## **GPS Safety Summary**





# Hexylene Glycol

### **Chemical Identity**

Brand names Chemical name (IUPAC) Synonyms Hexylene glycol 2-methylpentane-2,4-diol HG; 1,1,3-trimethyl-triethylenediol; diacetone glycol methylamilene glycol; 2,4-dihydroxy-2-methyl-pentane; 2,4-pentanediol, 2-methyl; 2-methylpentane-2,4-diol CAS number Molecular formula Molecular weight 107-41-5 C<sub>6</sub>H<sub>14</sub>O<sub>2</sub> 118 g/mol

#### **Applications**

Hexylene glycol is mainly used in the coating industry but also in washing and cleaning products, lubricants, metal working fluids, road and construction applications and in agrochemicals.

## Safety Assessment, Exposure and Risk Management Recommendations

#### Physical and Chemical properties

Property	Result
Form	Liquid at 20°C
Colour	Colourless
Odour	Sweet
Boiling point	197,5°C
Density	0.923 at 20°C
Vapour pressure	Low potential for volatility
Water solubility	Very soluble
Octanol water partition	Low potential for bioaccumulation

#### <u>Health effect</u>



Pure hexylene glycol may cause eye and skin irritation. For consumer applications, it is used in suitable concentrations according to appropriate regulations.



For industrial uses, safety measures must be respected. For more details, please refer to the Safety Data Sheet.

#### <u>Environmental effect</u>



Soluble in water but readily biodegradable, it will not be persistent. The potential for bioaccumulation is low. Hexylene glycol is not dangerous for the environment. Disposal, treatment or recycling must comply with applicable regulations to preserve environment.

#### **Regulatory and certification information**

#### Classification and labelling

#### EU regulation (EC) 1272/2008 (CLP)



Irritation, Skin, Cat.2H315 Causes skin irritation.Irritation, Eye, Cat.2H319 Causes serious eye irritation.

Warning

#### Registrations and Certifications

ISO 9001: 2008 EU regulation for chemicals (EC) 1907/2006 (REACH)

Hexylene glycol is formulated to comply with requirements of most stringent regulations for applicable consumer uses. It can be safely used in suitable concentrations according to appropriate regulations.



## **GPS Safety Summary**

This Product Safety Summary is intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy. The information on the Summary is basic information and is not intended to provide emergency response information, medical information or treatment information. The summary should not be used to provide in-depth safety and health information. In-depth safety and health information can be found on the (extended) Safety Data Sheet (e)SDS for the chemical substance.

# **Hexylene glycol**

## **General Statement**

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 minimum 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.

## **Chemical Identity**

Name: Hexylene glycol Brand names: Hexylene glycol Chemical name (IUPAC): 2-methylpentane-2,4-diol Synonyms: HGL ; 1,1,3-trimethyl-triethylenediol ; diacetone glycol ; methylamilene glycol ; 2,4-dihydroxy-2-methyl-pentane; 2,4-pentanediol, 2-methyl, 2-methylpentane-2,4-diol CAS number(s): 107-41-5 EC number: 203-489-0 Molecular formula:  $C_6H_{14}O_2$ 

Structure:





## **Uses and applications**

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.

## **Physical/Chemical Properties**

#### Phys/Chem Safety Assessment

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 Range	197,5°С (470 К) 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.



## **Health Effects**

#### Human Health Safety Assessment

Effect Assessment	Result		
Acute Toxicity	Low toxicity by oral and dermal routes		
Oral/inhalation/dermal	No toxicity by inhalation at the saturated vapour concentration		
Irritation / corrosion	Causes slight skin and eye irritation in laboratory animals		
Skin/eye	Exposure to vapours can irritates the eyes		
Sensitisation	No evidence of skin sensitisation in laboratory animals		
	No data for respiratory sensitisation		
Toxicity after repeated exposure	No significant systemic toxicity following long-term oral		
Oral/inhalation/dermal	administration to laboratory rats		
	No data available by dermal and inhalation routes of exposure		
Genotoxicity / Mutagenicity	No evidence of genetic toxicity in vitro		
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 Labeling of Hazardous Substances from European regulation 1272/2008 (Annex VI Table 3.1).

## **Environmental Effects**

#### **Environment Safety Assessment**

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 nor 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.



## **Exposure**

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

### 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.

#### 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 of the environment.

## **Risk Management Recommendations**

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

#### 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.



### 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.

## **State Agency Review**

Hexylene glycol 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.

## **Regulatory Information / Classification and Labelling**

Substance classification and labelling according to EU regulation (EC) 1272/2008 (CLP) :

#### Classification

Skin irritation, Category 2		H315	Causes skin irritation.
Eye irritation, Category 2		H319	Causes serious eye irritation.
Labelling			
Pictogram :			
Signal word :	Warning		
Hazard statements :		Precau	autionary statements :
H315 Causes skin irritation.		P264	Wash skin thoroughly after handling.
H319 Causes serious eye irritatio	ation.	P280	Wear protective gloves/eye protection/face protection.
		P302+P	P352: IF ON SKIN : wash with pienty of soap and water.
		P305+3	minutes. Demove contest lanses if present and easy to de
			Continue ringing
			Continue mising.



## **Contact information within company**

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

Rhodia Global product Strategy: <u>http://www.rhodia.com/en/sustainability/global\_product\_strategy/index.tcm</u>

Contact: globalproductstrategy@eu.rhodia.com

## Additional information

ICCA Global Product Strategy: <u>http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/</u>

(extended) Safety Data Sheet available on demand: <u>http://www.rhodia.com/en/contact/contact\_form\_business.tcm</u>

Glossary of technical terms: <u>http://www.rhodia.com/en/sustainability/global\_product\_strategy/glossary/index.tcm</u>

## Date of issue : April 2012 Revision : 0

## Disclaimer

The information provided in the present Safety Summary is based on European data available in REACH regulatory dossier (EC N°1907/2006) and is correct to the best of our knowledge, information and belief at the date of its publication. Such information is only intended to provide a general overview of the chemical substance in the context of ICCA Global Product Strategy and is not to be considered as a warranty or quality specification. It does not replace the safety data sheet and technical sheets. Thus, the information provided in this Safety Summary only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in another manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.