

## GPS Safety Summary

**Substance Name:**

**Heptanal**

### 1. General Statement

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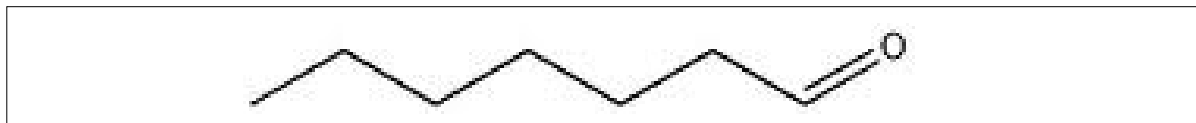
Heptanal is produced to be used as a synthesis intermediate in the fragrances and flavors industry. As such, the heptanal is the main raw material for a large range of aromatic chemicals including jasmonoides and lactones.

The substance is manufactured and handled in industrial settings.

### 2. Chemical Identity

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**Name:** Heptanal  
**Brand names:** Heptaldehyde P-PH  
**Chemical name (IUPAC):** Heptanal  
**CAS number(s):** 111-71-7  
**EC number:** 203-898-4  
**Molecular formula:** C<sub>7</sub>H<sub>14</sub>O  
**Structure:**



### 3. Use and applications

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Heptanal can be used as a synthesis intermediate in the flavors and fragrances industry. As such, the heptanal is the main raw material for a large range of aromatic chemicals including jasmonoides and lactones. The resulting food or fragranced products are sold to and thus used by consumers.

### 4. Physical / Chemical properties

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Heptanal is a colourless liquid with the following physical/chemical properties:

Property	Value
Physical state	Liquid
Colour	Colourless
Odour	Penetrating, stinging
Molecular weight	114.2 g/mol
Density	0,82 g/cm <sup>3</sup> at 20°C
Melting point	ca. -42°C at 1013 hPa
Boiling range	115°C to 160°C at 1013 hPa

Flash point - Flammability	42°C at 1013 hPa – Classified as flammable. H226: Flammable liquid and vapour
Self-ignition temperature	205°C at 990 hPa
Explosive / oxidizing properties	Not expected based on its structure
Vapour pressure	500 Pa at 20°C
Water solubility	1,5 to 2,5 g/L at 25°C
Octanol-water partition coefficient (LogKow)	2,8 at 20°C

## 5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	<i>Oral:</i> Based on the available test data, not expected to cause significant toxicity after acute oral exposure. <i>Inhalation:</i> Based on the available test data, not expected to cause significant toxicity after acute inhalation exposure. <i>Dermal:</i> No data.
Irritation / corrosion Skin / eye/ respiratory tract	Skin irritant. Direct contact may cause temporary eye irritation.
Sensitisation	Based on the available test data, not expected to cause allergic skin reactions.
Toxicity after repeated exposure Oral / inhalation / dermal	Based on the available test data on its principal metabolite in vivo, not expected to cause significant toxicity after repeated exposure.
Genotoxicity / Mutagenicity	Based on the available test data, not expected to cause genetic effects.
Carcinogenicity	Based on the available data on its principal metabolite in vivo, not expected to cause cancer under normal conditions of use.
Reproductive / Developmental Toxicity	Based on the available data on its principal metabolite in vivo, not expected to cause adverse effects on reproduction.

## 6. Environmental Effects

Due to its properties, the risk for the aquatic compartment is low. Indeed, Heptanal has a low potential for bioaccumulation and has a rapid degradation in water: as Heptanal is readily biodegradable, it will be removed by sewage treatment plants.

Effect Assessment	Result
Aquatic Toxicity	Toxic to algae and aquatic invertebrates. Harmful to fish.

Fate and behaviour	Result
(Bio)degradation potential	Based on the available test data: readily biodegradable.
Bioaccumulation potential	Based on the estimated log Kow (log Kow=2,8), low potential for bioaccumulation.
PBT / vPvB conclusion	Not considered to be PBT nor vPvB.

## 7. Exposure

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### 7.1 Human health

Considering the life cycle of the substance (manufacture, use as intermediate of synthesis and as ingredient in formulations), workers and then consumers may be exposed to heptanal.

Worker exposure can occur in facilities manufacturing or using the substance. These activities are mainly undertaken in closed systems resulting in a low exposure. However when workers are exposed, during handling, loading, mixing, sampling or maintenance operations, they should follow the recommended safety measures in the extended Safety Data Sheet (eSDS).

Consumers are likely to be exposed to heptanal when using food or fragranced products containing the substance. However this exposure is very low as the heptanal concentration in this type of products is below 1%.

### 7.2 Environment

Emissions of heptanal to the environment may occur during production and use of the substance. As the substance is soluble in water and has a low potential for adsorption its main target compartment in the environment will be the water compartment where it is not expected to persist as it is readily biodegradable.

Heptanal has the ability to volatilise from water however, due to its indirect photolysis, it is not expected to be persistent in the atmospheric compartment.

Based on its low potential for bioaccumulation, heptanal is not expected to pose a risk to the food chain.

## 8. Risk Management recommendations

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Human health measures	
<b>Organizational</b>	Implement good basic standards of occupational hygiene. Ensure operatives are well informed of the hazards and trained to minimise exposures. Refer to the latest available extended safety data sheet (eSDS).
<b>Engineering controls</b>	Should be handled in well ventilated areas. Provide appropriate local exhaust ventilation at points of emission. Ensure that eye- and handwash stations and safety showers are close to workstation locations.
<b>Protection</b>	<b>Eye/Face protection:</b> Safety glasses with side-shields
	<b>Skin protection:</b> Protective suit
	<b>Hand protection:</b> Protective gloves tested to standard EN374
	<b>Respiratory protection:</b> In case of insufficient ventilation, wear suitable respiratory equipment.
Environment protective measures	
On-site waste water treatment is required. Do not release into the environment. Do not let product enter drains. Dam up with inert material. Destroy absorbed product in accordance with local and national regulations.	

## 9. Regulatory Information / Classification and Labelling



### 9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)
- HPV Chemical

### 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"><li>– Flammable Liquid ; Category 3; Flammable liquid and vapour.</li><li>– Skin irritation ; Category 2 ; Causes skin irritation</li></ul>	
Signal word	
– Warning	
Pictogram	
– GHS02: flame	
– GHS07: exclamation mark	
Hazard statement	
<ul style="list-style-type: none"><li>– H226: Flammable liquid and vapour.</li><li>– H315: Causes skin irritation.</li></ul>	
Additional Classification according Global Harmonized System (GHS)	
<ul style="list-style-type: none"><li>– H303: May be harmful if swallowed</li><li>– H401: Toxic to aquatic life</li></ul>	

## 10. Contact Information within Company

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

- [arkema.reach-dpt1@arkema.com](mailto:arkema.reach-dpt1@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: 2013/02/10
- 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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