



Cyclopentanone

Chemical Identity

<i>Brand names</i>	Rhodiasolv CPT	<i>CAS number</i>	120-92-3
<i>Chemical name (IUPAC)</i>	cyclopentanone	<i>Molecular formula</i>	C₅H₈O
<i>Synonyms</i>	oxo-cyclopentane, ketocyclopentane, adipic ketone	<i>Molecular weight</i>	84 g/mol

Applications

Cyclopentanone is used in industry, mainly as an intermediate for synthesis of pharmaceuticals, perfumery products and aromas. It is used also as a solvent for electronic applications.

Safety Assessment, Exposure and Risk Management Recommendations

Physical and Chemical properties

Property	Result
Physical state	Liquid
Colour	Colourless
Odour	Characteristic, strong
Melting point	- 58 to - 51°C
Boiling point	130 to 131°C
Flammability	Flammable
Vapour pressure	Potential for volatilization
Water solubility	Soluble
Octanol water partition	Low potential for bioaccumulation

Health effect



Cyclopentanone is skin and eye irritant. Safety measures must be respected for industrial uses, for more details, please refer to the Safety Data Sheet.

Environmental effect



Cyclopentanone is soluble in water, it is readily biodegradable and has a low potential for bioaccumulation. Cyclopentanone is not considered as dangerous for the aquatic environment. Industrial emissions and disposal, treatment or recycling must comply with applicable regulations to preserve environment.

Regulatory information

Classification and labelling

EU regulation (EC) 1272/2008 (CLP)



H226 Flammable liquid and vapour.



H315 Causes skin irritation.

H319 Causes serious eye irritation.

Warning

Registration and certification

ISO 9001: 2008 certified

EU regulation on chemicals (EC) 1907/2006 (REACH)

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.

Cyclopentanone

General Statement

Cyclopentanone is a colourless liquid organic compound with a characteristic strong odour. It is a cyclic ketone.

Cyclopentanone comes from chemical synthesis. The pure substance may be harmful to human health, it causes serious eye irritation and causes skin irritation. It may be harmful by inhalation. It is a stable substance, but is flammable.

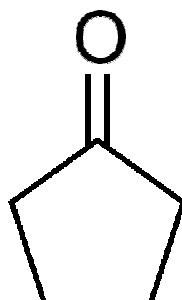
The pure substance is only used in industry and is handled under stringent safety conditions in accordance with the risk management measures to control the risk of exposure and to preserve human health and environment.

There is no direct consumer exposure to the cyclopentanone substance.

Chemical Identity

Name:	Cyclopentanone
Brand name:	Rhodiasolv CPT
Chemical name (IUPAC):	Cyclopentanone
Synonyms:	Ketocyclopentane, adipic ketone
CAS number:	120-92-3
EC number:	204-435-9
Molecular formula:	C ₅ H ₈ O

Structure:



Uses and applications

Cyclopentanone is industrially produced by chemical synthesis in closed vessels.

The substance is used as intermediate for synthesis of pharmaceuticals, perfumery products and aromas. It is used also as a solvent for electronic applications.

Physical/Chemical Properties

Phys/Chem Safety Assessment

Property	Value
Physical state	liquid at 20°C and atmospheric pressure
Colour	Colourless
Odour	Characteristic, strong
Molecular weight	84.12 g/mol
Relative density	0.95 at room temperature
Freezing point range	- 58.2 to - 51°C
Boiling point range	130 to 131°C at atmospheric pressure
Flash point	26 - 30°C (closed cup) at atm pressure, flammable
Explosive properties	Non explosive
Self-ignition temperature	430°C at atmospheric pressure
Vapour pressure	11.1 hPa at 20°C
Water solubility	301 g/l at 20°C
Octanol Water partition coefficient (log Kow)	0.7 at 25°C, low potential for bioaccumulation

Based on available data, Cyclopentanone is classified as flammable regarding physical and chemical hazards, according to EU regulation (EC) 1272/2008.

