DIMETHYL PHTHALATE

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
DIMETHYL PHTHALATE

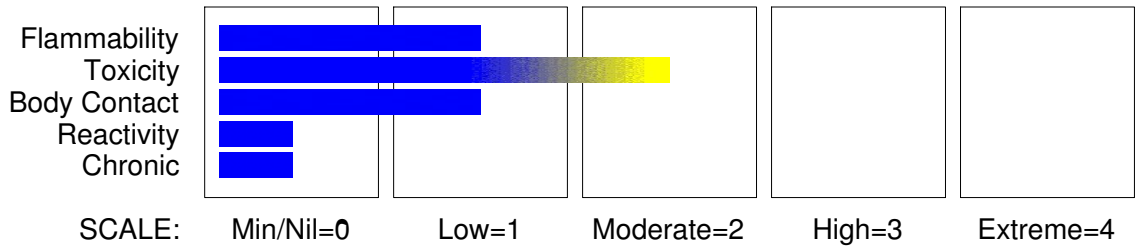
OTHER NAMES

C10-H10-O4, "1, 2-benzenedicarboxylic acid, dimethyl ester", "1, 2-benzenedicarboxylic acid, dimethyl ester", "dimethyl 1, 2-benzenedicarboxylate", "dimethyl 1, 2 -benzenedicarboxylate", DMP, "methyl phthalate", "phthalic acid methyl ester", dimethylphthalate,

PRODUCT USE
Used as a solvent and plasticizer for cellulose acetate and cellulose acetate-butyrate compositions; Insect repellant for personal protection against biting insects; lacquers; plastics; rubbers.

SUPPLIER
Company: S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIAL ESTATE,
248, WORLI,
MUMBAI- 400030.INDIA.
technical@sdfine.com
Telephone: 91- 22- 24959898
Telephone: 91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS

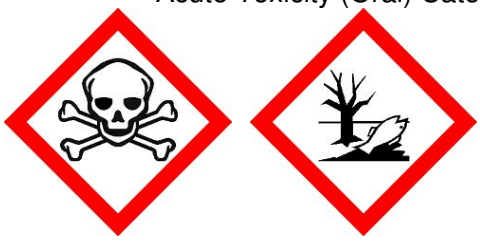


Section 2 - HAZARDS IDENTIFICATION

GHS Classification

continued...

Acute Toxicity (Oral) Category 1



EMERGENCY OVERVIEW

HAZARD

DANGER
Determined by using GHS criteria:
H300
Fatal if swallowed
Harmful to life in the soil

PRECAUTIONARY STATEMENTS

Prevention

Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.

Response

Specific treatment: refer to Label or MSDS.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Storage

Store locked up.

Disposal

Dispose of contents and container in accordance with relevant legislation.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
dimethyl phthalate	131-11-3	>99

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Centre or a doctor at once.
· Urgent hospital treatment is likely to be needed.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
· Observe the patient carefully.
· Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

continued...

· Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
· Transport to hospital or doctor without delay.

EYE

If this product comes in contact with the eyes:
· Immediately hold eyelids apart and flush the eye continuously with running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Transport to hospital or doctor without delay.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.
· Flush skin and hair with running water (and soap if available).
· Seek medical attention in event of irritation.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area.
· Lay patient down. Keep warm and rested.
· Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
· Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
· Transport to hospital, or doctor.

NOTES TO PHYSICIAN

Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

· Foam.
· Dry chemical powder.
· BCF (where regulations permit).
· Carbon dioxide.
· Water spray or fog - Large fires only.

FIRE FIGHTING

· Alert Fire Brigade and tell them location and nature of hazard.
· May be violently or explosively reactive.
· Wear breathing apparatus plus protective gloves.
· Prevent, by any means available, spillage from entering drains or water courses.
· Use water delivered as a fine spray to control fire and cool adjacent area.
· Avoid spraying water onto liquid pools.
· DO NOT approach containers suspected to be hot.
· Cool fire exposed containers with water spray from a protected location.
· If safe to do so, remove containers from path of fire.

continued...

FIRE/EXPLOSION HAZARD
· Combustible.
· Slight fire hazard when exposed to heat or flame.
· Heating may cause expansion or decomposition leading to violent rupture of containers.
· On combustion, may emit toxic fumes of carbon monoxide (CO).
· May emit acrid smoke.
· Mists containing combustible materials may be explosive.

FIRE INCOMPATIBILITY
Avoid contamination with.
oxidising agents, nitrates and chlorine.

Personal Protective Equipment
Chemical splash suit.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
Slippery when spilt.
· Remove all ignition sources.
· Clean up all spills immediately.
· Avoid breathing vapours and contact with skin and eyes.
· Control personal contact by using protective equipment.
· Contain and absorb small quantities with vermiculite or other absorbent material.
· Wipe up.
· Collect residues in a flammable waste container.

