

## GPS Safety Summary

**Substance Name:**

**4-hydroxy-4-methylpentan-2-one**

### 1. General Statement

---

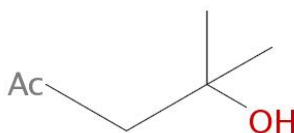
4-hydroxy-4-methylpentan-2-one is a colourless liquid completely miscible in water. It is an oxygenated solvent commonly named DAA. It is a flammable liquid and an irritant product.

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

### 2. Chemical Identity

---

<b>Name:</b>	4-hydroxy-4-methylpentan-2-one
<b>Brand names:</b>	DAA
<b>Chemical name (IUPAC):</b>	4-hydroxy-4-methylpentan-2-one
<b>CAS number(s):</b>	123-42-2
<b>EC number:</b>	204-626-7
<b>Molecular formula:</b>	C <sub>6</sub> H <sub>12</sub> O <sub>2</sub>
<b>Structure:</b>	



### 3. Use and applications

---

The main applications of the DAA are:

- **Waterborne coating, coil coating and wood coating:** DAA is commonly used as a solvent, co-solvent or coalescing agent in these different coatings.
- **Organic peroxides:** DAA is used as a solvent for organic peroxides used in the polymerisation of unsaturated polyester resins.
- **Chemicals synthesis:** Solvent for chemical synthesis and cleaning industrial installations (agrochemicals, pigment dyes...).
- **Others:** Pesticides formulations. Cleaning and dewaxing agent for metal, rubber rolls, glass fiber reinforced plastics.

## 4. Physical / Chemical properties

---

4-hydroxy-4-methylpentan-2-one 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	characteristic
Molecular weight	116.16 g/mol
Density	0.9387 g/cm <sup>3</sup> at 20°C
Vapour pressure	2.20 hPa at 25°C
Freezing / boiling points	-44°C / 167.9°C at 1013hPa
Flammability	Flammable liquid and vapour
Flash point	57-63°C (closed cup)
Self-ignition temperature	643°C at 1013 hPa
Explosive / oxidizing properties	Not relevant based on its structure
Water solubility	Completely miscible at 20°C
Dissociation constant (pK <sub>a</sub> )	Not relevant based on its structure
Octanol-water partition coefficient (Log K <sub>ow</sub> )	-0.09 at 20°C

## 5. Health Effects

---

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Low toxicity by oral, dermal and inhalation routes
Irritation / corrosion Skin / eye/ respiratory tract	Slightly irritating for the skin but 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 oral and 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-hydroxy-4-methylpentan-2-one 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.

### GPS Safety Summary

Effect Assessment	Result
Aquatic Toxicity	Slightly harmful to aquatic organisms

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Other degradation (optional)	
Bioaccumulation potential	Low potential for bioaccumulation
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-hydroxy-4-methylpentan-2-one (DAA) is manufactured, used and formulated within industrial and professional settings. Consumers may also be exposed to DAA when present in mixtures used in coatings, as cleaning agents, and in agrochemicals.

The primary routes of exposure of DAA 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

DAA 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	<b>Eye/Face protection:</b>	Safety glasses with side-shields
	<b>Skin and body protection:</b>	Protective clothing (cotton)
	<b>Hand protection:</b>	Intermittent contact: PVC gloves Gloves nitrile rubber Impervious butyl rubber gloves According to permeation index EN 374: 1 (time elapsed > 10 mins) Prolonged contact: Neoprene gloves
	<b>Respiratory protection:</b>	Low concentrations or short activity: Wear suitable respiratory equipment High concentrations or prolonged activity: Self contained Breathing Apparatus
<b>Environment protective measures</b>		
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.

<b>Classification</b>	
According to REGULATION (EC) no 1272/2008:	
<ul style="list-style-type: none"> <li>– Flammable liquids: Category 3</li> <li>– Eye irritation: Category 2</li> <li>– Specific target organ toxicity – single exposure (inhalation): Category 3</li> </ul>	
<b>Signal word</b>	
Warning	
<b>Pictogram</b>	
– GHS02: flame	
– GHS07: exclamation mark	

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

## 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.

**NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN.**

No liability will be accepted by ARKEMA for damages of any nature whatsoever resulting from the use of or reliance on the information.