



CERTIFICATE OF ANALYSIS

Product Name: CHRYSENE
(Isotopic Label & Enrichment Specification) (D12, 98%) 200 UG/ML IN TOLUENE-D8

Lot Number: SCDI-002

Catalog Number: DLM-261-S

Product Information

Chemical Purity Specification: $\geq 98\%$
Labeled CAS Number: 1719-03-5
Unlabeled CAS Number: 218-01-9
Molecular Weight: 240.37
Chemical Formula: C18D12
Storage: Store at room temperature away from light and moisture.
Stability: See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible.

Approved by: Lynne S. Batchelder

Lynne S. Batchelder, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	9/17/03
Expiration Date	9/17/13
Concentration Based on Gravimetry	200.00 $\mu\text{g/mL}$
GC/MS for Concentration	196.4 \pm 5.3 $\mu\text{g/mL}$
GC/MS for Chemical Purity	98.2%

CAMBRIDGE ISOTOPE LABORATORIES
50 Frontage Road, Andover, Massachusetts 01810

Material Safety Data Sheet

PLEASE NOTE: This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally unavailable, but are assumed to be similar or identical to the corresponding unlabeled compound. While the information contained is believed to be accurate, it does not claim to be all inclusive, and should be used only as a guide. CIL, Inc., extends no warranties with respect hereto and disclaims all liabilities from reliance thereon. Judgments as to the suitability of the data presented with respect to the use of the product are the responsibility of the purchaser and intended user.

Section 1. Chemical Product and Company Identification		CATALOG NO.
Chrysene	(D12, 98%)	DLM-261-1.2
(200 ± 20 µg/ml in Toluene)		
Manufacturer's Name	Emergency Telephone No.	Emergency Telephone No.
Cambridge Isotope Laboratories, Inc.	USA: 1-800-424-9300	INT: 1-202-483-7616
50 Frontage Road	USA, for Information:	International, for Information:
Andover, MA 01810	(800) 322-1174	(978) 749-8000
USA.		
Date Prepared: 13-Apr-00		Supersedes: All previous.

Section 2. Hazard. Ingredients/Identity Information		RTECS No.:	Not available.
Hazardous Components (Specific Chemical Identity; Common Names)			
Chemical Names	CAS Number	OSHA PEL	ACGIH TLV
Chrysene	1719-03-5	Not established.	Not established.
Toluene	2037-26-5	Not established.	Not established.

Section 3. Hazard Identification.

Appearance: Colorless liquid.

Potential health effects: Lung irritation, chest pain and edema which may be fatal. (Toluene)

Routes of Entry: Inhalation, ingestion, skin absorption.

Symptoms of exposure: Burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting.

Target organs: Brain, liver, kidneys, and bladder. (Toluene)

Warnings: Flammable. Toxic. (Toluene) Carcinogen. Mutagen. Hygroscopic. (Chrysene)

Section 4. First Aid Measures.

On contact, flush eyes or skin with lots of water for at least 15 min.

Remove contaminated clothing and shoes.

If inhaled, remove to fresh air.

Call a physician.

Breathing: If breathing is difficult, give oxygen.

Not breathing: If not breathing, give artificial respiration.

Swallowed: Wash out mouth with water if person is conscious.

Wash contaminated clothing before reuse.

Section 5. Fire-Fighting Measures.

Extinguishing Media: Carbon dioxide, dry chemical powder or appropriate foam.

Methods and cautions: Wear self-contained breathing apparatus and protective clothing. Prevent contact with skin and eyes. Use water spray to cool fire-exposed containers. **Danger: Extremely flammable. Container explosion may occur under fire conditions. Vapor may travel considerable distance to source of ignition and flash back.**

Flammable LEL: Not available. Flammable UEL: Not available.

Section 6. Accidental Release Measures.

Evacuate area. Shut off all sources of ignition. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves.

Cover with an activated carbon absorbent, take up and place in closed containers. Transport outdoors.

