



Material Safety Data Sheet Diphenylcarbazide, 1% w/v in Ethanol

Section 1 - Chemical Product and Company Identification

MSDS Name:

Diphenylcarbazide, 1% w/v in Ethanol

Catalog Numbers:

LC13660

Synonyms:

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
140-22-7	1,5-Diphenylcarbazide	1
67-56-1	Methanol	5
67-63-0	Isopropanol	5
64-17-5	Ethanol	balance

Section 3 - Hazards Identification

Emergency Overview

Appearance: *Clear, colorless to light yellow liquid*

Danger! Poison! Flammable! Causes severe eye irritation. Causes moderate skin irritation. Causes respiratory tract irritation. May be fatal or cause blindness if swallowed. Vapor harmful. This substance has caused adverse reproductive and fetal effects in humans. May be absorbed through intact skin. May form explosive peroxides. May cause central nervous system depression. May cause liver, kidney and heart damage. Cannot be made non-poisonous.

Target Organs: *Kidneys, heart, central nervous system, liver, eyes, gastrointestinal and cardiovascular systems.*



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Potential Health Effects

Eye:

Causes severe eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.

Skin:

Causes moderate skin irritation. May be absorbed through the skin. May cause cyanosis of the extremities.

Ingestion:

May be fatal or cause blindness if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause visual impairment and possible permanent blindness. May cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation.

Chronic:

Prolonged or repeated skin contact may cause defatting and dermatitis. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage.

Section 4 - First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until chemical is gone. Get medical aid at once.

Skin:

Get medical aid if irritation develops or persists. Remove contaminated clothing to reduce further exposure. Rinse area with large amounts of water for at least 15 minutes. Methanol is readily absorbed through the skin.

Ingestion:

Give conscious victim 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid at once. Do not induce vomiting. If vomiting naturally, keep head lower than hips to prevent aspiration into lungs. Medical personnel may remove the alcohol through gastric lavage with water or 3-5% sodium bicarbonate solution unless 2 hours or more have elapsed since ingestion.

Inhalation:

Get medical aid at once. Move victim to fresh air immediately. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Keep victim warm, at rest.

Notes to Physician:

Treat symptomatically and supportively. Persons with skin or eye disorders or liver, kidney, chronic respiratory diseases, or central and peripheral nervous system diseases may be at increased risk from exposure to this substance. Ethanol may inhibit methanol metabolism.



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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. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Will be easily ignited by heat, sparks or flame.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Water may be ineffective. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Autoignition Temperature:

698°F (370°C)

Flash Point:

64.9°F (18.3°C)

NFPA Rating:

CAS# 140-22-7: health-2; flammability-1; instability-1

CAS# 64-17-5: health-0; flammability-3; instability -0

CAS# 67-56-1: health-1; flammability-3; instability -0

CAS# 67-63-0: health-1; flammability-3; instability -0

Explosion Limits:

Lower: 4.3 Upper: 19.0

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Wear a self contained breathing apparatus and appropriate Personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, diatomaceous earth, vermiculite, or other suitable absorbent. Label reclaimed spill material as flammable.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid contact with heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage:

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.



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Vapors heavier than air, may travel considerable distance and ignite or explode.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. Ventilation equipment must be explosion-proof.

Exposure Limits:

Chemical Name:	ACGIH	NIOSH	OSHA
Diphenylcarbazine	None listed	None listed	None listed
Ethyl alcohol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m ³ TWA; 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m ³ TWA
Methyl alcohol	200 ppm TWA; 250 ppm STEL	200 ppm TWA; 260 mg/m ³ TWA; 6000 ppm IDLH	200 ppm TWA; 260 mg/m ³ TWA
Isopropyl alcohol	200 ppm TWA; 400 ppm STEL	400 ppm TWA; 980 mg/m ³ TWA; 2000 ppm IDLH	400 ppm TWA; 980 mg/m ³ TWA

OSHA Vacated PELs:

Ethyl alcohol: 1000 ppm TWA; 1900 mg/m³ TWA

Methyl alcohol: 200 ppm TWA; 260 mg/m³ TWA

Isopropyl alcohol: 400 ppm TWA; 980 mg/m³ TWA

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid

Color: Colorless to light yellow

Odor: Alcohol-like

pH: No information found.

Vapor Pressure: 40 mm Hg @20C

Vapor Density: 1.6

Evaporation Rate: No information found.

Viscosity: 1.2 mPas 20 deg C



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Boiling Point: 78°C
Freezing/Melting Point: -114°C
Decomposition Temperature: No information found.
Solubility in water: Soluble.
Specific Gravity/Density: 0.79
Molecular Formula: Not applicable.
Molecular Weight: Not applicable.

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

High temperatures, incompatible materials, ignition sources, excess heat.

Incompatibilities with Other Materials:

Permonosulfuric acid, potassium hypobromite, bromine trifluoride, nitrosyl and nitryl perchlorate, hydrogen peroxides, bromoform, chloroform, nitric acid, sulfuric acid, sulfur dichloride, bromine, acetic acid, platinum, sodium hypoiodite, thiotriazolyl perchlorate, hexachloroamine, thiodiglycol, trichloromelamine, chromium trioxide, chromic anhydride, potassium t-butoxide, potassium bichromate, chromyl chloride, acetyl chloride, acetyl bromide, bromine pentafluoride, permanganic acid, potassium dioxide, hydrogen peroxide/sulfuric acid mixes, ammonium hydroxide/silver oxide mixes, hydrogen peroxide/iodine/phosphorous mixes, silver nitrate, silver/nitric acid mix forms explosive compounds, strong oxidizing agents, alkali metals.

