VELSICOL CHEMICAL CORPORATION

Material Safety Data Sheet

NFPA	HCS Risk Phrases	Protective Clothing
	Not controlled under the HCS (United States).	

Section I. Chemical Product and Company Identification

Common Name/ Trade Name BENZOFLEX® 50

In case of Emergency

In the continental U.S.A. call CHEMTREC 800-424-9300 (24 Hours)

Outside of the continental U.S.A. call CHEMTREC 703-527-3887 (24 Hours)

Supplier

Velsicol Chemical Corporation
10400 W. Higgins Road
Rosemont, IL 60018 U.S.A.
Phone (847) 298-9000
FAX (847) 298-9015

Manufacturer

Velsicol Chemical Corporation
10400 W. Higgins Road
Rosemont, IL 60018 U.S.A.
Phone: 847-298-9000
FAX: 847-298-9015

Synonym	Mixture of diethylene glycol dibenzoate and dipropylene glycol dibenzoate.
Chemical Name	Not applicable.
Chemical Family	Aromatic.
Chemical Formula	Not applicable.

Material Uses

Industrial applications: Plasticizing agent.

Section II. Composition and Information on Ingredients

Name	CAS #	% by Weight	TLV/PEL	OSHA Hazardous Ingredients
Diethylene glycol dibenzoate	120-55-8	41.9-54.9	Not listed.	No
Dipropylene glycol dibenzoate	27138-31-4	41.9-54.9	Not listed.	No
Diethylene glycol monobenzoate (Impurity)	20587-61-5	0.045-2.75	Not listed.	No
Dipropylene glycol monobenzoate (Impurity)	125457-59-2	0.045-2.75	Not listed.	No

Section III. Hazards Identification

Emergency Overview Clear, nearly colorless Clear liquid. Ester-like odor.
HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES.

Potential Health Effects Inhalation and skin contact are expected to be the primary routes of occupational exposure to Benzoflex 50 Plasticizer. This material is not expected to cause adverse effects when good industrial hygiene and safety practices are followed. Repeated or prolonged exposure is not known to aggravate any existing medical condition.

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HARWICK STANDARD
DISTRIBUTION CORPORATION
60 S. Seiberling Street · Akron, Ohio 44305

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Section IV. First Aid Measures

Eye Contact	Flush with plenty of water. Seek medical attention if irritation persists.
Skin Contact	Flush the area with plenty of water. Remove material from clothing. Wash clothing before reuse.
Inhalation	Remove to fresh air.
Ingestion	If swallowed, induce vomiting as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

Section V. Fire and Explosion Data

Flammability of the Product	Combustible.
Auto-Ignition Temperature	Not available.
Flash Points	CLOSED CUP: Higher than 93.3°C (200°F). OPEN CUP: 200.56°C (393°F) (C.O.C.)
Flammable Limits	Not available.
Fire and Explosion Hazards	Products of combustion are carbon oxides (CO, CO2).
Fire Fighting Media and Instructions	SMALL FIRE: Use dry chemicals, CO2, water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Firefighters and others who may be exposed to products of combustion should wear full firefighting turnout gear and self contained breathing apparatus. Firefighting equipment should be thoroughly decontaminated after use.

Section VI. Accidental Release Measures

Small Spill	Absorb with an inert material and place in an appropriate waste disposal container.
Large Spill	Stop leak if without risk. Contain spilled liquid with diking. Combustible material. Keep away from heat. Keep away from sources of ignition. Absorb with an inert material and put the spilled material in an appropriate waste disposal container.

Section VII. Handling and Storage

Handling	Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Keep away from sources of ignition.
Storage	Store in well ventilated area away from sources of ignition.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Good general ventilation should be sufficient to control airborne levels. If user operations generate fumes or mist, use ventilation to minimize exposure to airborne contaminants.
Personal Protection	Safety glasses. Lab coat. Gloves.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

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Section IX. Physical and Chemical Properties

Physical state and appearance	Clear liquid.
Color	Clear, nearly colorless.
Odor	Ester-like odor.
Boiling Point	231.67°C (449°F) based on data for: Dipropylene glycol dibenzoate. Weighted average: 233.84°C (452.9°F)
Melting Point	May start to solidify at 28°C (82.4°F) based on data for: Diethylene glycol dibenzoate
Critical Temperature	Not available.
Specific Gravity	1.146 (Water = 1)
Vapor Pressure	0.000000229 mm of Hg (@ 20°C)
Vapor Density	Weighted average: 6.65 (Air = 1)
Volatility	Volitle Organics Content (VOC) = 4.22 +/- 0.20% (w/w) [ASTM Method D2369; EPA Method 24].
Odor Threshold	Not available.
Evaporation rate	Lower than 1. based on data for: Dipropylene glycol dibenzoate. Weighted average: 0.5 [Butyl acetate.]
Viscosity	100 cP @ 25 deg C.
Solubility	Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water, hot water, n-octanol.
pH (1% soln/water)	Neutral.
Molecular Weight	Not applicable.

