Established in 1981 megaloid laboratories limited
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Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name **Diisodecyl Phthalate**
Synonyms **1,2-benzenedicarboxylic acid, diisodecyl ester; phthalic acid, diisodecyl ester; DIDP**
CAS# **26761-40-0**
Europe EC# **247-977-1**
Product Uses **plasticiser**

2. HAZARDS

Canada – WHMIS **not controlled under WHMIS**
Key: ***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*

GHS Class (Category) *aquatic acute (1)*

GHS Symbols

Signal Words **WARNING**

Hazard Statements *very toxic to aquatic life (H400)*

3. COMPOSITION

	%	TWAEV / TLV mg/m³	LD_{50} (mg/kg) ORAL	LD_{50} (mg/kg) SKIN	LC_{50} ppm INHALATION
Diisodecyl Phthalate	100	not listed	62,000	>3160	>12,540

4. FIRST AID

SKIN: Wash with plenty of 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.

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5. FIRE FIGHTING & FLAMMABILITY

Flash Point	232°C / 450°F (closed cup)
Autoignition Temperature	380°C / 716°F – (*an average of several available values*)
Flammable Limits	0.3 – upper limit unknown
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments
Firefighting Precautions	foam, dry chemical, water fog, water spray only to cool & dilute, product floats on water – water jet spreads flames; firefighters must wear SCBA
Static Charge Accumulation	not known – flash point far too high to ignite by means of static discharge

6. ACCIDENTAL RELEASE MEASURES

Leak Precaution	dyke to control spillage and prevent environmental contamination
Handling Spill	ventilate contaminated area; 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 sources of ignition, heat and oxidising agents. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

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

Where allergic reactions or sensitisation have been reported with diisodecyl phthalate, this is believed to be due to the presence of unreacted monomer or oligomer present in incompletely cured polymer, and not to the plasticiser.

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 minimise skin contact with these substances. (see also NOTE in Part 3b)*

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; butyl or nitrile gloves are resistant – *confirm suitability with supplier*
Eyes	safety glasses with side shields – *always protect the eyes*
Clothing	no special protective clothing required

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless, viscous liquid with almost no odour
Odour Threshold	not known – odourless
Vapour Pressure	5.28×10^{-7}mmHg / 7×10^{-8}kPa (25°C / 77°F)
Evaporation Rate (*Butyl Acetate = 1*)	not known – *extremely low volatility*
Vapour Density (air = 1)	15 (theoretical)
Boiling Range	250-257°C / 482-495°F (*at 4mmHg – near vacuum*); at atmospheric pressure, >400°C/750°F
Freezing Point	-45°C / -49°F (*mean value – various values given*)
Specific Gravity	0.966 (20/20°C)
Water Solubility	0.2 micrograms per litre (20°C / 68°F) – *virtually nil*
Also soluble in	acetone and many non-polar solvents
Partition Coefficient (Octanol/H_2O)	8.8 (*measured*), 10.3 (*calculated*)
Viscosity	130centipoise (20°C / 68°F)

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pH	none – (*does not liberate hydrogen ions when dissolved*)
Molecular Weight	447grams/mole

10. REACTIVITY

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

11. TOXICITY

Effects, Acute Exposure

Skin Contact	may be slightly irritating
Skin Absorption	slight; no acute toxic effects likely by this route, but see NOTE below
Eye Contact	may be mildly irritating
Inhalation	low vapour pressure and high viscosity make inhalation unlikely
Ingestion	no effect in rodent testing

Effects, Chronic Exposure

General	liver damage reported in rodents and dogs fed DIDP; not a route of industrial exposure
Sensitising	not a sensitiser in humans or animals; very few reports of human sensitisation usually associated with monomers or oligomers in incompletely cured polymer, not the plasticiser
Carcinogen/Tumorigen	not considered a tumorigen or a carcinogen in humans or animals
Reproductive Effect	rodent fetotoxicity on prolonged feeding; no known effect in humans or animals
Mutagen	no known effect on humans or animals
Synergistic With	not known
LD_{50} (oral)	64,000mg/kg (rat)
LD_{50} (skin)	over 3160mg/kg (rabbit) – *no mortality occurred*, over 9660mg/kg (rat)
LC_{50} (inhalation)	over 12,540mg/m^3 (rat) – *no mortality occurred*