Ventilate area and wash spill site after material pickup is complete.

Hygiene warning: Wash thoroughly after handling.

Respiratory protection: Wear NIOSH/MSHA approved respirator.

Chrysene (D12, 98%) **DLM-261-1.2**

Section 7. Handling and Storage.

General warning: Flammable. Toxic. (Toluene) Carcinogen. Mutagen. Hygroscopic. (Chrysene)
Handling procedures: Avoid contact with eyes, skin, and clothing.
Storage procedures: Store at room temperature away from light and moisture. Keep tightly closed.
Hygiene instructions: Wash thoroughly after handling.
Other: Use only in a chemical fume hood. Keep away from heat, sparks, and open flame.

Section 8. Exposure Controls and Personal Protection.

General controls: Avoid prolonged or repeated exposure. Do not breathe vapor.
Eye/face protection: Chemical safety goggles.
Skin Protection: Wear suitable protective clothing.
Respiratory protection: Wear NIOSH/MSHA approved respirator.

Section 9. Physical/Chemical Characteristics.

Molecular weight:	240.39	Autoignition temperature:	Not available.
Appearance:	Colorless liquid.	Flash point/Method:	10°C (50°F) (Toluene)
Odor:	Not available.	Melting point:	Not available.
Physical state:	Liquid.	Boiling point:	110°C (Toluene)
pH:	Not available.	Freezing point:	Not available.
Vapor pressure:	Not available.		
Vapor density:	Not available.		
Solubility in water:	Not available.		
Specific gravity/density:	0.943 (Toluene)		

Section 10. Stability and Reactivity.

Chemical Stability: Stable if stored under recommended conditions.
Conditions to Avoid: See Section 16.
Incompatibilities: Oxidizing agents. Protect from moisture.
Hazardous Decomposition: Toxic fumes of carbon monoxide and carbon dioxide.
Hazardous Polymerization: Not available.

Section 11. Toxicological Information (see Section 3 on first page).

Acute data: Harmful if swallowed, inhaled, or absorbed through skin.
Causes severe irritation.
High concentrations are extremely destructive to tissues of the mucous membranes and upper respiratory tract, eyes and skin. (Toluene)
Carcinogen. May alter genetic material. (Chrysene)

Chronic data: May cause nervous system disturbances.
Inhalation studies on toluene have demonstrated the development of inflammatory and ulcerous lesions of the penis, prepuce and scrotum in animals.
Additional Information: Exposure to and/or consumption of alcohol may increase toxic effects. (Toluene)

Section 12. Ecological Information (impact if released into environment).

Not established.

Section 13. Disposal Considerations.

Burn in a chemical incinerator equipped with an afterburner and scrubber.
Exert extra care in igniting as this material is highly flammable.
Observe all Federal, State, and Local Laws.

Section 14. Transport Information.

Follow all Federal, State and Local transportation guidelines.

Section 15. Regulatory Information.

Chrysene-RCRA 40CFR 258 App. 2; 40CFR 261 App. 8, 40CFR 264 App. 9, xU050. Superfund 40CFR 302.4 App. A. CWA-40CFR 413.02, 40CFR 423 App. A. California listed.
Toluene: CAA Title III HAP. SDWA-47FR 9352, 40CFR 141.32; 141.50(b); 141.61(a); 141.62(16); 148.10. RCRA 40CFR 258 App. 1, 258 App. 2, 261 App. 8, 264 App. 9, 266 App. 4, 266 App. 7+8, xU220. Superfund 40CFR 302.4 App. A and 372.65. CWA 40CFR 116.4, 117.3, 401.15, 413.02, 423 App. A. TSCA 40CFR 716.120a. OSHA 29CFR 1910.1000z2. California listed.

Section 16. Other Information.

Iron or ferric chloride catalyzes a vigorous exothermic reaction between toluene and sulfur dichloride.
Ref: Chem. Eng. News, P. 2, August 8, 1998.