



Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name	Dioctylterephthalate
Synonyms	bis(2-ethylhexyl) terephthalate; 1,4-benzenedicarboxylic acid, bis(2-ethylhexyl) ester; DOTP
CAS#	6422-86-2
Europe EC#	229-176-9
Product Uses	plasticiser

2. HAZARDS

Quick Guide:	<i>not hazardous</i>
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Canada – WHMIS

Key:

not controlled under WHMIS

B 2 – Flash Point <38°C, B 3 – Flash Point >38°C & <93°C
D 1 – Immediately Toxic, D 2 – Chronic Toxicity
C – Oxidising Substance, E – Corrosive, F – Reactive Substance

U.S.A. – HMIS

Key:

Health – 0, Fire – 1, Reactivity – 0

0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

3. COMPOSITION

	%	TWAEV / TLV mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
dioctylterephthalate	100%	not listed	>20,000	not known	not known

4. FIRST AID

SKIN:	Wash with soap and water. Remove contaminated clothing and do not reuse until thoroughly laundered.
EYES:	Wash eyes with plenty of water, holding eyelids open. Seek medical assistance promptly if there is irritation.
INHALATION:	Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.
INGESTION:	Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.

Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.

5. FIRE FIGHTING & FLAMMABILITY

Flash Point	238°C / 460°F (closed cup)
Autoignition Temperature	not known
Flammable Limits	not known
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	as for materials sustaining fire <i>OR</i> treat as an oil fire; firefighters must wear SCBA
Static Charge Accumulation	probably not – <i>high flash point ensures there is no hazard from static charge</i>

Please ensure that this MSDS is given to, and explained to people using this product.

6. ACCIDENTAL RELEASE MEASURES

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep, shovel & store in closed containers for recycling or disposal

7. HANDLING & STORAGE

Store in a cool, dry environment, away from open flame and oxidising agents.

Never cut, drill, weld or grind on or near this container. Avoid prolonged contact with skin* and wash work clothes frequently. An eye bath and safety shower should be available near the workplace.

NOTE: Many phthalates appear to alter the action of sex hormones in the fetus and in young children. Although there is less evidence of an effect in adults, it is prudent to minimize skin contact with these substances. (see also NOTE in Part 11)

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	not listed
ACGIH TLV	not listed
OSHA PEL	not listed
Ventilation	no special ventilation required
Hands	no special protective gloves required; neoprene, nitrile or butyl gloves are resistant – <i>check with supplier to confirm suitability</i>
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless, odourless, viscous liquid with a very bitter taste
Odour Threshold	not known – odourless
Vapour Pressure	1mmHg / 0.13kPa (215°C / 419°F) – <i>note very high temperature of measurement</i>
Evaporation Rate (<i>Butyl Acetate=1</i>)	not known – not volatile
Vapour Density (air = 1)	13.5 (<i>theoretical</i>)
Boiling Range	383°C / 721°F
Freezing Point	-48°C / -55°F
Specific Gravity	0.983 (20/20°C)
Water Solubility	4 milligrams/litre (20°C / 68°F) – <i>effectively nil</i> Also soluble in acetone, ethanol, aromatic hydrocarbons
Viscosity	63 centipoise (25°C / 77°F)
pH	none – (<i>does not liberate hydrogen ions when dissolved</i>)
Molecular Weight	390grams per mole

10. REACTIVITY

Dangerously Reactive With	strong oxidising agents
Also Reactive With	none known
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact	no

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11. TOXICITY

Effects, Acute Exposure

Skin Contact	little to no effect
Skin Absorption	not absorbed through the skin
Eye Contact	mildly irritating – will not damage eyes
Inhalation	low vapour pressure & high viscosity makes inhalation of vapour or mist unlikely; mice exposed to air saturated with DOTP vapour showed little effect apart from nasal irritation
Ingestion	not known – not a route of industrial exposure; bitter taste discourages intake

Effects, Chronic Exposure

General	very low toxicity; feeding 1000mg/kg/day for 90 days had little effect on rats; ingestion trial showed high frequency of cataracts in animals; <i>not relevant to industrial exposure</i>
Sensitising	not a sensitiser in humans or animals*
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals*
Reproductive Effect	no known effect in humans or animals*
Mutagen	no known effect on humans or animals*
Synergistic With	not known
LD ₅₀ (oral)	above 20,000mg/kg (rat) – <i>phthalates are known to have very low toxicity</i> also >5000mg/kg (rat)*, >3200mg/kg (mouse)*
LD ₅₀ (skin)	>19,670mg/litre (guinea pig)*
LC ₅₀ (inhalation)	not known

