

# SAFETY DATA SHEET



# ILUKA

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### 1.1 Product identifier

**Product name** LEUCOXENE SAND PRODUCTS  
**Synonyms** ALTERED ILMENITE • EUCLA BASIN RUTILE • EUCLA HYTI • LEUCOXENE • MURRAY BASIN HYTI

### 1.2 Uses and uses advised against

**Uses** PIGMENT MANUFACTURE • RAW MATERIAL • WELDING ROD FLUX MANUFACTURE

### 1.3 Details of the supplier of the product

**Supplier name** ILUKA RESOURCES LIMITED  
**Address** Level 23, 140 St Georges Terrace, Perth, WA, 6000, AUSTRALIA  
**Telephone** +61 8 9360 4700  
**Fax** +61 8 9360 4777  
**Website** <http://www.iluka.com>

### 1.4 Emergency telephone numbers

**Emergency** +61 8 9780 3555; +61 13 11 26 (PIC)

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS UNDER OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200

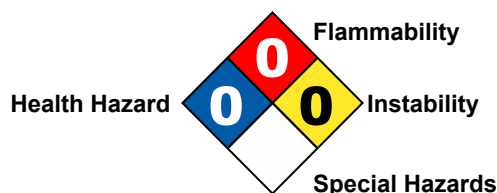
### 2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

### 2.3 Other hazards

No information provided.

### NFPA



## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

### 3.1 Substances / Mixtures

| Ingredient                  | CAS Number | EC Number | Content   |
|-----------------------------|------------|-----------|-----------|
| RUTILE AND ILMENITE         | -          | -         | <98%      |
| ZIRCON                      | 14940-68-2 | 239-019-6 | 0.2 to 5% |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | 238-878-4 | <1%       |
| STAUROLITE                  | 12182-56-8 | -         | <1%       |
| MONAZITE                    | 1306-41-8  | -         | <0.1%     |

**Ingredient Notes** Respirable Crystalline Silica < 0.01%.

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## 4. FIRST AID MEASURES

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### 4.1 Description of first aid measures

|                             |  |
|-----------------------------|--|
| <b>Eye</b>                  | If in eyes, rinse cautiously with water for several minutes, or until particle is removed. Remove contact lenses if present and easy to do - continue rinsing. |
| <b>Inhalation</b>           | If inhaled move to fresh air and keep comfortable.   |
| <b>Skin</b>                 | If skin or hair contact occurs, brush off loose particles. If on clothing, brush off loose particles. If irritation occurs, seek medical advice.               |
| <b>Ingestion</b>            | If swallowed, rinse mouth and get medical attention if you feel unwell.  |
| <b>First aid facilities</b> | Eye wash facilities should be available.   |

### 4.2 Most important symptoms and effects, both acute and delayed

See section 11 for more detailed information on health effects and symptoms.

### 4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

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## 5. FIRE FIGHTING MEASURES

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### 5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

### 5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

### 5.3 Advice for firefighters

No fire or explosion hazard exists.

### 5.4 Hazchem code

None allocated.

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## 6. ACCIDENTAL RELEASE MEASURES

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### 6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Contact emergency services where appropriate.

### 6.2 Environmental precautions

Prevent product from entering drains and waterways.

### 6.3 Methods of cleaning up

Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

### 6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

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## 7. HANDLING AND STORAGE

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### 7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in a well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. When stockpiled, ensure leachate and runoff cannot enter drains or waterways.