Health Effects

Human Health Safety Assessment

Effect Assessment	Result
Acute Toxicity Oral/inhalation/dermal	Not classified for oral and dermal acute toxicity Low toxicity if inhaled, not resulting in classification
Irritation / corrosion Skin/eye	Causes serious eye irritation Causes skin irritation
Sensitisation	Not classified for sensitisation
Toxicity after repeated exposure Oral/inhalation/dermal	Not classified for toxicity after repeated exposure, by analogy with cyclohexanone (oral route and inhalation exposures)
Genotoxicity / Mutagenicity	Not classified for either mutagenicity or genotoxicity
Carcinogenicity	Not classified for carcinogenicity, by analogy with cyclohexanone (oral route exposure)
Toxicity for reproduction	Not classified for reproductive effects, based on cyclopentanone and cyclohexanone studies results

All these results are based on available data and the classification is in accordance with EU regulation (EC) 1272/2008.

Environmental Effects

Environment Safety Assessment

Effect Assessment	Result
Aquatic Toxicity	Not hazardous to aquatic organisms

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not potentially bioaccumulative (Log Kow = 0.7)
PBT / vPvB conclusion	Not considered to be either PBT nor vPvB

Based on available data, cyclopentanone is considered as not harmful towards aquatic organisms, readily biodegradable and not potentially bioaccumulative, it is not classified as dangerous for the environment according to EU regulation (EC) 1272/2008.

Exposure

Cyclopentanone is manufactured in a closed batch process which minimizes workers and environment exposure potential. Part of the cyclopentanone is filtered on-site, in a batch process and then used for electronic applications, as a solvent in a closed process, both processes having a high confinement level. When cyclopentanone is used as a starting material for agrochemicals, pharmaceuticals and flavour & fragrance, batch processes can lead to possible exposures which are kept to safe levels by following risk management recommendations.

Human health

On cyclopentanone manufacturing site and on application sites, during (un)loading, sampling, analysis or maintenance operations, workers risk of exposure is kept as low as possible and at a safe level (strictly below occupational exposure limits, when applied) 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.

Environment

Based on its physical and chemical properties, if cyclopentanone is released in the environment, it will be distributed mainly in the water where it will probably be degraded.

When deposited on soil, due to its low adsorption potential and its relative high vapour pressure, the substance will start infiltrating while dissolving, then be degraded or evaporating.

Emissions in the air are controlled on the manufacturing site in accordance with applicable local regulation.

On industrial sites, effluents that may contain the substance are directed to a biological waste water treatment plant.

Concerning the use of the substance as a solvent, there is no water release in the process.

Risk Management Recommendations

For the industrial uses of cyclopentanone, recommendations are based on the risk assessment to preserve human health and environment.

Human health

For industrial uses of cyclopentanone, workers must be well informed and trained and must refer to the Safety Data Sheet (SDS).

In order to control possible risks during the handling of the substance (during (un)loading, sampling, analysis or maintenance operations), handling must be under an adequate ventilation with an effective exhaust ventilation system; appropriate personal protective equipment (PPE) must be worn (safety goggles, gloves, protective suit) as recommended in the eSDS as cyclopentanone causes serious eye irritation and skin irritation. In case of exposure to vapour, wear a respirator with approved filter as cyclopentanone may be toxic by inhalation. 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).

Environment

All industrial aqueous releases that may contain the substance are controlled in accordance with the risk management system and must be directed to a waste water treatment plant.

Emissions in the air are controlled and must comply with the applicable local regulation.

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

State Agency Review

Cyclopentanone has been registered under the EU regulation (EC) 1907/2006 (REACH).

Regulatory Information / Classification and Labelling

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

Classification

Flammable liquids, Category 3

Skin irritation, Category 2

Eye irritation, Category 2

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Labelling

Pictogram :



Signal word : Warning

Hazard statements :

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements :

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

Contact information within company

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

Rhodia Global Product Strategy: http://www.rhodia.com/en/sustainability/global_product_strategy/index.tcm

Contact: globalproductstrategy@eu.rhodia.com

Additional information

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

(extended) Safety Data Sheet available on demand: http://www.rhodia.com/en/contact/contact_form_business.tcm

Glossary of technical terms: http://www.rhodia.com/en/sustainability/global_product_strategy/glossary/index.tcm

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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.