Section X. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	No additional remark.
Incompatibility with various substances	Highly reactive with oxidizing agents. Slightly reactive to reactive with reducing agents, organic materials, acids, alkalis. Very slightly to slightly reactive with metals. Non-reactive with combustible materials, moisture.
Corrosivity	Not considered to be corrosive for metals and glass according to our database.
Hazardous Polymerization	Will not occur.
Hazardous Decomposition Products	Not available.

Section XI. Toxicological Information

Toxicity to Animals

Velsicol Chemical Corporation has not conducted toxicity tests on Benzoflex 50 Plasticizer. However, toxicity tests have been conducted on the components of this material and the results are summarized below.

Dipropylene Glycol Dibenzoate

Acute oral toxicity (LD50): 4068-9800 mg/kg (Rat), Slightly to Practically Non-toxic
Acute oral toxicity (LD50): 4068-5700 mg/kg (Mouse), Slightly to Practically Non-toxic
Acute dermal toxicity (LD50): > 2000 mg/kg (Rabbit), No More Than Slightly Toxic
Acute toxicity of the mist (LC50): > 200 mg/L (Rat), Practically Non-toxic
Practically Non-irritating to Eyes (Rabbit)(0.6/110.0)
Practically Non-irritating to Skin (Rabbit)(0.5/8.0)

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No genetic changes were reported in standard tests (Ames) using Salmonella and Saccharomyces, both with and without mammalian metabolic activation. Toxicity was observed in two Salmonella strains. No effects were reported in dogs administered up to 1.2% Benzoflex 9-88 Plasticizer in their diet for 90 days. Decreased body weight gain and food consumption, depression, tremor and death were reported in rats administered 4.0% Benzoflex 9-88 Plasticizer in their diet for 90 days. No effects were reported at the 0.5% and 1.0% dose levels.

Diethylene Glycol Dibenzoate

Acute oral toxicity (LD50): 2336-3969 mg/kg (Rat), Slightly toxic.
Acute dermal toxicity (LD50): 20,000 mg/kg (Rabbit), Practically non-toxic.
Acute toxicity of the vapor (4 hr LC50): >200 mg/l (Rat), Practically Non-toxic.
Practically Non-irritating to eyes (rabbit)(0.93/110.0)
Practically Non-irritating to skin (rabbit)(0.3/8.0)

No genetic changes were reported in standard test (Ames) using Salmonella or Saccharomyces, with or without mammalian metabolic activation. No effects were reported in rats or dogs after administration of up to 300 mg/kg/day (dogs) and 1000 mg/kg/day (rats) for 90 days in their diet.

Section XII. Ecological Information

Ecotoxicology	Not available
Chemical Fate	Velsicol Chemical Corporation has not conducted chemical fate tests on BENZOFLEX 50 Plasticizer. However, the components of this material have been tested and the results are summarized below. **Dipropylene Glycol Dibenzoate** The BOD5 is 110 mg/l. The material is readily biodegradable (78% degradation in 28 days; shake flask method). Thin film photo degradation (UV/light), half life 12-13 days. **Diethylene Glycol Dibenzoate** The BOD5 is 100 mg/l The material is readily biodegradable.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities for disposal options. Industrial landfill or incineration are appropriate disposal methods. Not a listed or characteristic hazardous waste in the U.S.A., as supplied.

Section XIV. Transport Information

DOT Proper Shipping Name	Not Regulated.
DOT Hazard Class	Not a DOT controlled material.
UN Identification Number	Not Regulated.
DOT (Pictograms)	
Packing Group	Not Regulated.

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Section XV. Other Regulatory Information and Pictograms

Federal and State Regulations	On TSCA Inventory
Other Classifications	**WHMIS (Canada)** Not controlled under WHMIS (Canada).
WHMIS (Canada) (Pictograms)	
TDG (Canada) (Pictograms)	

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	1
Reactivity	0
Personal Protection	

National Fire Protection Association (U.S.A.)

Section XVI. Other Information

References

-REGISTRY Database, Chemical Abstract Service, 12/95
-CHEMLIST Database, Chemical Abstract Service, 12/95
-Registry of Toxic Effects of Chemical Substances (RTECS), 4/95
-Chemical Hazard Response Information System (CHRIS), Micromedex Inc., Vol. 27, 1/31/96
-LOLI Database, Chem Advisor via Micromedex Inc., 2/19/96
-ICRMS European Database, Ariel Research Corporation, 2/26/96
-ICRMS Inventories Database, Ariel Research Corporation, 2/26/96
-Velsicol Chemical Corporation, unpublished studies
-Product Information Bulletin, Velsicol Chemical Corporation, 2/2/87
-MEDITEXT Medical Management Database, Micromedex Inc., Vol. 28, 01/30/96
-Hazardous Substance Data Bank (HSDB), National Library of Medicine, #5587, 1/9/95

Other Special Considerations No additional remark.

Validated by Amy M. Bredbenner on 10/29/97.	**Verified by Amy M. Bredbenner.**
Supercedes 04/24/97	**Printed 6/16/98.**
Revision Revised Section 7	