Hazardous Decomposition Products:

Carbon monoxide, carbon dioxide, formaldehyde, nitrogen oxides.

Hazardous Polymerization:

Has not been reported

Section 11 - Toxicological Information

RTECS:

CAS# 140-22-7: FF2750000.
CAS# 64-17-5: KQ6300000.
CAS# 67-56-1: PC1400000.
CAS# 67-63-0: NT8050000.

LD50/LC50:

CAS# 140-22-7:
Not available.
CAS# 64-17-5:
Draize test, rabbit, eye: 500 mg Severe
Draize test, rabbit, skin: 20 mg/24H Moderate
Inhalation, mouse: LC50 = 39 gm/m³/4H
Inhalation, rat: LC50 = 20000 ppm/10H
Oral, mouse: LD50 = 3450 mg/kg
Oral, rabbit: LD50 = 6300 mg/kg
Oral, rat: LD50 = 7060 mg/kg.

CAS# 67-56-1:

Draize test, rabbit, eye: 100mg/24H Moderate
Draize test, rabbit, skin: 20mg/24H Moderate



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Inhalation, rat: LC50 = 64000 ppm/4H
Oral, mouse: LD50 = 7300 mg/kg
Oral, rabbit: LD50 = 14200 mg/kg
Oral, rat: LD50 = 5600 mg/kg
Skin, rabbit: LD50 = 15800 mg/kg.

CAS# 67-63-0:

Draize test, rabbit, eye: 100mg Severe
Draize test, rabbit, skin: 500 mg Mild
Oral, mouse: LD50 = 3600 mg/kg
Oral, rabbit: LD50 = 6410 mg/kg
Oral, rat: LD50 = 5000 mg/kg
Skin, rabbit: LD50 = 12800 mg/kg.

Carcinogenicity:

CAS# 140-22-7: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 64-17-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 67-56-1: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

CAS# 67-63-0: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

Epidemiology:

Methanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Specific developmental abnormalities include cardiovascular, musculoskeletal, and urogenital systems. Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome". Early epidemiological studies have suggested an association between the strong acid manufacture of isopropyl alcohol and paranasal sinus cancer in workers. Methanol and phenol have been shown to produce fetotoxicity in the embryo or fetus in laboratory animals. Specific developmental abnormalities for methanol include the musculoskeletal, urogenital, and cardiovascular systems.

Teratogenicity:

CAS# 64-17-5: Oral, Human - woman: TDLo = 41 gm/kg (female 41 week(s) after conception)
Effects on Newborn - Apgar score (human only) and Effects on Newborn - other neonatal measures or effects and Effects on Newborn - drug dependence.

Reproductive:

CAS# 64-17-5: Intrauterine, Human - woman: TDLo = 200 mg/kg (female 5 day(s) pre-mating)
Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

Mutagenicity:

CAS# 140-22-7 causes mutation in microorganisms. See RTECS entry for complete information.
CAS# 64-17-5: DNA Inhibition: Human, Lymphocyte = 220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte = 1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast = 12000 ppm.; Cytogenetic Analysis: Human, Leukocyte = 1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte = 500 ppm/72H (Continuous).

Neurotoxicity:

No information found.

Section 12 - Ecological Information

Ecotoxicity:

Fish: Rainbow trout: LC50 = 12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3°C
Fish: Rainbow trout: LC50 = 11200 mg/L; 24 Hr; Fingerling (Unspecified)
Bacteria: Phytobacterium phosphoreum:



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EC50 = 34900 mg/L; 5-30 min; Microtox test CAS# 64-17-5: When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish.

Environmental:

CAS# 64-17-5: When released to the atmosphere it will photodegrade in hours (polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.

Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Ethanol Solution

Hazard Class: 3

UN Number: UN1170

Packing Group: PG II

Section 15 - Regulatory Information

US Federal

TSCA:

CAS# 140-22-7 is listed on the TSCA inventory.

CAS# 64-17-5 is listed on the TSCA Inventory.

CAS# 67-56-1 is listed on the TSCA Inventory.

CAS# 67-63-0 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ):

CAS# 67-56-1: final RQ = 5000 pounds (2270 kg)

CERCLA/SARA Section 313:

This material contains Methyl alcohol (CAS# 67-56-1, 5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Isopropyl alcohol (CAS# 67-63-0, 5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

OSHA - Highly Hazardous:

None of the components are on this list.

US State

State Right to Know:

CAS# 140-22-7 is not listed on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 64-17-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 67-56-1 can be found on the following state right to know lists: California, New Jersey,



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Pennsylvania, Minnesota, Massachusetts.

CAS# 67-63-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Regulations:

Not listed.

European/International Regulations

Canadian DSL/NDSL:

CAS# 140-22-7 is listed on Canada's DSL List.

CAS# 64-17-5 is listed on Canada's DSL List.

CAS# 67-56-1 is listed on Canada's DSL List.

CAS# 67-63-0 is listed on Canada's DSL List.

Canada Ingredient Disclosure List:

CAS# 140-22-7 is listed on Canada's Ingredient Disclosure List.

CAS# 64-17-5 is listed on Canada's Ingredient Disclosure List.

CAS# 67-56-1 is listed on Canada's Ingredient Disclosure List.

CAS# 67-63-0 is listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: October 1, 1998

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