

## GPS Safety Summary

**Substance Name:**

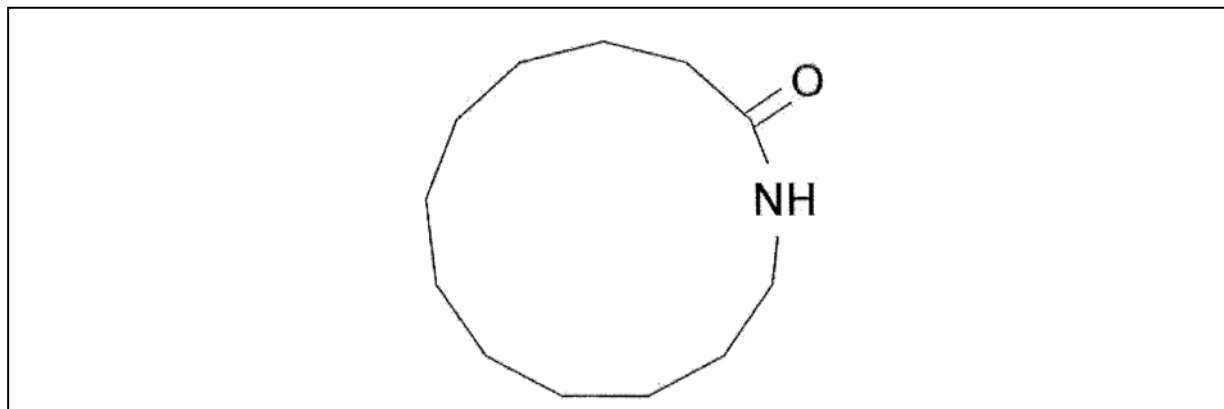
**Dodecane-12-lactam**

### 1. General Statement

Dodecane-12-lactam is used as a monomer in polymerisation or copolymerisation processes resulting in the manufacture of polyamides.  
The substance is manufactured and handled in industrial settings.

### 2. Chemical Identity

<b>Name:</b>	Dodecane-12-lactam
<b>Brand names:</b>	Lactam 12
<b>Chemical name (IUPAC):</b>	Azacyclotridecan-2-one
<b>CAS number(s):</b>	947-04-6
<b>EC number:</b>	213-424-8
<b>Molecular formula:</b>	C <sub>12</sub> H <sub>23</sub> NO
<b>Structure:</b>	



### 3. Use and applications

Dodecane-12-lactam is a monomer used in polymerisation or copolymerisation processes resulting in the manufacture of polyamides.  
The substance is manufactured and handled in industrial settings.

### 4. Physical / Chemical properties

Dodecane-12-lactam is a colourless solid with the following physical/chemical properties:

Property	Value
Physical state	Solid
Form	Molten form or pellets
Colour	Colourless
Odour	Slight odor
Molecular weight	197.3 g/mol
Density	0.973 g/cm <sup>3</sup> at 20°C
Melting point	151.8°C at 1013 hPa
Boiling point	348°C at 1013 hPa
Flammability	Not flammable
Explosive / oxidizing properties	Not expected based on its structure
Self-ignition temperature	320-330°C
Vapour pressure	0.0012 Pa at 20°C
Water solubility	223 mg/L at 20°C
Flash point	Not applicable
Octanol-water partition coefficient (LogKow)	Log Kow = 2.71 at 20°C

## 5. Health Effects

It is demonstrated that Dodecane-12-lactam is eliminated in the urine and it is assumed that it is absorbed. The compound has a low toxicological profile.

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>Dermal:</i> Based on the available test data, not expected to cause significant toxicity after dermal exposure. <i>Inhalation:</i> No data
Irritation / corrosion Skin / eye/ respiratory tract	Based on the available test data, not irritating to skin or eyes. Not classified.
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, not classified for toxicity after prolonged exposure.
Genotoxicity / Mutagenicity	Based on the available test data, not expected to cause adverse genetic effects.
Carcinogenicity	Based on the information on mutagenicity and from the repeated exposure studies, not expected to cause cancer under normal conditions of use.
Reproductive / Developmental Toxicity	Based on the available test data on a similar substance, not expected to cause adverse effects on reproduction.

## 6. Environmental Effects

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Acute toxicity test performed on aquatic organisms have shown a slight toxicity on fish and daphnids. Dodecane-12-lactam is not toxic to algae.

Dodecane-12-lactam is readily biodegradable, thus is no expected to persist in water compartment.

Effect Assessment	Result
Aquatic Toxicity	Harmful to aquatic fauna.

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

## 7. Exposure

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### 7.1 Human health

General population will not come in contact significantly with Dodecane-12-lactam as the substance is manufactured in a closed process and is used exclusively in industrial settings.

Worker exposure can occur in facilities manufacturing or using the substance. Worker 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).

### 7.2 Environment

The manufacture and the use of Dodecane-12-lactam are closed processes and no significant exposure to the environment is expected. Its main target compartment in the environment will be the water compartment where it is not expected to persist as it is readily biodegradable.

Based on its low potential for bioaccumulation, Dodecane-12-lactam 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>	Tightly fitting safety goggles
	<b>Skin protection:</b>	Protective suit
	<b>Hand protection:</b>	Gloves tested to standard EN374
	<b>Respiratory protection:</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Environment protective measures</b>		
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)

### 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:	
– Not classified	
<b>Signal word</b>	
– None	
<b>Pictogram</b>	
– None	
<b>Hazard statement</b>	
– None	
<b>Additional classification according Global Harmonized System (GHS)</b>	
– H303: May be harmful if swallowed.	
– H402: Harmful to aquatic life.	

## 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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