

## SIGMA-ALDRICH

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## Material Safety Data Sheet

Version 4.0  
Revision Date 07/29/2010  
Print Date 10/14/2010Formula : C58H86N8O8RuS2  
Molecular Weight : 1,188.55 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Di-tetrabutylammonium <i>cis</i> -bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II)			
207347-46-4	-	-	-

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Di-Tetrabutylammonium *cis*-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II)

Product Number : 703214  
Brand : Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832  
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## 2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Respiratory sensitiser

## GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)  
H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled.Precautionary statement(s)  
P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P342 + P311 : If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

## HMIS Classification

Health hazard: 2  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

## NFPA Rating

Health hazard: 2  
Fire: 0  
Reactivity Hazard: 0

## Potential Health Effects

Inhalation : May be harmful if inhaled. May cause respiratory tract irritation.  
Skin : May be harmful if absorbed through skin. May cause skin irritation.  
Eyes : May cause eye irritation.  
Ingestion : May be harmful if swallowed.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : N-719 dye

## 4. FIRST AID MEASURES

## General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

## If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

## In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

## In case of eye contact

Flush eyes with water as a precaution.

## If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## 5. FIRE-FIGHTING MEASURES

## Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

## Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

## Personal precautions

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

## Environmental precautions

Do not let product enter drains.

## Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

## Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

## Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

Handle and store under inert gas. Air and light sensitive. Heat sensitive. Moisture sensitive.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

## Personal protective equipment

## Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**  
 Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves' outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Eye protection**  
 Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**  
 Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**  
 Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**  
 Form solid

**Safety data**  
 pH no data available  
 Melting point 250 - 260 °C (482 - 500 °F)  
 Boiling point no data available  
 Flash point no data available  
 Ignition temperature no data available  
 Lower explosion limit no data available  
 Upper explosion limit no data available  
 Water solubility no data available

**10. STABILITY AND REACTIVITY**

**Chemical stability**  
 Stable under recommended storage conditions.

**Conditions to avoid**  
 no data available

**Materials to avoid**  
 Oxidizing agents

**Hazardous decomposition products**  
 Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Sulphur oxides, Ruthenium oxide

**11. TOXICOLOGICAL INFORMATION**

**Acute toxicity**  
 no data available

**Skin corrosion/irritation**  
 no data available

**Serious eye damage/eye irritation**  
 no data available

**Respiratory or skin sensitization**  
 May cause allergic respiratory reaction.

**Germ cell mutagenicity**

**Carcinogenicity**  
 no data available

**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**  
 no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**  
 no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**  
 no data available

**Aspiration hazard**  
 no data available

**Potential health effects**  
 Inhalation May be harmful if inhaled. May cause respiratory tract irritation.  
 Skin May be harmful if swallowed.  
 Eyes May cause eye irritation.

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

**Additional information**

**12. ECOLOGICAL INFORMATION**

**Toxicity**  
 no data available

**Persistence and degradability**  
 no data available

**Bioaccumulative potential**  
 no data available

**Mobility in soil**  
 no data available

**PBT and PVB assessment**  
 no data available

**Other adverse effects**  
 no data available

**13. DISPOSAL CONSIDERATIONS**

**Product**  
 Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**  
 Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**Not dangerous goods

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**15. REGULATORY INFORMATION****OSHA Hazards**

Respiratory sensitiser

**DSL Status**

This product contains the following components that are not on the Canadian DSL nor NDSL lists.

Di-tetrabutylammonium cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II)	CAS-No. 207347-46-4
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**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

Acute Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Di-tetrabutylammonium cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II)	207347-46-4	

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Di-tetrabutylammonium cis-bis(isothiocyanato)bis(2,2'-bipyridyl-4,4'-dicarboxylato)ruthenium(II)	207347-46-4	

**California Prop. 65 Components**This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further Information**

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