

SECTION 1: Identification

1.1. Identification

Product form : Mixtures
Product name : Diphenylthiocarbazone (Dithizone) Solution
Product code : LC13688

1.2. Recommended use and restrictions on use

Use of the substance/mixture : For laboratory and manufacturing use only.
Recommended use : Laboratory chemicals
Restrictions on use : Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral) H302 Harmful if swallowed
Category 4
Carcinogenicity Category 2 H351 Suspected of causing cancer
Hazardous to the aquatic H401 Toxic to aquatic life
environment - Acute
Hazard Category 2

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Warning
Hazard statements (GHS-US) : H302 - Harmful if swallowed
H351 - Suspected of causing cancer
H401 - Toxic to aquatic life
Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P311 - Call a POISON CENTER or doctor/physician
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

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SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Chloroform	(CAS-No.) 67-66-3	99.99	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Carc. 2, H351 Repr. 2, H361 STOT RE 1, H372
Diphenylthiocarbazone (Dithizone), ACS	(CAS-No.) 60-10-6	0.01	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of hazard classes and H-statements : see section 16

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 you feel unwell, seek medical advice (show the label where possible). Suspected of causing cancer.
First-aid measures after inhalation	: Allow victim to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: Feeling of weakness. Dizziness. Central nervous system depression. Headache. Impaired concentration. Nausea. Vomiting.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes eye irritation.
Symptoms/effects after ingestion	: Swallowing a small quantity of this material will result in serious health hazard. Symptoms similar to those listed under inhalation.

4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) 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. Specific hazards arising from the chemical

Reactivity	: On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, carbon monoxide - carbon dioxide).
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5.3. Special protective equipment and precautions for fire-fighters

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

Protective equipment	: Protective goggles. Protective clothing. Gloves. Face-shield. Combined gas/dust mask with filter type A/P3.
Emergency procedures	: Evacuate unnecessary personnel.

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6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
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

- For containment : Take up liquid spill into inert absorbent material. Consult "Material-handling" to select material of containers. Try to reduce evaporation. Dam up the liquid spill.
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. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

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

- 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. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors. Ensure good ventilation of the work station.
Hygiene measures : Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Keep container closed when not in use.
Incompatible products : Strong oxidizers.
Incompatible materials : Sources of ignition. Direct sunlight.
Packaging materials : MATERIAL TO AVOID: PVC, polyethylene, polypropylene, plastics.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Diphenylthiocarbazone (Dithizone), ACS (60-10-6)		
Not applicable		
Chloroform (67-66-3)		
ACGIH	ACGIH TWA (ppm)	10 ppm (Chloroform; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
OSHA	OSHA PEL (Ceiling) (mg/m ³)	240 mg/m ³
OSHA	OSHA PEL (Ceiling) (ppm)	50 ppm
NIOSH	NIOSH REL (STEL) (mg/m ³)	9.78 mg/m ³ 60 min.
NIOSH	NIOSH REL (STEL) (ppm)	2 ppm 60 min.

8.2. Appropriate engineering controls

- Appropriate engineering controls : Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Safety glasses.



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Materials for protective clothing:

GIVE GOOD RESISTANCE: PVA

Hand protection:

Wear protective gloves

Eye protection:

Chemical goggles or safety glasses

Respiratory protection:

Respiratory protection not required in normal conditions

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	: Dark green
Odor	: Ether-like odour
Odor threshold	: No data available
pH	: No data available
Melting point	: -64 °C
Freezing point	: No data available
Boiling point	: 61 °C
Flash point	: No data available
Relative evaporation rate (butyl acetate=1)	: 11.6
Relative evaporation rate (ether=1)	: 1.9
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: 213 hPa
Vapor pressure at 50 °C	: 695 hPa
Relative vapor density at 20 °C	: 4.1
Relative density	: 1.5
Relative density of saturated gas/air mixture	: 1.7
Specific gravity / density	: 1485 kg/m ³
Solubility	: Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in oil. Poorly soluble in water. Substance sinks in water.
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.00056 Pa.s 20°C
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, carbon monoxide - carbon dioxide).

10.2. Chemical stability

Unstable on exposure to light.

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10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Chlorine. Carbon monoxide. Carbon dioxide. Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Inhalation; Skin and eye contact

Acute toxicity : Oral: Harmful if swallowed.

