

GPS Safety Summary

Substance Name:

11-aminoundecanoic acid

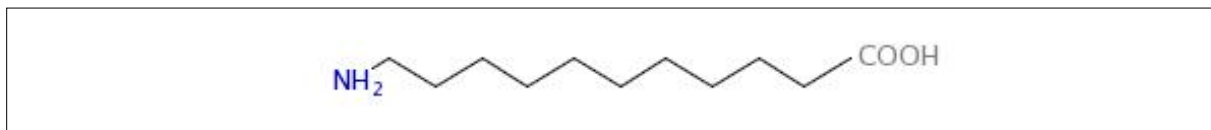
1. General Statement

11-Aminoundecanoic acid is a monomer produced from a vegetable origin: castor oil ; it is used for the polymerisation of polymers and in particular polyamide11 (PA11) with 100% of the carbons coming from a renewable resource.

Due to its outstanding level of chemical, thermal and impact resistance over a wide range of flexibility, PA11 is widely used in applications where safety, durability and versatility are critical.

2. Chemical Identity

Name: 11-aminoundecanoic acid
Brand names: Aminoundecanoic acid
Chemical name (IUPAC): 11-aminoundecanoic acid
CAS number(s): 2432-99-7
EC number: 219-417-6
Molecular formula: C₁₁H₂₃NO₂
Structure:



3. Use and applications

11-aminoundecanoic acid is used as a monomer for the production of polymers.

4. Physical / Chemical properties

11-aminoundecanoic acid is white crystalline solid with the following physical/chemical properties:

Property	Value
Form	Crystalline
Physical state	Solid at 20°C and 1013 hPa
Colour	White
Odour	None
Density	1,1720 g/cm ³ at 26.1°C
Melting range	190,3°C to 192,4°C at 1013 hPa

Flammability	Not flammable
Explosive / oxidizing properties	Not classified as explosive but dust may form explosive mixtures in air
Self-ignition temperature	No self-ignition temperature up to the decomposition of the substance
Vapour pressure	2,07 x 10 ⁻⁷ Pa at 25°C
Mol weight	201,3 g/mol
Water solubility	800 – 850 mg/L at 25°C
Flash point	Not applicable (only relevant for liquids)
Octanol-water partition coefficient (LogKow)	-0,16 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>Dermal:</i> Based on the available test data, not expected to cause significant toxicity after dermal exposure. <i>Inhalation:</i> Not relevant.
Irritation / corrosion Skin / eye/ respiratory tract	Based on the available test data, slightly irritating to eyes and not irritating to skin. Possible irritation of respiratory system by dust inhalation.
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 by oral route.
Genotoxicity / Mutagenicity	Based on the available test data, not expected to cause adverse genetic effects.
Carcinogenicity	Based on the available test data, not expected to cause cancer under normal conditions of use.
Toxicity for reproduction	Based on the available test data, not expected to cause adverse effects on reproduction.

6. Environmental Effects

11-aminoundecanoic acid is not acutely toxic to fish and invertebrates, it is however harmful to algae on short-term. Nevertheless as it is readily biodegradable, it is not expected to persist in the aquatic compartment.

Effect Assessment	Result
Aquatic Toxicity	Harmful for algae.

Fate and behaviour	Result
Biodegradation	Based on the available test data: readily biodegradable.
Bioaccumulation potential	Based on the estimated log Kow (log Kow = -0.16), not expected to bioaccumulate.
PBT / vPvB conclusion	Not expected to be PBT or vPvB.

7. Exposure

7.1 Human health

Considering the life cycle of the substance (manufacture and use as a monomer for the production of polymers), consumers will not come into direct contact with 11-aminoundecanoic acid. Food contact materials made of 11-aminoundecanoic acid contain low residual levels of 11-aminoundecanoic acid (<100 ppm) and are subject to very strict regulations (Specific Migration Limit of 5 mg/kg food for 11-aminoundecanoic acid).

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

7.2 Environment

Emissions of 11-aminoundecanoic acid to the environment may occur mainly from production. Any release to waste water will be treated in a waste water treatment plant where the substance is expected to degrade to a large extent due to its ready biodegradability. There are usually no aqueous streams from the processing of the substance.

8. Risk Management recommendations

Human health measures		
Organizational	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).	
Engineering controls	Should be handled in well ventilated areas. Provide appropriate local exhaust ventilation at places where dust is formed. Provide electrical grounding of equipment. Prohibit all sources of sparks and ignition. Ensure that eye- and handwash stations and safety showers are close to workstation locations.	
Protection	Eye/Face protection:	Tightly fitting safety goggles
	Skin protection:	Protective suit
	Hand protection:	Chemical resistant gloves tested to standard EN374
	Respiratory protection:	In case of insufficient ventilation, wear suitable respiratory equipment.
Environment protective measures		
Do not release into the environment. Do not let product enter drains.		

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)
- OECD HPV program

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) n° 1272/2008:	
– Not classified	
Signal word	
– None	
Pictogram	
– No pictogram	
Hazard statement	
– No hazard statement	

10. Contact Information within Company

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

- 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

- Date of issue: 2013/02/10
- 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.

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