

## GPS Safety Summary

**Substance Name:**

**Hexylene glycol**

### 1. General Statement

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Hexylene glycol is a colourless liquid organic compound with a characteristic sweet odour. It is viscous and miscible with the most common organic solvents, fatty acids and water.

Hexylene glycol occurs as a component in a large number of products for industrial, professional and consumer use. There is a potential for occupational and consumer exposure through inhalation and skin contact.

The pure substance is an eye and skin irritant. It is only professionally or industrially used and must be handled under stringent safety conditions in accordance with the risk management measures to keep the exposure as low as possible to preserve human health and environment.

Hexylene glycol is formulated in suitable concentrations for consumer applications, according to appropriate regulations, to ensure safe use of the final product in the conditions of use written on the product packaging.

### 2. Chemical Identity

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<b>Name:</b>	Hexylene glycol
<b>Brand names:</b>	Hexylene glycol
<b>Synonyms:</b>	HGL; 1,1,3-trimethyl-triethylenediol; diacetone glycol; methylamylene glycol; 2,4-dihydroxy-2-methyl-pentane; 2,4-pentanediol, 2-methyl, 2-methylpentane-2,4-diol
<b>Chemical name (IUPAC):</b>	2-methylpentane-2,4-diol
<b>CAS number(s):</b>	107-41-5
<b>ES number (optional):</b>	203-489-0
<b>Molecular formula (optional):</b>	C <sub>6</sub> H <sub>14</sub> O <sub>2</sub>
<b>Structure (optional):</b>	



### 3. Use and applications

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Hexylene glycol is a low-evaporating solvent with complete water solubility. It is mainly used as a surfactant or emulsifying agent.

Hexylene glycol is widely used in the coating industry as a component for lacquers, varnishes, printing inks and both oil and water-based paints.

It is also used as an inert ingredient in pesticide formulations, as a solvent in dyes preparations, as a coupling agent for hydraulic fluids in the automotive industry, as a wetting agent, as an anti-caking agent for cement and siliceous derived industries, as a setting agent in the manufacture of textiles, and as a component in cosmetics, industrial and household cleaners, and antifreeze solutions.

Hexylene glycol is also used as an intermediate for the synthesis of pharmaceuticals and agrochemicals.

### 4. Physical / Chemical properties

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Property	Value
Physical state	Liquid at 20°C (293 K) and atmospheric pressure
Colour	Colourless
Odour	Sweet
Molecular weight	118.17 g/mol
Relative density	0.923 at 20°C (293 K)
Freezing Point	- 50°C (223 K) at atmospheric pressure
Boiling point	197,5°C (470 K) at atmospheric pressure
Flash point	93°C (366 K) (open-cup)
Explosive properties	Non explosive
Self-ignition temperature	306°C (579 K) at atmospheric pressure
Vapour pressure	0.066 hPa at 20°C (293 K), low volatility
Water solubility	≥ 10 g/l at 25°C (298 K), very soluble
Octanol Water partition coefficient (log Kow)	< 1 at room temperature low potential for bioaccumulation

Based on available data and according to the list of harmonised classification and labelling of hazardous substances of European regulation 1272/2008 (Annex VI Table 3.1), hexylene glycol is not classified regarding physical and chemical hazards.

### 5. Health Effects

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Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Low toxicity by oral and dermal routes No toxicity by inhalation at the saturated vapour concentration
Irritation / corrosion Skin / eye/ respiratory tract	Causes slight skin and eye irritation in laboratory animals Exposure to vapours can irritate the eyes
Sensitisation	No evidence of skin sensitisation in laboratory animals No data for respiratory sensitisation

Toxicity after repeated exposure Oral / inhalation / dermal	No significant systemic toxicity following long-term oral administration to laboratory rats No data available by dermal and inhalation routes of exposure
Genotoxicity / Mutagenicity	No evidence of genetic toxicity <i>in vitro</i>
Carcinogenicity	No carcinogenic effects expected based on the lack of genotoxicity and low toxicity profile of the substance
Toxicity for reproduction	No effects were observed on fertility and foetal development in orally treated laboratory rats. At very high dose levels, survival of the progeny was occasionally affected within the first few days after birth, warranting no change in the classification as the relevance to the human situation remains limited

All these results are based on available data.

