

# MATERIAL SAFETY DATA SHEET

## Tris(2-(benzo[b]thiophen-2-yl)pyridineiridium(III))



### 1. Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product Details

Product Code : M491  
Name : Tris(2-(benzo[b]thiophen-2-yl)pyridineiridium(III))  
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.  
CAS No. : 405289-74-9

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals

#### 1.3. Supplier details

Supplied by : Ossila Limited  
Kroto Innovation Centre  
Broad Lane, Sheffield  
S3 7HQ, UK  
Telephone : 0114 213 2770  
Email address : info@ossila.com

### 2. Hazards identification

#### 2.1. Classification of the substance or mixture

##### Hazard statements according to Regulation (EC) 1272/2008

Skin irritation (Category 2), H315  
Eye irritation (Category 2), H319  
Specific target organ toxicity - single exposure (Category 3) , H335

#### 2.2. Label elements

##### Labelling according Regulation (EC) No 1272/2008 [CLP]



**Signal word** Warning  
**Hazard statement(s)**  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation

##### Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Supplemental information** None.

## 2.3. Other hazards

None.

## 3. Composition/Information on ingredients

### 3.1. Substances

Synonyms: : Ir(btpy)<sub>3</sub>, Tris[2-(benzo[b]thiophen-2-yl)pyridinato-C3,N]iridium(III),  
*fac*-Tris[2-(benzo[b]thiophen-2-yl)pyridinato-C3,N]iridium(III),  
*fac*-Ir(btpy)<sub>3</sub>, Tris(2-(benzo[b]thiophen-2-yl)pyridineiridium(III))

Formula : C<sub>39</sub>H<sub>24</sub>IrN<sub>3</sub>S<sub>3</sub>

Molecular weight : 823.08 g/mol

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	CAS #	Weight %	CLP Classification
Tris(2-(benzo[b]thiophen-2-yl)pyridineiridium(III))	405289-74-9	≤ 100	Skin irrit. 2 (H315), Eye irrit. 2 (H319), STOT SE 3 (H335)

## 4. First aid measures

### 4.1. Description of first aid measures

#### After Inhalation

If inhaled, remove to fresh air. If not breathing give artificial respiration. Call a physician.

#### After skin contact

In case of skin contact, wash with soap and flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### After eye contact

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### After Ingestion

If swallowed, wash out mouth with water. Call a physician.

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

The most important known symptoms and effects are described in section 11.

### 4.3. Indication of any immediate medical attention and special treatment needed

No data available.

## 5. Fire fighting

### 5.1. Extinguishing media

**Suitable extinguishing media:** Dry chemical, alcohol-resistant foam, carbon dioxide or water spray. Consult with local fire authorities before attempting large scale fire fighting operations.

### 5.2. Special hazards arising from the substance of mixture

**Hazardous combustion products:** Carbon oxides, nitrogen oxides, sulfur oxides, iridium oxides.

### 5.3. Advice for firefighters

Wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases and vapours may be generated by thermal decomposition.

## 6. Accidental release measures

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

Wear personal protective equipment (section 8). Avoid dust formation. Ensure room is well ventilated. Remove all sources of ignition.

### 6.2. Environmental precautions

Do not let product enter drains.

### 6.3. Containment and cleaning

Contain and clean up spill if safe to do so using an electrically protected vacuum cleaner or by wet-brushing. Dispose of dry waste in closed container for proper disposal according to local regulations.

## 7. Handling and storage

### 7.1. Precautions for safe handling

Avoid formation of dust and aerosols. Keep away from sources of ignition and avoid the build up of electrostatic charge. Provide exhaust ventilation in places where dust is formed.

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

Store in a cool, dry and well-ventilated place inside of a tightly sealed container. Reseal containers that have been opened and keep upright to prevent leakage.

**Quality-related information:** Product is light sensitive. Handle and store under inert gas. Store in the dark.

### 7.3. Specific end uses

Use in laboratories.

## 8. Exposure controls / Personal protection

### 8.1. Control parameters

#### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

#### Biological occupational exposure limits

This product does not contain any hazardous materials with biological limits.

### 8.2. Exposure controls

#### Engineering measures

Handle in accordance with good industrial engineering/laboratory practices for hygiene and safety. Ensure eyewash stations and safety showers are close to the laboratory workstation. Ensure good general ventilation is present when handling the product.

#### Personal protective equipment

**Eyes:** Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).

**Skin:** Handle with appropriate gloves and use proper glove removal technique to avoid skin contact. Dispose of gloves in accordance with applicable laws. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

**Clothing:** Wear complete suit protecting against chemicals; the type of equipment should be appropriate for the concentration and amount of dangerous substance used.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR §1910.134 and ANSI Z88.2 requirements or European standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

## General hygiene measures

Wash thoroughly after handling. Wash contaminated clothing before reuse.

## 9. Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Appearance	:	Solid red powder
Odour	:	No data available
Odour threshold	:	No data available
pH	:	No data available
Melting/freezing point	:	> 300 °C
Boiling point/range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability	:	No data available
Explosive limits	:	No data available
Vapour pressure	:	No data available
Vapour density	:	No data available
Relative density	:	No data available
Solubility(ies)	:	No data available
Partition coefficient: <i>n</i> -octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available

### 9.2. Other safety information

No data available.

## 10. Stability and reactivity

### 10.1 Reactivity

No data available.

### 10.2. Chemical stability

Stable under normal temperatures and pressures under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

No data available.

### 10.4. Conditions to avoid

Excessive exposure to heat and light.

### 10.5. Incompatible materials

Strong oxidising agents.

### 10.6. Hazardous decomposition products

No known hazardous decomposition products.

## 11. Toxicological information

### 11.1. Information on toxicological effects

**Acute toxicity**

No data available.

**Skin corrosion/irritation**

No data available.

**Serious eye damage/eye irritation**

No data available.

**Respiratory or skin sensitization**

No data available.

**Germ cell mutagenicity**

No data available.

**Carcinogenicity**

No data available.

**Reproductive toxicity**

No data available.

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

No data available.

**Aspiration hazard**

No data available.

**Routes of exposure**

Eye contact, ingestion, inhalation, skin contact.

**Signs and Symptoms of Exposure**

Skin: inflammation (redness, swelling, itching and pain). Eyes: inflammation, tearing and impaired vision. Inhalation: cough, nose and throat pain.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

## 12. Ecological information

### 12.1. Toxicity

No data available.

### 12.2. Persistence and degradability

No data available.

### 12.3. Bioaccumulative potential

No data available.

### 12.4. Mobility in soil

No data available.

### 12.5. Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

### 12.6. Other adverse effects

No data available.

## 13. Disposal

### 13.1. Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations and directives on waste and hazardous waste. Offer surplus material to a licensed professional waste disposal professional.

#### Contaminated packaging

Dispose of as unused product.

## 14. Transport

Non-hazardous for road, air and sea transport.

**IATA:** Not regulated as a hazardous material.

**IMO:** Not regulated as a hazardous material.

**RID/ADR:** Not regulated as a hazardous material.

## 15. Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

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

No data available.

### 15.2 Chemical safety assessment

No chemical safety report/assessment was carried out for this product.

## 16. Other information

### Warranty

This material is for research and development use only. The information provided here is based upon the available information from material suppliers but not warranted as complete and is provided only as a guide. Ossila Limited shall not be held responsible for any damage resulting from use or handling of this product.