MAJOR SPILLS
Slippery when spilt.
Minor hazard.
· Clear area of personnel.
· Alert Fire Brigade and tell them location and nature of hazard.
· Control personal contact by using protective equipment as required.
· Prevent spillage from entering drains or water ways.
· Contain spill with sand, earth or vermiculite.
· Collect recoverable product into labelled containers for recycling.
· Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal.
· Wash area and prevent runoff into drains or waterways.
· If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)
The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:
dimethyl phthalate 500 mg/m³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

continued...

dimethyl phthalate 25 mg/m³

other than mild, transient adverse effects without perceiving a clearly defined odour is:
dimethyl phthalate 15 mg/m³

The threshold concentration below which most people will experience no appreciable risk of health effects:
dimethyl phthalate 5 mg/m³

American Industrial Hygiene Association (AIHA)

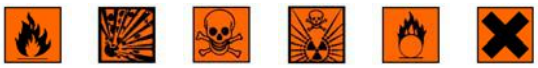
Ingredients considered according to the following cutoffs

Very Toxic (T+)	>= 0.1%	Toxic (T)	>= 3.0%
R50	>= 0.25%	Corrosive (C)	>= 5.0%
R51	>= 2.5%		
else	>= 10%		

where percentage is percentage of ingredient found in the mixture

---

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+	+	+	+	+	+

+: May be stored together
O: May be stored together with specific preventions
X: Must not be stored together

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

· Limit all unnecessary personal contact.
· Wear protective clothing when risk of exposure occurs.
· Use in a well-ventilated area.
· Avoid contact with incompatible materials.
· When handling, DO NOT eat, drink or smoke.
· Keep containers securely sealed when not in use.
· Avoid physical damage to containers.
· Always wash hands with soap and water after handling.
· Work clothes should be laundered separately.
· Use good occupational work practice.
· Observe manufacturer's storing and handling recommendations.
· Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

· Metal can or drum
· Packaging as recommended by manufacturer.
· Check all containers are clearly labelled and free from leaks.

continued...

STORAGE INCOMPATIBILITY

Segregate from.
oxidising agents, nitrates and chlorine.
Reacts vigorously with acids.
Reacts vigorously with alkalis.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records
• dimethyl phthalate: CAS:131- 11- 3 CAS:64441- 70- 9

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m3)	Revised IDLH Value (ppm)
dimethyl phthalate	2, 000	

MATERIAL DATA

The TLV has been recommended to control the excess mist rather than to protect against toxic effects.

PERSONAL PROTECTION



EYE

- Safety glasses with side shields; or as required,
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

continued...

HANDS/FEET
Polyethylene gloves.
Wear chemical protective gloves, eg. PVC.
Wear safety footwear.

OTHER
· Overalls.
· Barrier cream
· Eyewash unit.

RESPIRATOR
Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half- face Respirator	Full- Face Respirator
1000	10	A- AUS P	-
1000	50	-	A- AUS P
5000	50	Airline *	-
5000	100	-	A- 2 P
10000	100	-	A- 3 P
	100+		Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.
For further information consult
your
Occupational Health and Safety Advisor.

ENGINEERING CONTROLS
None under normal operating conditions.
If inhalation risk of overexposure exists, wear SAA approved organic-vapour respirator.
If mist is present, use air supplied breathing apparatus.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Water white or light snow coloured, oily liquid; slight aromatic odour. Miscible with alcohol, ether and chloroform.
Very slightly soluble in water (0.4%);
Insoluble in paraffinic hydrocarbons.

PHYSICAL PROPERTIES
Liquid.
Does not mix with water.

Molecular Weight: 194.19
Melting Range (°C): 0- 5
Boiling Range (°C): 282- 284
Specific Gravity (water=1): 1.194, 1.189

continued...

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Solubility in water (g/L): Immiscible
pH (1% solution): Not applicable
Volatile Component (%vol): Not applicable.
Relative Vapour Density (air=1): 6.7
Lower Explosive Limit (%): 0.94 @ 180 deg.
Autoignition Temp (°C): 490
State: Liquid

pH (as supplied): Not applicable
Vapour Pressure (kPa): <0.00133 @ 20 C
Evaporation Rate: Not available
Flash Point (°C): 147
Upper Explosive Limit (%): Not available.
Decomposition Temp (°C): Not available.
Viscosity: Not available

log Kow: 1.56-2.12

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health).
Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Considered an unlikely route of entry in commercial/industrial environments.

EYE
Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).

SKIN
Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
The material is not thought to be a skin irritant (i.e. is unlikely to produce irritant dermatitis as described in EC Directives using animal models). Temporary discomfort, however, may result from prolonged dermal exposures. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
Toxic effects may result from skin absorption.

continued...

