

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : 4,4'-Dibromooctofluorobiphenyl Standard
Product code : AL0-101270
Product group : Trade product

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Certified reference material for laboratory use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225
Skin Irrit. 2 H315
Repr. 2 H361
STOT SE 3 H336
STOT RE 2 H373
Asp. Tox. 1 H304
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Repr.Cat.3; R62
F; R11
Xn; R65
Xn; R48/20
Xi; R38
N; R51/53
R67

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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according to Regulation (EC) No. 453/2010

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



Signal word (CLP) : Danger

Hazardous ingredients : hexane

Hazard statements (CLP) :

- H225 - Highly flammable liquid and vapor
- H304 - May be fatal if swallowed and enters airways
- H315 - Causes skin irritation
- H336 - May cause drowsiness or dizziness
- H361 - Suspected of damaging fertility or the unborn child
- H373 - May cause damage to organs through prolonged or repeated exposure
- H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :

- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P233 - Keep container tightly closed
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P270 - Do not eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P308+P313 - IF exposed or concerned: Get medical advice/attention
- P403+P235 - Store in a well-ventilated place. Keep cool
- P405 - Store locked up

No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
hexane (Component)	(CAS No) 110-54-3 (EC no) 203-777-6 (EC index no) 601-037-00-0	99.975	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361f STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Name	Product identifier	Specific concentration limits	
hexane (Component)	(CAS No) 110-54-3 (EC no) 203-777-6 (EC index no) 601-037-00-0	(C >= 5) STOT RE 2, H373	

SECTION 4: First aid measures

4.1. Description of first aid measures

- First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.
- First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
- First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Consult a doctor/medical service. Get medical advice/attention.
- First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
- First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation : May cause drowsiness or dizziness.

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Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after ingestion : May be fatal if swallowed and enters airways.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.
Explosion hazard : May form flammable/explosive vapor-air mixture.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Avoid breathing dust/fume/gas/mist/vapors/spray.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.
Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only non-sparking tools. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
Hygiene measures : Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
Storage conditions : Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.

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Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.



Hand protection : Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.

Eye protection : Chemical goggles or safety glasses. Safety glasses.

Skin and body protection : Wear suitable protective clothing. Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. Wear respiratory protection.

Other information : Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Color : Colorless.
Odor : characteristic.
pH : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : Highly flammable liquid and vapor
Relative density : No data available
Solubility : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosion limits : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Not established. Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

hexane (110-54-3)	
LD50 oral rat	25000 mg/kg (Rat; Literature study)
LD50 dermal rabbit	3000 mg/kg (Rabbit; Literature study)
LC50 inhalation rat (ppm)	48000 ppm/4h (Rat; Literature study)

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hexane (110-54-3)	
ATE CLP (oral)	25000.000 mg/kg body weight
ATE CLP (dermal)	3000.000 mg/kg body weight
ATE CLP (gases)	48000.000 ppmV/4h

Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitization	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met May cause cancer
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: May be fatal if swallowed and enters airways.
Potential Adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

hexane (110-54-3)	
LC50 fish 1	2.5 mg/l (96 h; Pimephales promelas)
EC50 Daphnia 1	2.1 mg/l (48 h; Daphnia magna)
LC50 fish 2	4 mg/l (24 h; Carassius auratus)
EC50 Daphnia 2	0.4 mg/l (96 h; Chaetogammarus marinus)
Threshold limit other aquatic organisms 1	9.049 mg/l (Protozoa)
Threshold limit algae 1	10 mg/l (Laminariales; Photosynthesis)
Threshold limit algae 2	26 mg/l (72 h; Pseudokirchneriella subcapitata; GLP)

12.2. Persistence and degradability

4,4'-Dibromooctofluorobiphenyl Standard	
Persistence and degradability	May cause long-term adverse effects in the environment.

hexane (110-54-3)	
Persistence and degradability	Readily biodegradable in water. Photooxidation in water. easily degradable in the soil.
ThOD	3.52 g O ₂ /g substance
BOD (% of ThOD)	0.63 % ThOD

12.3. Bioaccumulative potential

4,4'-Dibromooctofluorobiphenyl Standard	
Bioaccumulative potential	Not established.

hexane (110-54-3)	
BCF fish 1	501.187 (Pimephales promelas)
Log Pow	3.5 - 3.94 (Calculated)
Bioaccumulative potential	Bioaccumable.

12.4. Mobility in soil

hexane (110-54-3)	
Surface tension	0.018 N/m

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

- UN-No. (ADR) : 1993
UN-No.(IATA) : 1993

14.2. UN proper shipping name

- Proper Shipping Name (ADR) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IATA) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE LIQUID, N.O.S.
Proper Shipping Name (ADN) : FLAMMABLE LIQUID, N.O.S.
Transport document description (ADR) : UN 1993 FLAMMABLE LIQUID, N.O.S. (hexane(110-54-3)), 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS

14.3. Packing group

- Class (ADR) : 3
Classification code (ADR) : F1
Class (IATA) : 3
Class (IMDG) : 3
Class (ADN) : 3
Hazard labels (ADR) : 3



- Hazard labels (IATA) : 3



14.4. Packing group

- Packing group (ADR) : II
Packing group (IATA) : II

14.5. Environmental hazards

- Dangerous for the environment :



- Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

- Hazard identification number (Kemler No.) : 33
Classification code (ADR) : F1
Orange plates :



- Special provision (ADR) : 274, 601, 640D
Transport category (ADR) : 2
Tunnel restriction code (ADR) : D/E
Limited quantities (ADR) : 11

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Excepted quantities (ADR) : E2

14.6.2. Transport by sea

No additional information available

14.6.3. Air transport

CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
PCA packing instructions (IATA) : 353
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA max net quantity (IATA) : 5L
PCA Excepted quantities (IATA) : E2
ERG code (IATA) : 3H

14.6.4. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

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