

# SAFETY DATA SHEET



**ILUKA**

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

### 1.1 Product identifier

**Product name** STAUROLITE CONCENTRATE  
**Synonym(s)** NONE

### 1.2 Uses and uses advised against

**Use(s)** SANDBLASTING

### 1.3 Details of the supplier of the product

**Supplier name** ILUKA RESOURCES INC. (VIRGINIA OPERATIONS)  
**Address** 12472 St John Church Road, Stony Creek, Virginia, 23822-3239, UNITED STATES  
**Telephone** (434) 348 4300  
**Fax** (434) 246 3039  
**Website** <http://www.iluka.com>

### 1.4 Emergency telephone number(s)

**Emergency** (434) 348 4300 (24 hour)

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS

### 2.2 Label elements

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

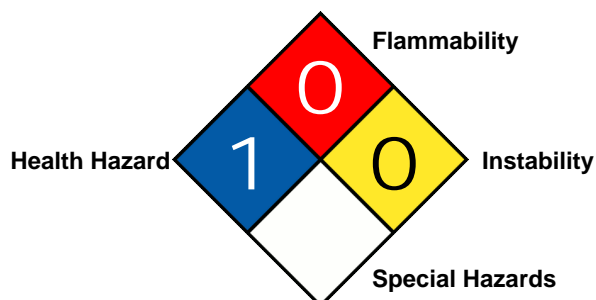
### 2.3 Other hazards

Staurolite concentrate contains a small amount of quartz (up to 1%) and precautions should be taken to avoid inhaling the dust. The normal grain size of the product precludes it from being an inhalation hazard.

#### HMIS

Health	N	1
Flammability		0
Physical Hazard		0
Personal Protection		0

#### NFPA



## 3. COMPOSITION/ INFORMATION ON INGREDIENTS

### 3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	0.1 to 1%
URANIUM	7440-61-1	231-170-6	<0.05%
STAUROLITE	12182-56-8	-	70 to 85%

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TITANIUM DIOXIDE	13463-67-7	236-675-5	5 to 22%
ZIRCON	14940-68-2	239-019-6	6 to 12%
KYANITE	1302-76-7	215-106-4	<2%
SILLIMANITE	12141-45-6	-	<2%
WATER	7732-18-5	231-791-2	0.1 to 0.3%
THORIUM	7440-29-1	231-139-7	<0.05%

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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. Remove contact lenses if present and easy to do - continue rinsing.
<b>Inhalation</b>	If inhaled, remove person to fresh air and keep comfortable for breathing.
<b>Skin</b>	If on skin (or hair), brush off loose particles. If on clothing, brush off loose particles.
<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. Clear area of all unprotected personnel. 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**

Avoid breathing dust. Use gloves and wash hands before eating, drinking or smoking to minimize inhalation or ingestion from hands.

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

Store in a cool, dry, well ventilated area, removed from foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

### 7.3 Specific end use(s)

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>
Silica, Crystalline Quartz	ACGIH TLV (US)	--	0.025	--	--
Titanium dioxide	ACGIH TLV (US)	--	10	--	--
Uranium (natural)	ACGIH TLV (US)	--	0.2	--	0.6

#### Biological limits

Ingredient	Determinant	Sampling Time	BEI
URANIUM	Uranium in urine	End of shift	200 µg/L

Reference: ACGIH Biological Exposure Indices

### 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 dust-proof goggles.
- Hands** Wear PVC or rubber gloves.
- Body** When using large quantities or where heavy contamination is likely, wear coveralls.
- Respiratory** Where an inhalation risk exists, wear a Class P1 (Particulate) respirator. At high dust levels, wear a Powered Air Purifying Respirator (PAPR) with Class P3 (Particulate) filter or a Full-face Class P3 (Particulate) respirator.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	DARK RED 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>	1380°C to 1540°C
<b>Evaporation rate</b>	NOT AVAILABLE
<b>pH</b>	6 to 8
<b>Vapour density</b>	NOT AVAILABLE
<b>Specific gravity</b>	3.7 to 3.8
<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

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### 9.1 Information on basic physical and chemical properties

Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

### 9.2 Other information

Bulk density	1900 kg/m <sup>3</sup>
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## 10. STABILITY AND REACTIVITY

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### 10.1 Reactivity

This material is considered inert.

