 0
Reactivity 0

Section XI - Ingredients

RIGHT-TO-KNOW INFORMATION:

Component	Cas#
Zirconium Silicate	14940-68-2
kyanite	1302-76-7
Staurolite	12182-56-8
Quartz	14808-60-7

California Proposition 65:
Silica, crystalline (particles of respirable size) are known to the State of California to cause cancer.
Radionuclides are known to the State of California to cause cancer.

Section XII - References

REFERENCES:

Barclays California Code of Regulations.
NIOSH Pocket Guide to Chemical Hazards.
29 CFR 1910.1000, Z-tables
ACGIH TLV for Chemcial Substances and Physical Agents.