Diphenylthiocarbazone (Dithizone) Solution	
ATE US (oral)	695.0695069507 mg/kg body weight
Chloroform (67-66-3)	
LD50 oral rat	695 mg/kg (Rat; OECD 401: Acute Oral Toxicity; Experimental value; 908 mg/kg bodyweight; Rat; OECD 401: Acute Oral Toxicity; Experimental value; 1117 mg/kg bodyweight; Rat)
LD50 dermal rabbit	> 20000 mg/kg (Rabbit; No reliable data available; >3980 mg/kg bodyweight; Rabbit)
ATE US (oral)	695 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Suspected of causing cancer.

Chloroform (67-66-3)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified
Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity – repeated exposure : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/effects after inhalation : Feeling of weakness. Dizziness. Central nervous system depression. Headache. Impaired concentration. Nausea. Vomiting.

Symptoms/effects after skin contact : Causes skin irritation.

Symptoms/effects after eye contact : Causes eye irritation.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard. Symptoms similar to those listed under inhalation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life.

Chloroform (67-66-3)	
LC50 fish 1	18.2 ppm (LC50; ASTM; 96 h; Oncorhynchus mykiss; Flow-through system; Fresh water; Experimental value)

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Chloroform (67-66-3)	
EC50 Daphnia 2	152.5 mg/l (EC50; US EPA; 48 h; Daphnia magna; Static system; Salt water; Experimental value)

12.2. Persistence and degradability

Diphenylthiocarbazone (Dithizone) Solution	
Persistence and degradability	Not established.
Diphenylthiocarbazone (Dithizone), ACS (60-10-6)	
Persistence and degradability	Not established.
Chloroform (67-66-3)	
Persistence and degradability	Not readily biodegradable in water. Non degradable in the soil. Low potential for adsorption in soil.
ThOD	0.33 - 1.35 g O ₂ /g substance
BOD (% of ThOD)	0.015 - 0.06

12.3. Bioaccumulative potential

Diphenylthiocarbazone (Dithizone) Solution	
Bioaccumulative potential	Not established.
Diphenylthiocarbazone (Dithizone), ACS (60-10-6)	
Bioaccumulative potential	Not established.
Chloroform (67-66-3)	
BCF fish 2	1.4 - 4.7 (BCF; OECD 305: Bioconcentration: Flow-Through Fish Test; 42 days; Cyprinus carpio; Flow-through system; Fresh water; Experimental value)
Log Pow	1.97 (Experimental value; 20 °C)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Chloroform (67-66-3)	
Surface tension	0.0271 N/m (20 °C)
Log Koc	Koc,Other; 86.7-367; Experimental value; log Koc; Other; 1.94-2.56; Experimental value
Ecology - soil	May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

Effect on the global warming	: No known effects from this product.
GWPmix comment	: No known effects from this product.
Other information	: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.
Ecology - waste materials	: Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT	
Transport document description	: UN1888 Chloroform (solution), 6.1, III
UN-No.(DOT)	: UN1888
Proper Shipping Name (DOT)	: Chloroform solution
Transport hazard class(es) (DOT)	: 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Packing group (DOT)	: III - Minor Danger

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Hazard labels (DOT) : 6.1 - Poison inhalation hazard



DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

N36 - Aluminum or aluminum alloy construction materials are permitted only for halogenated hydrocarbons that will not react with aluminum.

T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)

TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

DOT Quantity Limitations Passenger aircraft/rail : 60 L
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 220 L
CFR 175.75)

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Diphenylthiocarbazone (Dithizone) Solution

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
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All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Chloroform	CAS-No. 67-66-3	99.99%
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Diphenylthiocarbazone (Dithizone), ACS (60-10-6)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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Chloroform (67-66-3)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb
SARA Section 313 - Emission Reporting	0.1 %

15.2. International regulations

CANADA

Diphenylthiocarbazone (Dithizone), ACS (60-10-6)

Listed on the Canadian DSL (Domestic Substances List)

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Chloroform (67-66-3)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Diphenylthiocarbazone (Dithizone), ACS (60-10-6)

Not listed on the Canadian IDL (Ingredient Disclosure List)

Chloroform (67-66-3)

Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm

Chloroform (67-66-3)

U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	20 µg/day

SECTION 16: Other information

Revision date : 05/23/2017

Other information : None.

Full text of H-phrases: see section 16:

H302	Harmful if swallowed
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H351	Suspected of causing cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H401	Toxic to aquatic life

NFPA health hazard

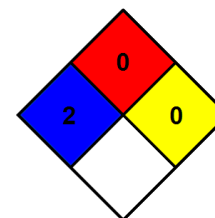
: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 0 Minimal Hazard - Materials that will not burn

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection

: H
H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

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