

Order Number

Customer Number

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

**Product name** : Clioquinol **Catalog #** : 233165

**Chemical formula** : C<sub>9</sub>H<sub>5</sub>ClINO **Supplier** : EMD Biosciences, Inc.  
10394 Pacific Center Court  
San Diego, CA 92121  
(858)450-5558/(800)854-3417  
FAX: (858)453-3552

**Synonym** : 5-Chloro-7-iodo-8-hydroxyquinoline

This product is being sent to you as Research and Development product as defined by the Toxic Substances Act (TSCA) of 1976. Due to TSCA's R&D exemption, this product is not listed on the U.S. EPA's Toxic Substances Control Act (TSCA's) inventory. As a TSCA-exempt R&D substance, this product must be used by or directly under the supervision of a technically qualified individual(s) as defined by TSCA. This product may not be used for commercial purposes or in formulations used for commercial purposes.

**Emergency telephone number** : Call Chemtrec®  
(800)424-9300 (within U.S.A.)  
(703)527-3887 (outside U.S.A.)

## 2. Composition / information on ingredients

**Substance/Preparation** : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
Clioquinol	130-26-7	204-984-4	T	R25, R42/43, R63

## 3. Hazards identification

**Physical/chemical hazards** : Not applicable.

**Human health hazards** : DANGER!  
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.  
HARMFUL IF SWALLOWED.  
CAUSES DAMAGE TO THE FOLLOWING ORGANS: EYES, EYE, LENS OR CORNEA.  
MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION.  
MAY CAUSE BIRTH DEFECTS BASED ON ANIMAL DATA.  
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: LUNGS, DIGESTIVE SYSTEM,  
RESPIRATORY TRACT, HEAD.

## 4. First-aid measures

### First-Aid measures

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion** : If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Skin Contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

### Effects and symptoms

**Inhalation** : Hazardous in case of inhalation (lung sensitizer, lung corrosive). Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Over-exposure by inhalation may cause respiratory irritation.

**Ingestion** : Very hazardous in case of ingestion. May be fatal if swallowed. May cause burns to mouth, throat and stomach

**Skin Contact** : Hazardous in case of skin contact (corrosive, sensitizer). The amount of tissue damage depends on length of contact. Skin contact can produce inflammation and blistering. Skin contact may produce burns.

**Eye Contact** : Hazardous in case of eye contact (corrosive). Eye contact can result in corneal damage or blindness.

**Aggravating conditions** : Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## 5. Fire-fighting measures

- Flammability of the Product** : May be combustible at high temperature.
- Extinguishing Media**
- Suitable** : SMALL FIRE: Use DRY chemical powder.  
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
- Hazardous thermal (de)composition products** : These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...), halogenated compounds.
- Special fire-fighting procedures** : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
- Protection of fire-fighters** : Be sure to use an approved/certified respirator or equivalent.

## 6. Accidental release measures

- Personal precautions** : Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
- Small Spill and Leak** : Use appropriate tools to put the spilled solid in a convenient waste disposal container.
- Large Spill and Leak** : Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## 7. Handling and storage

- Handling** : Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above -20°C (-4°F).
- Packaging materials**
- Recommended use** : Use original container.

## 8. Exposure controls/personal protection

- Engineering measures** : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Hygiene measures** : Wash hands, forearms, and face thoroughly after handling compounds and before eating, smoking, using lavatory, and at the end of day.

<u>Ingredient Name</u>	<u>Occupational Exposure Limits</u>
Clioquinol	Not available.

### Personal protective equipment

- Respiratory system** : Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
- Skin and body** : Synthetic apron.
- Hands** : Gloves.
- Eyes** : Splash goggles.
- Protective Clothing (Pictograms)** :



## 9. Physical and chemical properties

- Physical state** : Solid. (Solid powder.)
- Color** : Reddish-white. (Light.)
- Molecular Weight** : 305.5 g/mole
- Melting Point** : 172 to 181°C (341.6 to 357.8°F)
- Solubility** : Not available.
- Flash point** : Not available.

