



TAG SOLVENT PRODUCTS (PTY)LTD.

MATERIAL SAFETY DATA SHEET METHYL ISOBUTYL KETONE

1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common name	: Methyl Isobutyl Ketone.		
Supplier	: TAG Solvent Products Mallet Road/Weg Knights Germiston 1401 Republic of South Africa TEL: +27 11 822-1600		
Synonym	: 2-methyl-4-pentanone, 2-methylpropyl methyl ketone, 2-pentanone, hexone, isobutyl methyl ketone.		
Trade name	: MIBK		
Material uses	: Intermediate for nitro-cellulose, nitro-cellulose resins and other natural and synthetic resins, adhesives, herbicides and plastics. Also used in an extractant for certain metals and antibiotics		

2 COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS#	% By Weight	Exposure Limits
MIBK	108-10-1	99.5	ACGIH (United States, 2002). TWA: 50 ppm TWA: 205 mg/m ³ ACGIH TLV (United States, 2002). STEL: 75 ppm OSHA (United States, 2002). TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm

3 HAZARDS IDENTIFICATION

Physical state and appearance	: Liquid.
Emergency overview	: DANGER! EXTREMELY FLAMMABLE LIQUID AND VAPOUR. VAPOUR MAY CAUSE FLASH FIRE. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE CAUSES SKIN IRRITATION. CAUSES RESPIRATORY TRACT AND EYE IRRITATION.
Routes of entry	: Eye contact. Ingestion. Inhalation. Skin contact.
Potential acute health effects	
Eyes	: Extremely hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering and itching.
Skin	: Extremely hazardous in case of skin contact (permeator). Hazardous in the case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Inhalation	: Hazardous in case of inhalation. Vapour is irritant to mucous membranes and respiratory tract. Inhalation of vapour can result in headaches, and possible nausea. Inhalation of high concentrations can produce central nervous system depression which can lead to loss of coordination, impaired judgements, and if exposure is prolonged, unconsciousness.
Ingestion	: Hazardous in case of ingestion. Swallowing can result in nausea, vomiting and central nervous system depression.
Potential chronic health effects	: CARCINOGENIC EFFECTS: Not listed MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not listed
Medical conditions aggravated by overexposure	: Persons with pre-existing skin, eye, respiratory, neurological conditions , asthmatic or kidney conditions might be more sensitive.
Overexposure/signs/Symptoms	: Repeated/prolonged overexposure can cause dermatitis. Irritation, burning of the eyes and sore throat, gastrointestinal (anorexia, nausea, vomiting, intestinal pain) and nervous system disturbances (weakness, headache, drowsiness, insomnia).

See toxicological information (section 11)

4 *FIRST AID MEASURES*

Eye contact	: Check for and remove any contact lenses. IMMEDIATELY flush the eyes with running water for at least 15 minutes, keep eyelids open. Cold water may be used. Get medical attention.
Skin contact	: Skin irritant, rinse with water for a few minutes.
Inhalation	: If inhaled, remove to fresh air (safe area) as soon as possible.
Ingestion	: DO NOT induce vomiting unless directed to do so by medical personnel. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If not breathing apply artificial respiration. Have a conscious person drink several glasses of water or milk. Get medical attention.
Notes to physician	: Support respiratory and cardiovascular function.

5 *FIRE FIGHTING MEASURES*

Flammability of the product	: Flammable
Autoignition temperature	: 448°C
Flash points	: CLOSED CUP: 14°C OPEN CUP:18°C
Flammable limits	: LOWER: 1.4% UPPER: 7.5%
Products of combustion	: These products are carbon oxides (CO, CO ₂)
Fire hazards in presence of various substances	: Flammable in the presence of open flames and sparks,
Explosion hazards in presence of various substances	: Risk of explosion of the product in presence of mechanical impact: Yes. Risk of explosion of the product in presence of static discharge: None. Reacts violently with potassium tert-butoxide, can react vigorously with reducing materials, strong oxidizers. Can attack many plastics.
Fire fighting media and instructions	: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet on order to prevent pressure build-up, autoignition or explosion.
Protective clothing (fire)	: Wear MSHA/NIOSH self-contained respirator or equivalent and full protective gear.
Special remarks on fire hazards	: Vapours may travel to source of ignition and flash back. Most vapours are heavier than air.
Special remarks on explosive hazards	: Vapours may form explosive mixtures with air. Containers may explode if heated. Vapour explosion hazard indoors, outdoors or in sewers.

