Section 1 - Chemical Product and Company Identification

MSDS Name: Quinoline
Catalog Numbers: AC132190000, AC132190010, AC132195000, AC221140000, AC221140050, AC221140250
Synonyms: 1-Azanaphthalene; 1-Benzazine; Benzopyridine
Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 91-22-5
Chemical Name: Quinoline
%: >96
EINECS#: 202-051-6

Hazard Symbols: XN

Risk Phrases: 21/22 37/38 40 41 68

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Warning! Cancer suspect agent. Possible risks of irreversible effects. May cause liver damage. Causes eye irritation and possible injury. Harmful in contact with skin and if swallowed. Causes skin and respiratory tract irritation. Target Organs: Liver, respiratory system, eyes, skin, optic nerve.

Potential Health Effects
Eye: May result in corneal injury. May cause retinal damage. Causes eye irritation and possible burns.
Skin: Harmful if absorbed through the skin. May cause severe irritation and possible burns. If absorbed, may cause symptoms similar to those for ingestion.
Ingestion: Harmful if swallowed. May cause irritation of the digestive tract. May cause liver damage.
Inhalation: Causes respiratory tract irritation. May cause respiratory muscle paralysis. Other symptoms include lethargy, irritation, sore throat, nose bleeds, hoarseness, cough, chest tightness, difficulty breathing, nausea, vomiting, dizziness, fever. Extreme exposures could result in a build-up of fluid in the lungs (pulmonary edema) that might be fatal in severe cases.

Section 4 - First Aid Measures
Eyes: Get medical aid immediately. Immediately flush eyes with plenty of water for at least 15 minutes.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, 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 may be generated by thermal decomposition or combustion.

Extinguishing Media: In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam.

Autoignition Temperature: 480 deg C (896.00 deg F)
Flash Point: 100.6 deg C (213.08 deg F)

Explosion Limits:
Lower: 1.20
Upper: 7.00

NFPA Rating: health: 3; flammability: 2; instability: 0;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid breathing vapors from heated material. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use only in a chemical fume hood. Discard contaminated shoes.

Storage: Keep away from sources of ignition. Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinoline</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Quinoline: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a Respirators: NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
**Section 9 - Physical and Chemical Properties**

Physical State: Liquid  
Color: clear yellow to brown  
Odor: peculiar odor  
pH: 7.3  
Vapor Pressure: 1 mm Hg @59.7°C  
Vapor Density: 4.45  
Evaporation Rate: Not available  
Viscosity: Not available  
Boiling Point: 237 deg C (458.60°F)  
Freezing/Melting Point: -15 deg C (5.00°F)  
Decomposition Temperature: Not available  
Solubility in water: slightly soluble in cold water  
Specific Gravity/Density: 1.0850  
Molecular Formula: C9H7N  
Molecular Weight: 129.0557

**Section 10 - Stability and Reactivity**

Chemical Stability: Stable under normal temperatures and pressures. Substance undergoes color change upon exposure to light and air.  
Conditions to Avoid: Incompatible materials, light, excess heat.  
Incompatibilities with Other Materials: Not available  
Hazardous Polymerization: Has not been reported.

**Section 11 - Toxicological Information**

RTECS#: CAS# 91-22-5: VA9275000  
RTECS: CAS#91-22-5: Draize test, rabbit, skin: 100 mg/24H Moderate;  
LD50/LC50: Oral, rat: LD50 = 331 mg/kg;  
Skin, rabbit: LD50 = 540 uL/kg;  
Carcinogenicity: Quinoline - California: carcinogen, initial date 10/24/97  
Other: See actual entry in RTECS for complete information.

**Section 12 - Ecological Information**

Ecotoxicity: Not available

**Section 13 - Disposal Considerations**

Dispose of in a manner consistent with federal, state, and local regulations.

**Section 14 - Transport Information**

US DOT  
Shipping Name: QUINOLINE  
Hazard Class: 6.1  
UN Number: UN2656  
Packing Group: III  
Canada TDG  
Shipping Name: QUINOLINE  
Hazard Class: 6.1  
UN Number: UN2656  
Packing Group: III  
USA RQ: CAS# 91-22-5: 5000 lb final RQ; 2270 kg final RQ
European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN

Risk Phrases:
R 21/22 Harmful in contact with skin and if swallowed.
R 37/38 Irritating to respiratory system and skin.
R 40 Limited evidence of a carcinogenic effect.
R 41 Risk of serious damage to eyes.
R 68 Possible risk of irreversible effects.

Safety Phrases:
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 91-22-5: 2

Canada

CAS# 91-22-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: D2B, D1B, D2A

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 91-22-5 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 91-22-5 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 12/12/1997
Revision #7 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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