** **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, even tiny amounts of phthalates may be able to produce harmful effects as "hormone mimics". **Accordingly, take care to limit skin contact with this product.***
Please note that the above is characteristic of phthalates in general, and does not depend on either the source or the manufacturer of the product.

12. ECOLOGICAL INFORMATION

Bioaccumulation	does not bioaccumulate in most species despite very low water solubility; probably because of ready metabolism by most living creatures; in fish, *½-life may be as brief as 90 minutes*
Biodegradation	biodegrades in the presence of oxygen; various tests show 30-50% biodegradation in 2-3 weeks; also 56% in 28 days & 99% in 28 days; Pseudomonas acidovarans digests DIDP with ½-life of 4 days
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 15 hours
Mobility in soil, water	water insoluble; virtually immobile in soil
Aquatic Toxicity	
LC_{50} (Fish, 96hr)	>0.47mg/litre (Cyprinodon variegatus), >1mg/litre (Pimephales promelas), >0.62mg/litre (Salmo gairdneri), >0.55mg/litre (Lepomis macrochirus), 10,000mg/litre (Leuciscus idus)*
EC_{50} (Crustacea, 24hr)	>500mg/litre (Daphnia magna)
EC_0 (Crustacea, 48hr)	180mg/litre (Daphnia magna) – *this dose had no effect – EC_0*
EC_{50} (Algae, 72hr)	500mg/litre (Scenedesmus subspicatus), 0.8mg/litre (Pseudokirchneriella subsubcapitata)
EC_0 (Bacteria)	25,000mg/litre (Pseudomonas putida)* – *this dose had no effect – EC_0*

** NOTE: These doses are far higher than the water solubility of DIDP.*
Also, wide variation in toxicity to aquatic life suggests that the above results are highly dependant on the method of administration (eg: mechanical emulsification, surfactant aided dispersion, etc) of this strongly hydrophobic substance.

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13. DISPOSAL

Waste Disposal	**do not flush to sewer**, recycle solvent if possible, may be mixed with flammable waste solvent and incinerated in approved facility with flue gas monitoring and scrubbing
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. ***Never cut, drill, weld or grind on or near this container, even if empty***

14. TRANSPORT CLASSIFICATION

Canada TDG	**PIN**	**UN - not regulated for transport**
AND	**Shipping Name**	**not regulated for transport**
U.S.A. 49 CFR	**Class & 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**

NOTE: ***Six phthalates (DBP, BBP, DEHP, DOP, DINP, & DIDP) have been banned by the USA "Consumer Product Safety Improvement Act (2008) Other restrictions on the use of phthalates also exist in Europe & Canada.***
A USA EPA review document ("Phthalates Action Plan", March 14, 2012) on Phthalates is available:
http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates_actionplan_revised_2012-03-14.pdf
And a USA Consumer Product Safety Commission summary is also available: http://www.cpsc.gov/about/cpsia/phthalover.pdf
The latter document also states "Other phthalates including but not limited to di-n-propyl phthalate, diisobutyl phthalate, di-n-pentyl phthalate, dicyclohexyl phthalate & di(2-propylheptyl) phthalate may also contribute to the cumulative health risks of phthalates."

16. OTHER INFORMATION

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577
Data from ***RTECS***, ***HSDB*** *(Haz. Substance Data Base),* ***Cheminfo*** *(CCOHS),* ***IUCLID*** *Datasheets (ESIS – European Chem. Substance Info. System), & others.*
Preparation Date: ***March 2004*** *Revision Date*: ***April 2007, April 2010, April 2013***

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