

GPS Safety Summary

Substance Name:

4-methylpentan-2-ol

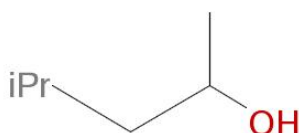
1. General Statement

4-methylpentan-2-ol is a colourless liquid highly soluble in water. It is an oxygenated solvent commonly named MIBC. It is a flammable liquid and an irritant product.

MIBC is manufactured, used and formulated within industrial and professional settings. This substance is also present in preparations used by consumers.

2. Chemical Identity

Name:	4-methylpentan-2-ol
Brand names:	MIBC
Chemical name (IUPAC):	4-methylpentan-2-ol
CAS number(s):	108-11-2
EC number:	203-551-7
Molecular formula:	C ₆ H ₁₄ O
Structure:	



3. Use and applications

The mains applications for MIBC are:

- **Lubricants:** Lubricant additive (hydraulic fluids). Manufacturing of zinc dialkyldithiophosphate (antiwear agent).
- **Mining industry:** Flotation frother for gold, silver, copper, lead, zinc... miscellaneous ores. Extraction of petroleum and natural gas.
- **Paints and varnishes:** Gloss, levelling and blush resistance properties.
- **Coatings:** Nitrocellulose lacquers. Brushing and hot spray lacquers. UV curable and photoresist coatings.
- **Inks:** Dispersing agent for textile inks. Jet inks. Photolithography.
- **Pharmaceuticals:** Antimicrobial and antitumor agent. Putrefaction remover of decayed teeth.
- **Chemicals synthesis:** Raw material for plasticizers. Dehydrogenation of copper catalysts. Ester preparations and alcohol oxidations.
- **Others:** Surfactants. Dewaxing agent. Flavor component for food and beverages. Photoreceptors manufacturing.

4. Physical / Chemical properties

4-methylpentan-2-ol is a flammable liquid organic substance having the following characteristics and physical–chemical properties:

Property	Value
Physical state	liquid at 20°C and 1013 hPa
Colour	colourless
Odour	mild, alcohol-like
Molecular weight	102.18 g/mol
Density	0.8075 g/cm ³ at 20°C
Vapour pressure	3.7 hPa at 20°C 10 hPa at 30°C 100 hPa at 71.9°C
Freezing / boiling points	-90°C / 132°C at 1013hPa
Flammability	Flammable liquid and vapour
Flash point	41°C
Self-ignition temperature	335°C at 1013 hPa
Explosive / oxidizing properties	Not relevant based on its structure
Water solubility	21.8 g/L at 20°C (highly soluble at 20°C)
Dissociation constant (pK _a)	Not relevant based on its structure
Octanol-water partition coefficient (Log K _{ow})	1.57 at 20°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	May be harmful by oral, dermal and inhalation routes
Irritation / corrosion Skin / eye/ respiratory tract	Cause mild skin irritation. Irritating for the eyes and the respiratory tract
Sensitisation	No evidence of skin sensitisation
Toxicity after repeated exposure Oral / inhalation / dermal	No significant systemic toxicity following repeated inhalation administration
Genotoxicity / Mutagenicity	No evidence of genetic toxicity
Carcinogenicity	No carcinogenic effect relevant to humans was observed in animal studies performed with an analogue substance
Reproductive / Developmental Toxicology	No effect on fertility and foetal development is expected based on animal studies performed with an analogue substance

6. Environmental Effects

The potential of 4-methylpentan-2-ol for bioaccumulation is low. This product will not persist in the environment. It is slightly harmful to aquatic organisms. Do not release in the environment.

Effect Assessment	Result
Aquatic Toxicity	Slightly harmful to aquatic organisms

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Other degradation (optional)	
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB conclusion	Not considered as PBT* or vPvB**

*: Persistent, Bioaccumulative and Toxic (PBT)

** : very Persistent and very Bioaccumulative (vPvB)

7. Exposure

7.1 Human health

4-methylpentan-2-ol (MIBC) is manufactured, used and formulated within industrial and professional settings. Consumers may also be exposed to MIBC when present in mixtures used in lubricants.

The primary routes of industrial exposure of MIBC are skin contact and inhalation, ingestion is not anticipated route of exposure. Workers may be exposed during cleaning, maintenance, transfer, sampling and analysis.

Based on the risk assessment, the exposure can be kept at a safe level (strictly below occupational exposure limits, when applied) when activities are carried out under conditions recommended in the Extended Safety Data Sheet (see Chap. 8 and Exposure Scenarios). Procedures, controls, suitable collective and personal risk management measures, good industrial hygiene practices and risk and communication through appropriate training of workers should be implemented.

In case of exposure to the undiluted substance, workers should follow the first aid measures recommended in Safety Data Sheet.

7.2 Environment

MIBC is manufactured and used in continuous or batch processes within industrial settings.

All industrial aqueous releases that may contain the substance must be treated to avoid any exposure to the environment.

Disposal, treatment or recycling of industrial waste must comply with applicable regulations to preserve the environment.

Please see chap 6 of the Safety Data Sheet regarding environmental precautions.

8. Risk Management recommendations

Human health measures	
Organizational	Collect the latest available Safety Data Sheet. Implement good basic standards of occupational hygiene. Ensure operatives are well informed of the hazards and trained to minimise exposures. Handle and store according to the indications of the Safety Data Sheet.
Engineering controls	Provide appropriate local exhaust ventilation at points of emission. Ensure that eye- and handwash stations and safety showers are close to workstation locations.
Protection	Eye/Face protection: Safety glasses with side-shields
	Skin and body protection: At the workplace: Protective clothing (cotton) Intervention at incident: Waterproof suit
	Hand protection: Intermittent contact: Gloves (Polyvinylchloride, neoprene, nitrile rubber), tested to EN374:1 Prolonged contact: Impervious butyl rubber gloves
	Respiratory protection: Low concentrations or short activity: Mask with specific cartridge Recommended Filter type: A2B2E2K2P3 High concentrations or prolonged activity: Self contained Breathing Apparatus
Environment protective measures	
Do not release into the environment. Do not let product enter drains. Use waste water treatment systems. Do not spread sludge to soil.	

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information



This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification
According to REGULATION (EC) no 1272/2008: <ul style="list-style-type: none"> – Flammable liquids: Category 3 – Eye irritation: Category 2 – Specific target organ toxicity - single exposure (inhalation): Category 3
Signal word
Warning

Pictogram	
— GHS02: flame	
— GHS07: exclamation mark	
Hazard statement	
<ul style="list-style-type: none"> — H226: Flammable liquid and vapour. — H319: Causes serious eye irritation. — H335: May cause respiratory irritation. 	
Alternative classification according to Globally Harmonized System (GHS)	
<ul style="list-style-type: none"> — Flammable liquids: Category 3 — Acute toxicity - oral: Category 5 — Acute toxicity - inhalation: Category 5 — Acute toxicity - dermal: Category 5 — Eye irritation: Category 2A — Skin irritation: Category 3 — Specific target organ toxicity - single exposure (inhalation): Category 3 	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- arkema-thiochem-reach-uses@arkema.com
- **ICCA portal where the GPS Safety Summary is posted:**
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issues / Revision

- Date of issue: 2014/08/31
- Date of revision:

12. Disclaimer

The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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