The classification is in accordance with the List of Harmonized Classification and Labelling of Hazardous Substances from European regulation 1272/2008 (Annex VI Table 3.1).

## 6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Not dangerous to aquatic organisms

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not potentially bioaccumulative (Log Kow < 1)
PBT / vPvB conclusion	Not considered to be either PBT or vPvB

Based on available data and according to the list of harmonised classification and labelling of hazardous substances of European regulation 1272/2008 (Annex VI Table 3.1), Hexylene glycol is not classified as dangerous for the environment .

## 7. Exposure

Considering the hexylene glycol life-cycle, from manufacture to end-use product, human and environmental exposure have been assessed through exposure scenarios.

### 7.1 Human health

On hexylene glycol manufacturing, formulation and application sites, closed processes minimize workers exposure. However, workers may be exposed during (un)loading, mixing, sampling, analysis or maintenance operations and particularly in case of batch processes. The exposure must be kept at a safe level (strictly below occupational exposure limits, when applied) and controlled by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

Consumers are likely to come in contact with hexylene glycol when using a large range of various products like cleaners, air care products, paints or cosmetics. Hexylene glycol is formulated to comply with requirements of the most stringent regulations for all applicable consumer uses to ensure that final products are used safely in the conditions of use written on the packaging.

## 7.2 Environment

Based on its physico-chemical properties, hexylene glycol is water soluble, has a low potential for volatility and bioaccumulation and is readily biodegradable. It would be expected to partition predominantly into aquatic compartment and not to adsorb on soil or sediment particles. In addition, it is not persistent.

On industrial manufacturing and application sites, effluents that may contain the substance must be treated to avoid any exposure to the environment.

## 8. Risk Management recommendations

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For industrial, professional and consumer uses of hexylene glycol, recommendations to preserve human health are based on risk assessment, for each exposure scenario along the substance life-cycle.

### 8.1 Human health

For industrial uses of hexylene glycol and as recommended for the use of any chemical product, workers must be well informed and trained and must refer to the extended Safety Data Sheet (eSDS).

Where there is a risk of exposure to the substance (during (un)loading, mixing, sampling, analysis or maintenance operations), it must be controlled by handling the substance under an adequate and efficient ventilation, appropriate Personal Protective Equipment (PPE) must be worn (safety goggles, gloves, protective suit) as recommended in the eSDS. In case of exposure to vapour, wear safety glasses and a respirator with approved filter. Hygiene measures must be respected (accessible emergency equipment, well-maintained PPE, wash hands and skin following contact, do not eat, drink or smoke on the workplace).

For consumer uses, hexylene glycol is used in suitable concentrations according to appropriate regulations, to ensure safe-use of the final products, in the conditions of use written on the product packaging.

For specific products meant to be used by consumer, please contact your supplier.

### 8.2 Environment

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

Emissions in the air are not expected as hexylene glycol has a low potential for volatility. Disposal, treatment or recycling of industrial waste must comply with applicable regulations to preserve the environment.

## 9. Regulatory Information / Classification and Labelling

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### 9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)
- OECD list of High Production Volume chemicals: 2004 UNEP publication

Hexylene glycol substance meets the requirements of the most stringent regulations for all applicable consumer applications.

## 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) n°1272/2008 (CLP 2 <sup>nd</sup> ATP - 2011)	
– Skin irritation, Category 2 (H315: Causes skin irritation)	
– Eye irritation, Category 2 (H319: Causes serious eye irritation)	
Pictogram	
– GHS07: Exclamation mark	
Hazard statement	
– H315: Causes skin irritation	
– H319: Causes serious eye irritation	
Classification according to Globally Harmonized System (GHS 3 <sup>rd</sup> revised edition - 2009)	
– Skin irritation, Category 3 (H316: Causes mild skin irritation)	
– Eye irritation, Category 2B (H320: Causes eye irritation)	

## 10. Contact Information within Company

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

- [Arkema-HG-REACH-USES@arkema.com](mailto:Arkema-HG-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

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- Date of issue: 2012/04/30
- Date of revision:

## 12. Disclaimer

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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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