### 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

No known conditions to avoid.

### 10.5 Incompatible materials

None in normal or expected use.

### 10.6 Hazardous decomposition products

This material will not decompose to form hazardous products.

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## 11. TOXICOLOGICAL INFORMATION

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### 11.1 Information on toxicological effects

<b>Acute toxicity</b>	Non-toxic by ingestion. Swallowing a large amount may result in irritation to the digestive system due to abrasiveness.
<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>Sensitization</b>	This product is not known to be a skin or respiratory sensitiser.
<b>Mutagenicity</b>	No evidence of mutagenic effects.
<b>Carcinogenicity</b>	Staurolite concentrate contains a small amount of quartz (up to 1%) and precautions should be taken to avoid inhaling the dust. The normal grain size of the product precludes it from being an inhalation hazard.  The grain size of the product is outside the respirable range (>10µm diameter) and precludes it from being an inhalation hazard. Handling and processing can however fracture grains, and in the dry state this can generate dust. It can be irritating if inhaled at high concentration. May cause symptoms such as coughing or sneezing.
<b>Reproductive</b>	No evidence of reproductive effects.
<b>STOT – single exposure</b>	No known effects from this product.
<b>STOT – repeated exposure</b>	Staurolite concentrate contains a small amount of quartz (up to 1%) and precautions should be taken to avoid inhaling the dust. The normal grain size of the product precludes it from being an inhalation hazard.  Staurolite concentrate contains very low levels (below 0.05% by weight) of naturally occurring radioactive elements of the uranium and thorium series. Internal exposure via inhaled dust is the main exposure pathway. Close proximity to large quantities (bulk or stockpiles) of STAUROLITE CONCENTRATE over long periods (2000 hours per year) may result in direct exposure. Iluka Staurolite concentrate is exempt from NRC regulations for source material per 10 CFR 40 because it is below 0.05 % uranium and thorium.
<b>Aspiration</b>	Not relevant.

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## 12. ECOLOGICAL INFORMATION

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## PRODUCT NAME STAUROLITE CONCENTRATE

### 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

No information provided.

### 12.4 Mobility in soil

No information provided.

### 12.5 Results of PBT and vPvB assessment

No information provided.

### 12.6 Other adverse effects

This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Not expected to bioaccumulate.

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## 13. DISPOSAL CONSIDERATIONS

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### 13.1 Waste treatment methods

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

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

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## 14. TRANSPORT INFORMATION

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### NOT REGULATED FOR TRANSPORT

	LAND TRANSPORT (DOT)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

### 14.5 Environmental hazards

No information provided

### 14.6 Special precautions for user

No information provided

**Other information** Staurolite is a "natural material or ore" and <10 Bq/g natural uranium and thorium therefore, it is excluded from regulation in transport. Reference: IAEA TS-R-1 Para. 107(e); 49 CFR 173.401(b)(4).

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## 15. REGULATORY INFORMATION

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### 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:

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Ingredient	CAS Number	NTP	IARC	OSHA
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	Known	Group 1	
TITANIUM DIOXIDE	13463-67-7		Group 2B	
THORIUM	7440-29-1	Known	Group 1	

**TSCA**

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

Ingredient	CAS Number
STAUROLITE	12182-56-8
ZIRCON	14940-68-2

**Inventory listing(s)**

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**

For further information CONTACT Iluka Resources Inc Virginia operations.

California Proposition 65 Warning: This product contains substances known to the State of California to cause cancer.

RESPIRATORS: 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.

**PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:**

The recommendation for protective equipment contained within this report 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.

**HEALTH EFFECTS FROM EXPOSURE:**

It should be noted that the effects from exposure to this product will depend on several factors including: 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 ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

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### 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 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.

### 16.4 Prepared by

Risk Management Technologies  
5 Ventnor Ave, West Perth  
Western Australia 6005  
Phone: +61 8 9322 1711  
Fax: +61 8 9322 1794  
Email: info@rmt.com.au  
Web: www.rmt.com.au.

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

**[ End of SDS ]**