* See OECD SIDS Assessment Report, link at end of this document

NOTE: Small amounts of phthalates can be absorbed from a variety of plastics by ingestion. Metabolism of phthalates can produce substances which mimic sex hormones – they are thought to be “anti androgens” – and may have effects on the developing fetus & young children. There are also weak (and unproven) statistical links to health effects such as obesity, insulin resistance, and attention deficit disorder. Although absorption via the skin is slight, take care to limit skin contact with this product. *The above is characteristic of phthalates in general, and does not depend on either the source or the manufacturer.*

12. ECOLOGICAL INFORMATION

Bioaccumulation	DOTP is not a bioaccumulator*; rodents excrete ~98% within 144 hours
Biodegradation	DOTP is “ultimately biodegradable” but not “readily biodegradable”, probably due to very low water solubility*
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 0.5days*; not expected to hydrolyse in water*
Mobility in soil, water	water insoluble; cannot move in soil & water
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	984mg/litre (Pimephelas promelas)* >250 & 280mg/litre (Salmo gairdneri – <i>acetone-aided dissolution in water</i>)*
EC ₅₀ (Crustacea, 48hr)	1.4µg/litre (Daphnia magna – <i>DMF aided</i>), 0.76µg/litre (Daphnia magna – <i>acetone aided</i>)*
EC ₅₀ (Algae)	>0.86mg/litre (Selenastrum capricornutum – <i>DMF-aided dissolution</i>)*
EC ₅₀ (Bacteria)	<i>activated sludge respiration inhibition test indicate DOTP is not toxic to wastewater microbes*</i>

* See OECD SIDS Assessment Report, link at end of this document

13. DISPOSAL

Waste Disposal	do not flush to sewer , recycle if possible, if local regulations permit, may be put in sanitary landfill, may be incinerated in approved facility after mixing with a flammable waste
Containers	Drums should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. Pails must be vented and thoroughly dried prior to crushing and recycling. IBCs (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs). Steel containers must be inspected, pressure tested & recertified every 5 years. <i>Never cut, drill, weld or grind on or near this container, even if empty</i>

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14. TRANSPORT CLASSIFICATION

Canada TDG	PIN	UN- not regulated for transport
AND	Shipping Name	not regulated for transport
U.S.A. 49 CFR	Class	not regulated for transport
	Packing Group	not regulated for transport
Marine Pollutant		not a marine pollutant
ERAP Required		NO

EMERGENCY INFORMATION

Canada	Call CANUTEC (collect)	(613) 996-6666
U.S.A.	Call CHEMTREC	(800) 424-9300

15. REGULATIONS

Canada DSL	on inventory
U.S.A. TSCA	on inventory
Europe EINECS	on inventory

Europe Classification *not classified as hazardous in Europe*

U.S.A. Regulations:

TSCA Requirements: Pursuant to section 8(d) of TSCA, EPA promulgated a model Health and Safety Data Reporting Rule. The section 8(d) model rule requires manufacturers, importers, and processors of listed chemical substances and mixtures to submit to EPA copies and lists of unpublished health and safety studies. Bis(2-ethylhexyl) terephthalate is included on this list. Effective date: 1/3/83; Sunset date: 1/3/93.

16. OTHER INFORMATION

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Data from RTECS, HSDB (Haz. Substance Data Base), Cheminfo (CCOHS), IUCLID Datasheets (ESIS – European Chem. Substance Info. System), & others.

Preparation Date: **February 2004** Revision Date: **February 2007, February 2010, March 2013**

Additional information from **OECD SIDS Initial Assessment Report, Di(2-ethylhexyl)terephthalate (DEHT), November 2003:**

http://webnet.oecd.org/hpv/ui/SIDS_Details.aspx?id=c1534369-697f-46e5-83a6-626f8bc31554

For general information on Phthalate safety see also:

USA EPA review document (“Phthalates Action Plan”, March 14, 2012) on Phthalates:

http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates_actionplan_revised_2012-03-14.pdf

USA Consumer Product Safety Commission summary:

<http://www.cpsc.gov/about/cpsia/phthalover.pdf>

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