6 ACCIDENTAL RELEASE MEASURES

Small spill or leak	: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large spill or leak	: Keep away from heat. Keep away from sources of Ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapours. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

7 HANDLING AND STORAGE

Handling	: Keep away from heat sparks and flame. Keep container closed. Use only with adequate ventilation. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.
Storage	: Store in segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

8 EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering controls	: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below their respective threshold limit values. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal protection	
Eyes	: Splash goggles.
Body	: Chemical resistant protective suite.
Respiratory	: Vapour respirator. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hands	: Butyl rubber gloves.
Feet	: Chemical resistant safety boots.
Protective clothing	: Splash goggles. Full chemical resistant protective suit. Vapour respirator. Butyl gloves. Chemical resistant boots.
Personal protection in case of large spills	: Splash goggles. Full suit. Vapour respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling the product.

Product name Methyl Isobutyl Ketone (MIBK)	Exposure limits ACGIH (United States, 2002). TWA: 50 ppm TWA: 205 mg/m ³ ACGIH TLV (United States, 2002). STEL: 75 ppm OSHA (United States, 2002). TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm
--	--

Physical state and appearance	: Liquid.
Colour	: Colourless. Clear.
Odor	: Faint Camphor, pleasant, ketonic odour. (Slight).
Taste	: Not available.
Molecular weight	: 100.16 g/mole
Molecular formula	: C ₆ H ₁₂ O
PH (1% soln/water)	: Not available.
Boiling/condensation point	: 115.9°C
Melting/freezing point	: -84°C
Critical temperature	: 298.3 °C
Specific gravity	: 0.7978(water=1)
Vapor pressure	: 15.7 mm of Hg (@20°C)
Vapor density	: 3.45 (Air=1)
Volatility	: Volatile 100%.
Odor threshold	: 0.88ppm
Evaporation rate	: 5.6(Butyl acetate = 1)
VOC	: 100 (%)
Viscosity	: 0.61cP.
LogK_{ow}	: log P = 1.2.
Iconicity (in water)	: No data available.
Dispersion properties	: See solubility in water.
Solubility	: Partially soluble in water. (106-2.0g/100ml). Soluble in ethanol, acetone, diethyl ether, chloroform and benzene.
Physical chemical comments	: No additional remark.

10 STABILITY AND REACTIVITY

Stability and reactivity	: The product is stable.
Conditions of instability	: Sparks, open flames, heat, electrostatic discharge and other ignition sources. Reacts violently with strong oxidizing, agents, reducing agents and potassium tert-butoxide.
Incompatibility with various substances	: Extremely incompatible with oxidizing materials,. Reducing materials, potassium tert-butoxide.
Hazardous decomposition products	: Carbon dioxide and carbon monoxide may form when heated to decompose.
Hazardous polymerization	: Will not occur.

11 TOXICOLOGICAL INFORMATION

Toxicity to animals	: Acute oral toxicity (LD50): 2080 mg/kg [Rat]. Acute dermal toxicity (LD50): 16000 mg/kg [Rabbit]. Acute toxicity of the vapour (LC50): 2000ppm 4 hour(s) [Rat].
Chronic effects on humans	: Human: Passes through the placental barrier. Can cause CNS depression. Can cause gastrointestinal disturbances. Exposure can cause dermatitis. Exposure cans cause stomach pains, vomiting. Prolonged chronic exposure may cause kidney damage.
Other toxic effects on humans	: No specific information is available in our database regarding the other toxic effects of this material for humans.
Special remarks on toxicity to animals	: No additional remark.
Special remarks on chronic effects on humans	: Passes through the placental barrier in humans.
Special remarks on other toxic effects on humans	: No additional remark.

12 ECOLOGICAL INFORMATION

Ecotoxicity	: Ecotoxicity in water (LC50) 460mg/l/24 hr [Goldfish]. 505mg/L 96 hours [Fathead minnow].
BOD and COD	: BOD=2.03g oxygen/g MIBK COD=2016g oxygen /g MIBK
Biodegradable/OECD	: Biodegradable from OECD
Mobility	: Not available
Products of degradation	: Acetone is the main photooxidation product of MIBK. In the presence of nitrogen oxides peroxyacetyl nitrate (PAN) and methyl nitrate are formed. Carbon oxides (CO, CO ₂) are produced.
Toxicity of the products of biodegradation	: The products of degradation are less toxic than the product itself..
Special remarks on the products of biodegradation	: No additional remarks.

13 DISPOSAL CONSIDERATIONS

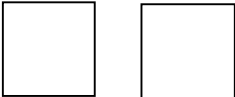
Waste information	: Waste must be disposed of in accordance with federal, state and local environmental control regulations.
Waste stream	: RCRA Hazardous Waste: U161 , RQ of 5000lbs.

