

# Material Safety Data for: Dibasic Esters

## 1. PRODUCT IDENTIFICATION

<b>Name</b>	<b>Dibasic Esters</b>
<b>Synonyms</b>	<b>DBE</b>
<b>CAS#</b>	<i>listed below – Part 2</i>
<b>Product Uses</b>	<b>solvent, paint stripper</b>

## 2. INGREDIENTS

	%	TWAEV / TLV mg/m <sup>3</sup>	LD <sub>50</sub> ORAL	(mg/kg) SKIN	LC <sub>50</sub> ppm INHALATION
Dimethyl Glutarate (1119-40-0)	55-65%	not listed	6400	not known	not known
Dimethyl Succinate (106-65-0)	15-25%	not listed	5500	>5000	not known
Dimethyl Adipate (627-93-0)	10-25%	not listed	8500	not known	11

## 3. (a) HAZARDS SUMMARY

**Hazards, Quick Guide:** combustible in fire, may irritate skin, eyes, & respiratory system; one component may be a teratogen

### Canada – WHMIS

Key:

### D 2B

**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

### U.S.A. – HMIS

Key:

### Health – 1, Fire – 2, Reactivity – 0

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

## 3. (b) HAZARDS – TOXICITY

### Effects, Acute Exposure

Skin Contact	may irritate – longer contact may cause severe irritation
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	irritating, but local anaesthetic effect may prevent detection; may damage eyes
Inhalation	may irritate but low vapour pressure makes this action unlikely
Ingestion	not known – not a route of industrial exposure

### Effects, Chronic Exposure

General	prolonged exposure may cause dermatitis; inhalation at 5900mg/m <sup>3</sup> damages nasal tissue, from which experimental rodents recovered (no lung damage seen); ingestion by rodents may damage liver, causing weight loss; DuPont data states that ingestion of 50,000ppm (5% in food) for 2 weeks had no effect
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; experimental (rodent) teratogenic action (slight) attributed to dimethyl adipate, <i>which is rated less teratogenic than phthalic acid esters</i>
Mutagen	no known effect on humans or animals
Synergistic With	not known
LD <sub>50</sub> (oral)	8200mg/kg (rat)*; 6500mg/kg (calculated from RTECS data)
LD <sub>50</sub> (skin)	2250* & >5000mg/kg (rabbit)
LC <sub>50</sub> (inhalation)	11mg/m <sup>3</sup> (rat)*

\* DuPont data

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**4. FIRST AID**

- SKIN: Wash with soap and plenty of water. Remove contaminated clothing and do not reuse until thoroughly cleaned or 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. PHYSICAL PROPERTIES**

Odour & Appearance	clear, colourless liquid with musty, wine-like, sweetish odour
Odour Threshold	0.01 – 0.1ppm
Vapour Pressure	0.2mmHg / 0.027kPa (20°C / 68°F)
Evaporation Rate ( <i>Butyl Acetate = 1</i> )	<0.1
Vapour Density (air = 1)	approx. 4
Boiling Range	196-225°C / 385-437°F
Freezing Point	-20°C / -4°F
Specific Gravity	1.092 (20/20°C)
Water Solubility	53 grams per litre
Also soluble in	ethers, ketones
Viscosity	2.4 centipoise (25°C / 77°F)
pH	none – ( <i>does not liberate hydrogen ions when dissolved</i> )
Conversion Factor	1ppm = 6.7mg/m <sup>3</sup> – <i>approximate value for the mixture</i>
Molecular Weight	159 grams per mole – <i>average value for mixture</i>

**6. FLAMMABILITY & FIRE FIGHTING**

Flash Point	100°C / 212°F (closed cup)
Autoignition Temperature	370°C / 698°F
Flammable Limits	0.9% - 8%
Combustion Products	carbon monoxide, nitrogen oxides, smoke, part oxidised hydrocarbon fragments including aldehydes
Fire Fighting Precautions	foam, dry chemical, water fog or spray, product floats on water – water jet spreads flames; Fire fighters must wear SCBA
Static Charge Accumulation	not known – high flash point makes ignition by static discharge unlikely

**7. STABILITY / REACTIVITY**

Dangerously Reactive With	strong oxidising agents; strong acids; strong alkalis
Also Reactive With	softens or dissolves rubber, many paints and some plastics
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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## 8. PROTECTIVE EQUIPMENT / EXPOSURE CONTROL

ACGIH TLV	not listed – 1.5ppm / 10mg/m <sup>3</sup> ( <i>DuPont recommendation</i> )
OSHA PEL	not listed – 1.5ppm / 10mg/m <sup>3</sup> ( <i>DuPont recommendation</i> )
STEL	not listed
Ventilation	no special mechanical ventilation required
Hands	nitrile or “Viton” gloves recommended – <i>other types may also protect; consult supplier to confirm suitability</i>
Eyes	safety glasses with side shields – <i>always protect the eyes</i>
Clothing	no special protective clothing required

## 9. HANDLING & STORAGE

Store in a cool, dry environment, away from sources of ignition, open flame, oxidising agents, strong acids or alkalis. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Avoid breathing product vapour. Use with adequate ventilation. Avoid contact with skin and wash work clothes frequently. An eye bath and safety shower must be available near the workplace.

Never cut, drill, weld or grind on or near this container.

## 10. SPILL PROCEDURES

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

## 11. DISPOSAL

Waste Disposal	<b>do not flush to sewer</b> , recycle solvent if possible, may be incinerated in approved facility; smaller quantities may be suitably diluted and treated in a bioreactor
Containers	<b>Drums</b> should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use. <b>Pails</b> must be vented and thoroughly dried prior to crushing and recycling. <b>IBCs</b> (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>

## 12. ENVIRONMENTAL INFORMATION

Bioaccumulation	this product is rated as having a low bioaccumulation potential
Biodegradation 18days	this product degrades rapidly in the presence of oxygen; 65% biodegradation in 7days, 97% in 18days
Abiotic Degradation	this product reacts with atmospheric hydroxyl radicals; its estimated half-life in air is 4 days – <i>low vapour pressure ensures that this is a minor process compared to biodegradation</i>
Mobility in soil, water	this product is sufficiently water soluble and to move readily in soil and water
<b>Aquatic Toxicity</b>	
LC <sub>50</sub> (Fish, 96hr)	<i>dimethyl succinate</i> – 50-100mg/litre (brachydanio rerio) <i>dimethyl glutarate</i> – 20-26mg/litre (pimephelas promelas) <i>dimethyl adipate</i> – not available
LC <sub>50</sub> (Crustacea, 24hr)	<i>mixture of dibasic esters</i> – 137 & 180mg/litre (daphnia magna)

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### 13. TRANSPORT REGULATIONS

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

### 14. 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 (EC#)

This product meets the criteria for *acute* hazard, defined by 40CFR Part 370, as established by SARA Title III sections 311&312. It meets none of the other criteria – *chronic, fire, reactivity, or pressure*. This product is also not “extremely hazardous” or “a toxic chemical” under SARA or under CERCLA.

### 16. PREPARATION INFORMATION

Prepared for Megaloid Laboratories by Peter Bursztyn, (705) 734-1577

File Name: **dibasic e**

With data from RTECS, Haz. Substance Data Base, Cheminfo (CCOHS), IUCLID Datasheets (European Chem. Substance Info. System), & others, as available

Preparation Date: **December 2003** Revision Date: **October 2006, October 2009**

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