### 7.3 Specific end uses

No information provided.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

#### Exposure standards

| Ingredient                    | Reference       | TWA |                   | STEL |                   |
|-------------------------------|-----------------|-----|-------------------|------|-------------------|
|                               |                 | ppm | mg/m <sup>3</sup> | ppm  | mg/m <sup>3</sup> |
| Respirable Crystalline Silica | OSHA PEL [USA]  | --  | 0.05              | --   | --                |
| Titanium dioxide              | ACGIH TLV [USA] | --  | 10                | --   | --                |
| Zirconium compounds           | SWA [AUS]       | --  | 5                 | --   | 10                |

#### Biological limits

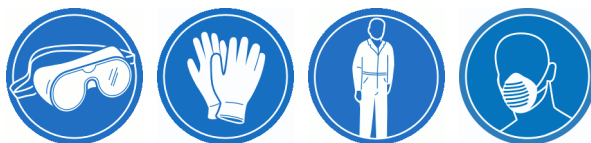
No biological limit values have been entered for this product.

### 8.2 Exposure controls

**Engineering controls** Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

#### PPE

- Eye / Face** Wear safety glasses and if there is a potential for dust, wear dust-proof goggles.
- Hands** Wear industrial grade gloves when handling material.
- Body** Where heavy contamination is likely, wear coveralls.
- Respiratory** In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

|                                  |                               |
|----------------------------------|-------------------------------|
| <b>Appearance</b>                | BLACK TO BROWN GRANULAR SOLID |
| <b>Odour</b>                     | ODOURLESS                     |
| <b>Flammability</b>              | NON FLAMMABLE                 |
| <b>Flash point</b>               | NOT RELEVANT                  |
| <b>Boiling point</b>             | NOT AVAILABLE                 |
| <b>Melting point</b>             | > 1000°C                      |
| <b>Evaporation rate</b>          | NOT AVAILABLE                 |
| <b>pH</b>                        | NEUTRAL                       |
| <b>Vapour density</b>            | NOT AVAILABLE                 |
| <b>Specific gravity</b>          | 4.0 to 4.2                    |
| <b>Solubility (water)</b>        | INSOLUBLE                     |
| <b>Vapour pressure</b>           | NOT AVAILABLE                 |
| <b>Upper explosion limit</b>     | NOT RELEVANT                  |
| <b>Lower explosion limit</b>     | NOT RELEVANT                  |
| <b>Partition coefficient</b>     | NOT AVAILABLE                 |
| <b>Autoignition temperature</b>  | NOT AVAILABLE                 |
| <b>Decomposition temperature</b> | NOT AVAILABLE                 |
| <b>Viscosity</b>                 | NOT AVAILABLE                 |
| <b>Explosive properties</b>      | NOT AVAILABLE                 |
| <b>Oxidising properties</b>      | NOT AVAILABLE                 |
| <b>Odour threshold</b>           | NOT AVAILABLE                 |

### 9.2 Other information

|                     |                                |
|---------------------|--------------------------------|
| <b>Bulk density</b> | 2000 to 2400 kg/m <sup>3</sup> |
|---------------------|--------------------------------|

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## 10. STABILITY AND REACTIVITY

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### 10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6

### 10.2 Chemical stability

Stable under recommended conditions of storage.

### 10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

### 10.4 Conditions to avoid

Avoid contact with incompatible substances.

### 10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid).

### 10.6 Hazardous decomposition products

May evolve toxic gases when heated to decomposition.

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## 11. TOXICOLOGICAL INFORMATION

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### 11.1 Information on toxicological effects