Consult your local or regional authorities.

14 TRANSPORT INFORMATION

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN 1245	Methyl Isobutyl Ketone	3	II	<input type="checkbox"/>	Reportable quantity 5000 lbs. (2268 kg)
TDG Classification	UN 1245	Methyl Isobutyl Ketone	3	II	<input type="checkbox"/>	
IMDG Classification	UN 1245	Methyl Isobutyl Ketone	3	II	<input type="checkbox"/>	
IATA-DGR Classification	UN 1245	Methyl Isobutyl Ketone	3	II	<input type="checkbox"/>	

15 REGULATORY INFORMATION

HCS Classification	: Class: Flammable liquid having flash point lower than 37.8°C (100°F)
U.S. Federal regulations	: TSCA 5(e) substance consent order: Methyl isobutyl ketone TSCA 8(a) PAIR: Methyl isobutyl ketone TSCA 8(a) OUR: Methyl isobutyl ketone TSCA 8(b) inventory: Methyl isobutyl ketone TSCA 12(b) one time export: Methyl isobutyl ketone SARA 302/304/311/312 extremely hazardous substances: No reports were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: No products were found. SARA 311/312 MSDS distribution- chemical inventory – hazardous identification: NO products were found SARA 313 toxic chemical notification and release reporting: Methyl isobutyl ketone Clean water act (CWA) 307: No products were found. Clean water act (CWA) 311: No products were found. Clean water act (CAA) 112 accidental release prevention: Methyl isobutyl ketone Clean water act (CAA) 112 regulated flammable substances: No products were found. Clean water act (CAA) 112 regulated toxic substances: No products were found.
State regulations	: Rhode Island RTK hazardous substance: Methyl isobutyl ketone Pennsylvania RTK: Methyl isobutyl ketone (environmental hazard0 Florida: Methyl isobutyl ketone Minnesota: Methyl isobutyl ketone Massachusetts RTK: Methyl isobutyl ketone New Jersey: Methyl isobutyl ketone New Jersey Spill List: Methyl isobutyl ketone California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Methyl isobutyl ketone.
EU regulations	
Hazardous symbol(s)	
Classification	: Highly flammable, harmful.
Risk phrases	: R11 – Highly flammable. R20 – Harmful by inhalation. R36/37 – Irritating to eyes. And respiratory system R66 - Repeated exposure may cause skin dryness or cracking.
Safety phrases	: S9 – Keep container in a well-ventilated place. S16 – Keep away from sources of ignition – No smoking. S29 – Do not empty into drains
EINECS Number	: 203-550-1

16 OTHER INFORMATION

National Fire Protection Association (U.S.A.)



References	: LOLI Database: The regulated List of Lists. CHEMINFO: Canadian Centre for Occupational Health and Safety, Issue: 97-3 (August 1997). – BDH; Hazard Data Disk, Version 3. – CESARS: Chemical Evaluation and Retrieval System, Produced by: Ontario Ministry of Environment and Michigan Department of Natural Resources, Issue 97-3 (August 1997). – TOMES Plus System: Toxicology, Occupational Medicine & Environmental Series: incorporating: - MEDITEX, HAZARDTEXT, 1 st Medical Response Protocols, INFOTEXT, HSDB, CHRIS, OHM/TAD, IRIS, NIOSH Pocket Guide, RTECS, NJ Facts Sheets, North American Emergency Response Guides, REPROTEXT, REPROTOX, TERIS, Shepard's Catalogue of Teraogenic Agents.
Other special considerations	: No additional remarks.
Date of Printing	: 18-05-2004
Date of issue	: 18/05/2004
Version	
Verified by	

Notice to reader:

This MSDS summarizes at the date of issue our best knowledge of the health, safety and environmental hazard information related to the product, and in particular how to safely handle, use and transport the product in the workplace. Since TAG Solvent Products (PTY) LTD. and its subsidiaries cannot anticipate or control the conditions under which the product may be handled, used, stored or transported, each user must, prior to usage, review MSDS in the context of how the user intends to handle, use, store or transport the product in the workplace and beyond, and communicate such information to all relevant parties. If clarification or further information is required to ensure that an appropriate assessment can be made, the user should contact the company.

We shall not assume any liability for the accuracy or completeness of the information contained herein or any advice given unless there has been gross negligence on our part. In such event our liability shall be limited only to direct damages suffered. Our responsibility for the product as sold is subject to our standards terms and conditions, a copy of which is sent to our customers and is also available upon request. All risk with possession and application of the product passes on delivery.