**Explosive properties** : Risks of explosion of the product in presence of mechanical impact: Not available.  
Risks of explosion of the product in presence of static discharge: Not available.

## 10. Stability and reactivity

**Stability** : The product is stable.  
**Conditions to avoid** : Sensitive to light.  
**Materials to avoid** : Reactive with oxidizing agents, acids.  
**Hazardous Decomposition Products** : These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...), halogenated compounds.

## 11. Toxicological information

**RTECS #** : VC5075000

### Local effects

**Skin irritation** : Hazardous in case of skin contact (corrosive).  
**Sensitization** : Hazardous in case of skin contact (sensitizer), of inhalation (lung sensitizer).  
**Acute toxicity** : Acute oral toxicity (LD50): >5000 mg/kg [Rat].  
**Chronic toxicity** : Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Other Toxic Effects on Humans

: Not available.  
Very hazardous in case of ingestion.  
Hazardous in case of skin contact (corrosive, sensitizer), of eye contact (corrosive), of inhalation (lung sensitizer, lung corrosive).  
May cause congenital malformations in the foetus.  
  
Exposure can cause nausea, headache and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract.

### Specific effects

**Carcinogenic effects** : Not available.  
**Mutagenic effects** : Not available.  
**Reproduction toxicity** : Not available.  
**Teratogenic effects** : Classified POSSIBLE for human.

## 12. Ecological information

**Ecotoxicity** : Not available.  
**Toxicity of the Products of Biodegradation** : The products of degradation are as toxic as the product itself.

## 13. Disposal considerations

**Methods of disposal; Waste of residues; Contaminated packaging** : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## 14. Transport information

### International transport regulations

**UN number** : 2811

### Land - Road/Railway

**Proper shipping name** : Toxic solid, organic, n.o.s. (5-Chloro-7-Iodo-8-Hydroxyquinoline)  
**ADR/RID Class** : CLASS 6.1: Toxic substance.  
**Packing Group** : III  
**ADR/RID label** :



### Sea

**Proper shipping name** : Toxic solid, organic, n.o.s. (5-Chloro-7-Iodo-8-Hydroxyquinoline)  
**IMDG Class** : CLASS 6.1: Toxic substance.  
**Packing Group** : III

IMDG label : 


Air

Proper shipping name : Toxic solid, organic, n.o.s. (5-Chloro-7-Iodo-8-Hydroxyquinoline)

UN/ID Number : 2811

IATA-DGR Class : CLASS 6.1: Toxic substance.


Packing Group : III

IATA label : 

Special Provisions for Transport : Not available.

## 15. Regulatory information

EU Regulations

Hazard symbol(s) : 

Classification : Toxic

Risk Phrases : R25- Toxic if swallowed.  
R42/43- May cause sensitization by inhalation and skin contact.  
R63- Possible risk of harm to the unborn child.

Safety Phrases : S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S36- Wear suitable protective clothing.

Contains : - Clioquinol

U.S. Federal Regulations : TSCA 8(b) inventory: Clioquinol  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: Clioquinol  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Clioquinol : Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard  
SARA 313 toxic chemical notification and release reporting: No products were found.  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
Clean air act (CAA) 112 accidental release prevention: No products were found.  
Clean air act (CAA) 112 regulated flammable substances: No products were found.  
Clean air act (CAA) 112 regulated toxic substances: No products were found.

HCS Classification : CLASS: Toxic.  
CLASS: Target organ effects.

State Regulations :

WHMIS (Canada) : CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).  
CLASS D-2A: Material causing other toxic effects (VERY TOXIC).  
CLASS E: Corrosive solid.  
  
CEPA NDSL: Clioquinol

## 16. Other information

**Hazardous Material Information System (U.S.A.)**

Health	*	3
Fire Hazard		1
Reactivity		0
Personal Protection		

**National Fire Protection Association (U.S.A.)**



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