MATERIAL SAFETY DATA SHEET

LANXESS Corporation
Product Safety & Regulatory Affairs
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USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

LANXESS Emergency Phone:	(800) 410-3063
LANXESS Information Phone:	(800) LANXESS

1. Product and Company Identification

Product Name:	CHLOROBENZENE
Material Number:	4807405
Chemical Name:	Chlorobenzene
CAS-No.:	108-90-7

2. Hazards Identification

Emergency Overview

WARNING! Color: Colorless **Form:** Liquid **Odor:** Characteristic.
Flammable. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Inhalation may cause nausea or dizziness. May cause respiratory tract irritation. May cause skin irritation.

Potential Health Effects

Primary Routes of Entry:	Skin Contact, Eye Contact, Ingestion, Inhalation
Medical Conditions Aggravated by Exposure:	Skin disorders, Respiratory disorders, Eye disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Component: Monochlorobenzene
May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

Skin
Acute Skin
For Component: Monochlorobenzene
May cause irritation with symptoms of reddening and itching.

Eye
Acute Eye
For Component: Monochlorobenzene
Not expected to be irritating.

Ingestion
Acute Ingestion
For Component: Monochlorobenzene
May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. Moderately toxic by ingestion.

General Effects of Exposure
Chronic Effects of Exposure
For Component: Monochlorobenzene
May cause kidney damage. May cause liver damage.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

3. Composition/Information on Ingredients

Hazardous Components

Weight %	Components	CAS-No.
>=95%	Monochlorobenzene	108-90-7

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops.

Inhalation
If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: All extinguishing media are suitable.

Special Fire Fighting Procedures

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize risk of rupture.

Unusual Fire/Explosion Hazards
Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

6. Accidental release measures

Spill and Leak Procedures
Cleanup personnel must use appropriate personal protective equipment. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Remove all sources of ignition, including flames, heat, and sparks.

7. Handling and Storage

Storage Temperature:
maximum: 25 °C (77 °F)

Storage Period
24 Months

Handling/Storage Precautions
Keep away from heat, sparks and open flames. Ground and bond containers and equipment before transferring to avoid static sparks. Avoid breathing dust, vapor, or mist. Avoid contact with skin or clothing. Avoid contact with eyes. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use.

8. Exposure Controls / Personal Protection

Monochlorobenzene (108-90-7)
US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 10 ppm
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 75 ppm, 350 mg/m3
US. ACGIH Threshold Limit Values
Hazard Designation: Group A3 Confirmed animal carcinogen with unknown relevance to humans.

Industrial Hygiene/Ventilation Measures
General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

Respiratory Protection
In case of insufficient ventilation wear suitable respiratory equipment., NIOSH approved, air-purifying organic vapor respirator.

Hand Protection
Permeation resistant gloves.

Eye Protection
safety glasses with side-shields.

Skin and body protection
Wear cloth work clothing including long pants and long-sleeved shirts.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and chemical properties

Form:	Liquid
Color:	Colorless
Odor:	Characteristic
pH:	Not Established
Boiling Point/Range:	approximately 132 °C (269.6 °F)
Flash Point:	27 °C (80.6 °F) (Tagliabue Closed Cup (ASTM D-56))
Lower Explosion Limit:	1.3 %(V)
Upper Explosion Limit:	7.1 %(V)
Vapor Pressure:	approximately 11.7 hPa @ 20 °C (68 °F) approximately 20 hPa @ 30 °C (86 °F) approximately 53 hPa @ 50 °C (122 °F)
Specific Gravity:	1,106 @ 20 °C (68 °F)
Solubility in Water:	approximately 0.207 g/l @ 20 °C (68 °F) approximately 0.5 g/l @ 30 °C (86 °F)
Autoignition Temperature:	590 °C (1,094 °F)
Viscosity, Dynamic:	approximately 0.8 mPa.s @ 20 °C (68 °F) approximately 0.63 mPa.s @ 40 °C (104 °F)

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Bases

Conditions to avoid
Avoid extreme heat.

Hazardous decomposition products
By Fire and Thermal Decomposition: Carbon oxides, Hydrogen chloride gas, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for CHLOROBENZENE

Toxicity Note

No data available for this product.