INHALED
The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Not normally a hazard due to non-volatile nature of product.
Inhalation hazard is increased at higher temperatures.

CHRONIC HEALTH EFFECTS
Principal routes of exposure are usually by.
skin contact/absorption and inhalation of vapour from heated material.
Inhalation of vapour may result in nausea, headache.
Prolonged or repeated skin contact may cause drying with cracking, irritation and possible dermatitis following.
Dimethyl phthalate has the ability to accumulate in body tissues because of its high lipid solubility and low water solubility, therefore chronic exposure tends to be more important than acute exposure.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Oral (rat) LD50: 6800 mg/kg	Eye (rabbit): 119 mg
Dermal (rat) LD50: >4800 mg/kg	
Dermal (rabbit) LD50: >10000 mg/kg	
Bacterial mutagen	
Reproductive effector in rats	

Section 12 - ECOLOGICAL INFORMATION

Half- life Soil - High (hours):	168
Half- life Soil - Low (hours):	24
Half- life Air - High (hours):	1118
Half- life Air - Low (hours):	112
Half- life Surface water - High (hours):	168
Half- life Surface water - Low (hours):	24
Half- life Ground water - High (hours):	336
Half- life Ground water - Low (hours):	48
Aqueous biodegradation - Aerobic - High (hours):	168
Aqueous biodegradation - Aerobic - Low (hours):	24
Aqueous biodegradation - Anaerobic - High (hours):	672
Aqueous biodegradation - Anaerobic - Low (hours):	96
Aqueous biodegradation - Removal secondary treatment - High (hours):	96%
Photooxidation half- life air - High (hours):	1118
Photooxidation half- life air - Low (hours):	112
First order hydrolysis half- life (hours):	27903
Base rate constant [MOH)- HR]- 1:	111.6M- 1hr

The phthalate esters are distributed throughout the environment ubiquitously. They are found complexed with fulvic acid components of the humic substances in soil and marine and estuarine waters. Fulvic acid appears to act as a solubiliser for the otherwise insoluble ester and serves to mediate its transport and mobilisation in water or immobilisation in soil. Phthalate esters have been found in open ocean environments, in deep sea jelly fish, Atlantic herring and in mackerel. Phthalic ester plasticisers are clearly recognised as general contaminants of almost every soil and water ecosystem. In general they have low acute toxicity but the weight of evidence supporting their

continued...

carcinogenicity is substantial. Other subtle chronic effects have also been reported. As little as 4 ug/ml in culture medium is lethal to chick embryo heart cells. This concentration is similar to that reached in human blood stored in vinyl plastic bags for as little as one day. Some phthalates (notably di2-ethylhexyl phthalate and dibutyl phthalate) may also be detrimental to the reproduction of the water flea (Daphnia magna), zebra fish and guppies. As phthalates are present in drinking water and food, concerns have been raised about their long term effects on humans.
log Kow: 1.56-2.12
Koc: 44-160
Half-life (hr) air: 23.8
Half-life (hr) H2O surface water: 6-260
Henry's atm m^3 /mol: 1.10E-07
BCF: 4.7-5.4
Toxicity Fish: TLm(96)17mg/L

Section 13 - DISPOSAL CONSIDERATIONS

- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

WASTE DISPOSAL PROCEDURES
• Collect and package the recoverable solid in a labelled container for recycling or incineration. Dissolve the dimethyl phthalate in a flammable solvent and burn in a furnace equipped with an afterburner and scrubber. Wear protective clothing, nitrile rubber gloves and eye protection to control personal contact from small quantities of dimethyl phthalate. In a well ventilated area, place the ester into a beaker containing a solution (3g KOH for
each 5g of dimethyl phthalate) in 1:1 methanol:water. Warm the mixture to 60 degrees Celsius and maintain the temperature for a period of 20 minutes. Empty the solution into the drain with water [Armour 1996].

SPILLAGE DISPOSAL
• Wear nitrile rubber gloves, protective clothing and eye protection to control personal contact from dimethyl phthalate. Cover and contain the spill with a 1:1:1 mixture by weight of soda ash, bentonite and sand. Scoop the absorbed contents into a container and transfer to a well ventilated area. Add the mixture to a solution containing 3g potassium hydroxide for each 5g of dimethyl phthalate in 1:1 methanol:water. Warm the mixture to 60 degrees Celsius and maintain at this temperature for 20 minutes. Cool and empty the solution into the drain. Discard the recoverable solid with normal refuse [Armour 1996].

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

continued...

Section 15 - REGULATORY INFORMATION

REGULATIONS

dimethyl phthalate (CAS: 131-11-3) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

No data available for dimethyl phthalate as CAS: 64441-70-9.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
dimethyl phthalate	131- 11- 3, 64441- 70- 9

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

Issue Date: 16-Aug-2017