|                                 |  |
|---------------------------------|--|
| <b>Acute toxicity</b>           | Non-toxic. There are no known hazards resulting from accidental ingestion of this product as may occur during normal handling. Ingestion of large quantities may cause irritation to the gastrointestinal system, mainly as a result of abrasion.  |
| <b>Skin</b>                     | Not classified as a skin irritant. Contact may result in mechanical irritation.  |
| <b>Eye</b>                      | Not classified as an eye irritant. Contact may result in mechanical irritation.  |
| <b>Sensitisation</b>            | This product is not known to be a skin or respiratory sensitiser.  |
| <b>Mutagenicity</b>             | No evidence of mutagenic effects.  |
| <b>Carcinogenicity</b>          | This product contains a small amount of respirable crystalline silica and precautions should be taken to avoid inhaling the dust. Crystalline silica is classified as carcinogenic to humans (IARC Group 1). The normal grain size of the product precludes it from being an inhalation hazard.  |
| <b>Reproductive</b>             | Not classified as a reproductive toxin.  |
| <b>STOT - single exposure</b>   | No known effects from this product.  |
| <b>STOT - repeated exposure</b> | The normal grain size of the product precludes it from being an inhalation hazard. This product contains a small amount of respirable crystalline silica and precautions should be taken to avoid inhaling the dust. Radiation: This product contains low levels of naturally occurring radioactive elements of the uranium and thorium series. Low level gamma radiation from bulk or bagged stockpiles of this product can increase gamma levels slightly above normal background. |
| <b>Aspiration</b>               | This product does not present an aspiration hazard.  |

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## 12. ECOLOGICAL INFORMATION

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### 12.1 Toxicity

The material is unlikely to cause any environmental damage. It is insoluble in water and is unlikely to contaminate waterways or food chains.

### 12.2 Persistence and degradability

Not applicable.

### 12.3 Bioaccumulative potential

This product is not expected to bioaccumulate.

### 12.4 Mobility in soil

This product has low mobility in soil.

### 12.5 Results of PBT and vPvB assessment

No information provided.

**12.6 Other adverse effects**

No information provided.

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Waste disposal** Disposal must be in accordance with Federal, State and Local Council regulations. If approved, may be transferred to an approved landfill site. Many states are developing new regulations for the disposal of waste containing Naturally Occurring Radioactive Materials (NORM) or Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) above background levels. Consult and comply with current regulations.

**Legislation** Dispose of in accordance with relevant local legislation.

**14. TRANSPORT INFORMATION**

**NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF DOT, IMDG OR IATA**

|                                    | LAND TRANSPORT (DOT) | SEA TRANSPORT (IMDG / IMO) | AIR TRANSPORT (IATA / ICAO) |
|------------------------------------|----------------------|----------------------------|-----------------------------|
| <b>14.1 UN Number</b>              | None allocated.      | None allocated.            | None allocated.             |
| <b>14.2 Proper Shipping Name</b>   | None allocated.      | None allocated.            | None allocated.             |
| <b>14.3 Transport hazard class</b> | None allocated.      | None allocated.            | None allocated.             |
| <b>14.4 Packing Group</b>          | None allocated.      | None allocated.            | None allocated.             |

**14.5 Environmental hazards**

No information provided.

**14.6 Special precautions for user**

**15. REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**US EPCRA and CAA Regulatory Information**

The following components are subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act (CAA):

None of the components of this product are listed on the SARA/CERCLA/CASA lists.

**Carcinogenicity**

The following components are reported to be carcinogenic:

| Ingredient                  | CAS Number | NTP             | IARC    | OSHA      |
|-----------------------------|------------|-----------------|---------|-----------|
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Known           | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 |                 | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 |                 | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Kilala          | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Connu           | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Bekannt         | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | 知られている          | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Nổi tiếng       | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | diketahui       | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Conocido        | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Conhecido       | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | Ismert          | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | 알려진             | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | yang diketahui  | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | 已知              | Group 1 | Regulated |
| QUARTZ (CRYSTALLINE SILICA) | 14808-60-7 | мэдэгдэж байгаа | Group 1 | Regulated |

**PRODUCT NAME LEUCOXENE SAND PRODUCTS**

**TSCA**

The following components are not listed on the TSCA Inventory list:

| <b>Ingredient</b> | <b>CAS Number</b> |
|-------------------|-------------------|
| MONAZITE          | 1306-41-8         |
| STAUROLITE        | 12182-56-8        |

**Inventory listings**

AUSTRALIA: AICS (Australian Inventory of Chemical Substances)

All components are listed on AICS, or are exempt.

UNITED STATES: TSCA (US Toxic Substances Control Act)

All components are listed on the TSCA inventory, or are exempt.

