

GPS Safety Summary

Substance Name:

1,10-Decanediamine

1. General Statement

1,10 Decanediamine is used as a raw material for organic synthesis. The substance is manufactured and handled in industrial settings.

2. Chemical Identity

Name:	1,10-Decanediamine
Chemical name (IUPAC):	decane-1,10-diamine
CAS number:	646-25-3
EC number:	211-471-9
Molecular formula:	C ₁₀ H ₂₄ N ₂
Structure:	



3. Use and applications

1,10 Decanediamine is used as a raw material for organic synthesis. It is mainly used as a monomer for long chain polyamide polymerisation such as PA10.10, PA10.12. It can also be used as a molecular weight regulator or as a cross-linker.

4. Physical / Chemical properties

1,10-Decanediamine is a white solid with the following physico-chemical properties:

Property	Value
Physical state	Solid at 20 °C and 101.3 hPa
Form	Molten form or flakes
Colour	White
Odour	Characteristic odour of amines
Molecular weight	172.3 g/mol
Density	1.0134 at 20°C
Vapour pressure	0.020 Pa at 20°C
Melting / boiling points	59°C / 272.7 °C at 1013 hPa
Flash point – flammability	Not flammable according to method A.10

Self-ignition temperature	Not applicable
Explosive / oxidizing properties	Not expected based on structure
Water solubility	5.9 g/L at 20°C
Dissociation constant (pK _a)	10.7 at 20°C
Octanol-water partition coefficient (Log K _{ow})	0.3 at 25°C

5. Health Effects

Due to the physico-chemical characteristics of the substance, dermal absorption is expected. In addition, the corrosive properties of the substance indicate dermal uptake and the damage to the skin surface may enhance penetration. However, due to the very low vapour pressure inhalation absorption via vapour is not expected.

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful if swallowed
Irritation / corrosion Skin / eye/ respiratory tract	The substance is a skin corrosive and causes skin burns. May also cause important eye damage after contact and respiratory irritation if inhaled.
Sensitisation	No data available
Toxicity after repeated exposure Oral / inhalation / dermal	A subacute inhalation toxicity in rats indicate local effects of the respiratory tract due to the corrosive properties but no systemic effects.
Genotoxicity / Mutagenicity	No mutagenic effects are recorded in both vitro and vivo tests
Carcinogenicity	No data available.
Reproductive / Developmental Toxicity	No data available.

6. Environmental Effects

The potential of 1,10-decanediamine for bioaccumulation is low. This product will not persist in the environment. It is harmful to aquatic organisms.

Effect Assessment	Result
Aquatic Toxicity	Harmful to aquatic organisms

Fate and behaviour	Result
(Bio)degradation potential	Ready biodegradable
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB conclusion	Not considered to be PBT or vPvB

*: Persistent, Bioaccumulative and Toxic (PBT)

** : very Persistent and very Bioaccumulative (vPvB)

7. Exposure

7.1 Human health

As 1,10-Decanediamine is manufactured in a closed process and is used exclusively in industrial settings as a monomer for the production of polymers, general population will not come into direct contact with the substance.

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 described in the extended Safety Data Sheet (eSDS).

7.2 Environment

The manufacture and use of 1,10-Decanediamine 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, 1,10-Decanediamine is not expected to pose a risk to the food chain.

8. Risk Management recommendations

Human health measures		
Organizational	Implement good basic standards of occupational health. Ensure workers are well informed of the hazards and trained to minimise exposures. Refer to the latest available extended safety data sheet (eSDS).	
Engineering controls	Should be handled in well ventilated areas. Provide appropriate exhaust ventilation at machinery. Ensure that eye- and handwash stations and safety showers are close to workstation locations.	
Personal protective equipment	Eye/Face protection:	Safety glasses with side-shields
	Skin and body protection:	Protective suit
	Hand protection:	Gloves (synthetic rubber, plastic materials)
	Respiratory protection:	Self-contained breathing apparatus (EN 133)
Environment protective measures		
Do not release into the environment. Do not let product enter drains. Shovel or sweep up. Shovel into suitable container for disposal. No sparking tools should be used. Destroy the product by incineration (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 to regulation (EC) 1272/2008 (CLP), implementation of the GHS in the European Union.

– Classification and labelling according to Regulation (EC) n° 1272/2008:

Classification	
<ul style="list-style-type: none"> – Acute Toxicity, Category 4 – Skin Corrosive, Category 1B – Eye Damage, Category 1 	
Signal word	
– Danger	
Pictogram	
– GHS05: corrosion	
– GHS07: exclamation mark	
Labelling hazard statements	
<ul style="list-style-type: none"> – H314: Causes severe skin burns and eye damage. – H302: Harmful if swallowed. 	

– Classification and labelling according to GHS:

Classification	
<ul style="list-style-type: none"> – Acute Toxicity, Category 4 – Skin Corrosive, Category 1B – Eye Damage, Category 1 – Aquatic acute toxicity, Category 3 	
Signal word	
– Danger	
Pictogram	
– GHS05: corrosion	
– GHS07: exclamation mark	

Labelling hazard statements

- H314: Causes severe skin burns and eye damage.
- H302: 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-dpt2@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

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