Toxicity Data for Monochlorobenzene

Acute Oral Toxicity

LD50: Approximately 1,427 mg/kg (Rat, Male)
LD50: Approximately 2,455 mg/kg (Rat, Female)

Acute Inhalation Toxicity

LC50: Approximately 13.87 mg/l, 6 hrs (Rat)
RD50: 1,054 ppm, 5 min (mouse)

Acute dermal toxicity

LD50: > 7,940 mg/kg (rabbit)

Skin Irritation

rabbit, Exposure Time: 4 hrs, Moderately irritating

Eye Irritation

rabbit, Non-irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Magnusson/Kligmann (Maximization Test))

Repeated Dose Toxicity

24 Weeks, inhalation: NOAEL: < 75 ppm, (Rat)
168 Days, inhalation: NOAEL: < 75 ppm, (rabbit)

Mutagenicity

Genetic Toxicity in Vitro:
Ames: negative
Genetic Toxicity in Vivo:

Positive and negative results were seen in various in vivo studies.

Carcinogenicity

Rat, oral, 2 Years,
ambiguous
mouse, oral, 2 Years,
negative

Toxicity to Reproduction/Fertility

Two generation study, inhalation, 6 hrs/day 7 days/week, (Rat, Male/Female) NOAEL (F1): > 450 ppm, NOAEL (F2): 50 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity

Rat, inhalation, 6 hrs/day 7 days/week, NOAEL (teratogenicity): 590 ppm,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for CHLOROBENZENE

Additional Ecotoxicological Remarks

No data available for this product.

Ecological Data for Monochlorobenzene

Biodegradation

Aerobic, 15 %, Exposure time: 28 Days
Closed Bottle Test, 55 %, Exposure time: 28 d
15 %, Exposure time: 14 d
50 %, Exposure time: 24 d

Biological Oxygen Demand (BOD)

55 %

Acute and Prolonged Toxicity to Fish

LC50: Approximately 16 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)
LC50: 7.4 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)
LC50: 10 mg/l (Sheepshead minnow (Cyprinodon variegatus), 96 hrs)
LC50: 4.1 mg/l (Rainbow trout (Salmo gairdneri), 48 h)

Acute Toxicity to Aquatic Invertebrates

EC50: 19.9 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Microorganisms

EC50: 140 mg/l, (Activated sludge microorganisms, 30 min)

13. Disposal considerations

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state, provincial, and/or local environmental control laws.

Empty Container Precautions

Do not heat or cut container with electric or gas torch. Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Label precautions also apply to this container when empty.

14. Transport information

Land transport (DOT)

Proper Shipping Name:	Chlorobenzene
Hazard Class or Division:	3
UN/NA Number:	UN1134
Packaging Group:	III
Hazard Label(s):	Flammable Liquid
Marine Pollutant:	Marine pollutant

RSPA/DOT Regulated Components:

Monochlorobenzene

Reportable Quantity: 100 lb

Sea transport (IMDG)
Proper Shipping Name: CHLOROBENZENE
Hazard Class or Division: 3
UN-No: UN1134
Packaging Group: III
Hazard Label(s): Flammable liquids
Marine Pollutant: Marine pollutant

Air transport (ICAO/IATA)
Proper Shipping Name: Chlorobenzene
Hazard Class or Division: 3
UN-No: UN1134
Packaging Group: III
Hazard Label(s): Flammable liquids
Marine Pollutant: Marine pollutant

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
Monochlorobenzene Reportable quantity: 100 lbs

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard, Fire Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
Monochlorobenzene

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
When discarded in its purchased form, this product is a listed RCRA hazardous waste and should be managed as a hazardous waste. (40 CFR 261.20-24)

RCRA Regulated Components
Monochlorobenzene U037

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
>=95%	Monochlorobenzene	108-90-7

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

Weight %	Components	CAS-No.
>=95%	Monochlorobenzene	108-90-7

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Foreign Chemical Inventory List(s):
EU list of existing chemical substances - All components of this product are listed
Australia AICS - All components of this product are listed
Korea Existing Chemicals Inv. (KECI) - All components of this product are listed
Japan (ENCS) List - All components of this product are listed

16. Other Information

NFPA 704M Rating

Health	2
Flammability	3
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	2
Flammability	3
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

LANXESS Corporation's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by LANXESS Corporation as a customer service.

Contact Person:	Product Safety Department
Telephone:	(800) LANXESS
MSDS Number:	000000000091
Version Date:	12/17/2009
Report Version:	3.0

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