



Safety Data Sheet

1. PRODUCT IDENTIFICATION

Name	Diisobutyl Ketone
Synonyms	2,6-dimethyl-4-heptanone; 4-heptanone, 2,6-dimethyl; DIBK
CAS#	108-83-8
Europe EC#	203-620-1
Product Uses	solvent, inks, organic synthesis

EMERGENCY INFORMATION

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

2. HAZARDS

GHS Class (Category)	flammable (3)	STOT (3)
Signal Words	WARNING	WARNING
Hazard Statements	flammable liquid & vapour (H226)	may cause respiratory tract irritation (H335)



Canada – WHMIS Key:

B 3, 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, F – Reactive Substance



3. COMPOSITION

	%	TWAEV / TLV ppm / mg/m ³	LD ₅₀ (mg/kg) ORAL	LD ₅₀ (mg/kg) SKIN	LC ₅₀ ppm INHALATION
2,6-Dimethyl-4-heptanone	100%	25 / 145	1445	166000	2800

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	49°C / 120°F (closed cup)
Autoignition Temperature	396°C / 745°F
Flammable Limits	0.8% – 7.1% (@ 93°C)
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	cannot accumulate a static charge on agitation or pumping

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. Empty containers may contain a flammable / explosive vapour. Always ensure that containers, whether empty or full, or part full, are tightly sealed unless in use.

Avoid generating or breathing product vapour. If vapour forms in use install adequate ventilation to clear workplace air.

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.

8. EXPOSURE CONTROL & PERSONAL PROTECTION

Ontario TWAEV	25ppm / 145mg/m ³	Ontario STEV	not listed
ACGIH TLV	25ppm / 145mg/m ³	ACGIH STEL	not listed
OSHA PEL	50ppm / 290mg/m ³	OSHA STEL	not listed
Ventilation	mechanical ventilation may be required to control airborne titre; if product is handled at high temperature in sealed equipment, “escape” respirators with an organic vapour cartridge should be available for all workers; store respirators in sealed containers (“Tupperware” or “Zip-Lock”) to maintain cartridge “freshness”		
Hands	“Barrier” gloves recommended – other types may also protect; consult supplier to confirm suitability		
Eyes	safety glasses with side shields – always protect the eyes		
Clothing	wear impermeable (above) apron, boots, & long sleeves if there is any danger of splashing,		

9. PHYSICAL PROPERTIES

Odour & Appearance	clear, colourless liquid with a mild peppermint odour
Odour Threshold	0.1 – 0.3ppm
Vapour Pressure	1.7mmHg / 0.23kPa (20°C / 68°F)
Evaporation Rate (<i>Butyl Acetate</i> = 1)	0.2
Vapour Density (air = 1)	4.9
Boiling Range	165°C / 329°F
Freezing Point	-46°C / -51°F
Specific Gravity	0.806 (20/20°C)
Water Solubility	0.5 grams per litre (20°C / 68°F)
Also soluble in	most organic solvents, limited solubility in glycols and methanol
Log P _{O/W} (Octanol/H ₂ O partition)	not known
Viscosity	1.02centipoise (25°C / 77°F)
pH	none – (<i>does not liberate hydrogen ions when dissolved</i>)
Conversion Factor	1ppm = 5.8mg/m ³
Molecular Weight	142grams per mole

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10. REACTIVITY

Dangerously Reactive With	strong oxidising agents; nitric acid <i>and</i> sulphuric acid
Also Reactive With	mixture of strong alkalis and chloroform <i>or</i> bromoform may explode
Stability	stable; will not polymerize
Decomposes in Presence of	not known
Decomposition Products	none apart from Hazardous Combustion Products
Sensitive to Mechanical Impact	no

11. TOXICITY

Effects, Acute Exposure

Skin Contact	mildly irritating
Skin Absorption	slight; no toxic effects likely by this route
Eye Contact	mildly irritating; vapour begins to irritate above 25ppm (<i>DIBK has low vapour pressure</i>)
Inhalation	at 50-100ppm slightly irritating; at 100ppm, headache, dizziness, may be experienced; intolerable irritation above 285ppm
Ingestion	likely to irritate mouth & throat; large amounts may cause dizziness, drowsiness, intoxication <i>ingestion is not an expected route of industrial exposure</i>

Effects, Chronic Exposure

General	prolonged exposure may cause dermatitis through washing away skin oils
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)	5750mg/kg (rat), 1415 & 2820mg/kg (mouse)
LD ₅₀ (skin)	16,100mg/kg (rabbit)
LC ₅₀ (inhalation)	over 2300ppm (rat)

12. ECOLOGICAL INFORMATION

Bioaccumulation	readily metabolised and excreted and cannot bioaccumulate
Biodegradation	biodegrades readily and rapidly in the presence of oxygen; 88% in 20 days
Abiotic Degradation	reacts with atmospheric hydroxyl radicals; estimated ½-life in air is 22 hours
Mobility in soil, water	slightly water soluble; expected to move readily in soil and water
Aquatic Toxicity	
LC ₅₀ (Fish, 96hr)	140mg/litre (Oncorhynchus mykiss)
EC ₅₀ (Crustacea, 48hr)	250mg/litre (Daphnia magna), 65mg/litre (Artemia salina)
EC ₅₀ (Algae)	100mg/litre (Selenastrum capricornutum)
EC ₅₀ (Bacteria)	not available

13. DISPOSAL

Waste Disposal	do not flush to sewer , recycle solvent if possible, may be incinerated in approved facility
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 AND U.S.A. 49 CFR	PIN Shipping Name Class Packing Group	UN-1157 diisobutyl ketone 3 III not a marine pollutant NO
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15. REGULATIONS

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

U.S.A. Regulations:

Immediately Dangerous to Life or Health: 500 ppm

OSHA Standards: Permissible Exposure Limit: Table Z-1 8-hr Time Weighted Avg: 50 ppm (290 mg/cu m). Vacated 1989 OSHA PEL TWA 25 ppm (150 mg/cu m) is still enforced in some states.

NIOSH Recommendations: Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 25 ppm (150 mg/cu m).

Threshold Limit Values: 8 hr Time Weighted Avg (TWA): 25 ppm. Excursion Limit Recommendation: Excursions in worker exposure levels may exceed three times the TLV-TWA for no more than a total of 30 min during a work day, and under no circumstances should they exceed five times the TLV-TWA, provided that the TLV-TWA is not exceeded.

FDA Requirements: Diisobutyl ketone is an indirect food additive for use only as a component of adhesives.

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: **September 2010** Revision Date: **September 2013**

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