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**16. OTHER INFORMATION**

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**16.1 Additional information**

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:** The recommendation for protective equipment contained within the SDS is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES:** Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

**HEALTH EFFECTS FROM EXPOSURE:**

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

## PRODUCT NAME LEUCOXENE SAND PRODUCTS

### 16.2 Abbreviations

|                   |   |
|-------------------|---|
| ACGIH             | American Conference of Governmental Industrial Hygienists                                       |
| CAA               | Clean Air Act   |
| CAS #             | Chemical Abstract Service number - used to uniquely identify chemical compounds                 |
| CERCLA            | Comprehensive Environmental Response, Compensation, and Liability Act                           |
| CNS               | Central Nervous System  |
| EC No.            | EC No - European Community Number   |
| EMS               | Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)                   |
| EPCRA             | Emergency Planning and Community Right-to-Know Act  |
| GHS               | Globally Harmonized System  |
| IARC              | International Agency for Research on Cancer   |
| LC50              | Lethal Concentration, 50% / Median Lethal Concentration   |
| LD50              | Lethal Dose, 50% / Median Lethal Dose   |
| mg/m <sup>3</sup> | Milligrams per Cubic Metre  |
| NTP               | U.S. National Toxicology Program  |
| OEL               | Occupational Exposure Limit   |
| OSHA              | Occupational Safety and Health Administration   |
| PEL               | Permissible Exposure Limit  |
| pH                | relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline). |
| ppm               | Parts Per Million   |
| RCRA              | Resource Conservation and Recovery Act  |
| RQ                | Reportable Quantity measured in pounds (304, CERCLA)  |
| SARA              | Superfund Amendments and Reauthorization Act  |
| STEL              | Short-Term Exposure Limit   |
| STOT-RE           | Specific target organ toxicity (repeated exposure)  |
| STOT-SE           | Specific target organ toxicity (single exposure)  |
| TLV               | Threshold Limit Value   |
| TPQ               | Threshold Planning Quantity measured in pounds (302)  |
| TQ                | Threshold Quantity measured in pounds (CAA)   |
| TWA               | Time Weighted Average   |

### 16.3 Summary Of Codes

|     |  |
|-----|--|
| RQ  | Reportable Quantity measured in pounds (304, CERCLA)   |
| TQ  | Threshold Quantity measured in pounds (CAA)  |
| TPQ | Threshold Planning Quantity measured in pounds (302)   |
| ^   | Reporting threshold has changed since November 1998.   |
| +   | Member of PAC category.  |
| #   | Member of diisocyanate category.   |
| X   | Indicates that this is a second name for a chemical already included on this consolidated list. May also indicate that the same chemical with the same CAS number appears on another list with a different chemical name.                                  |
| *   | RCRA carbamate waste: statutory one-pound RQ applies until RQs are adjusted.   |
| **  | This chemical was identified from a Premanufacture Review Notice (PMN) submitted to EPA. The submitter has claimed certain information on the submission to be confidential, including specific chemical identity.   |
| *** | Indicates that no RQ is assigned to this generic or broad class, although the class is a CERCLA hazardous substance. See 50 Federal Register 13456 (April 4, 1985). Values in Section 313 column represent Category Codes for reporting under Section 313. |
| c   | Although not listed by name and CAS number, this chemical is reportable under one or more of the EPCRA section 313 chemical categories.  |
| s   | Indicates that this chemical is currently under an administrative stay of the EPCRA section 313 reporting requirements, therefore, no Toxics Release Inventory reports are required until the stay is removed.   |
| !   | Member of the dioxin and dioxin-like compounds category.   |

### 16.4 Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

**PRODUCT NAME LEUCOXENE SAND PRODUCTS**

**16.5 Prepared by**

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Prepared in accordance to OSHA Hazard Communication standard, 29 CFR 1920.1200.

**[ End of SDS ]**