Product Safety Summary for 12-Aminododecanoic Acid

SUBSTANCE NAME

12-Aminododecanoic acid
12-Aminolauric Acid
omega-Aminolauric acid
ADA

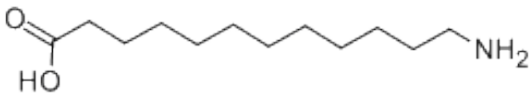
GENERAL STATEMENT

12-Aminododecanoic acid is a white solid and almost odorless compound. At 20°C, the relative density is 1.17, which is higher than that of water, and the vapor pressure is 0.000000001 Pa. 12-Aminododecanoic acid is used in industrial applications as a monomer for the manufacture of polyamide, polymers, thermoplastics, intermediate in the production of glue. 12-Aminododecanoic acid is also used in the laboratory as a reagent.
12-Aminododecanoic acid is not known to cause remarkable adverse human health or environmental effects, but after repeated oral ingestion in rats, it showed adverse effects for kidney and hematological and blood chemical changes. When using 12-Aminododecanoic acid make sure that there is adequate ventilation. Protective clothing, gloves and safety glasses with side shields should be worn when handling.

General population will not come in contact significantly with this chemical via environment due to the production of the substance as 12-Aminododecanoic acid is manufactured in closed processes which also minimizes exposure potential to workers. No significant exposure to the environment is expected. The substance is not intended for consumer uses. The usual general precautionary measures to prevent worker and environmental exposure to chemicals should also be taken when handling 12-Aminododecanoic acid in industrial uses.

CHEMICAL IDENTITY

EC Name: 12-Aminododecanoic acid
EC-No. : 211-754-7
CAS-No. : 693-57-2
Molecular formula: C12H25NO2
Structural formula:



USES AND APPLICATIONS

12-Aminododecanoic acid is used in many different applications. 12-Aminododecanoic acid is used in industrial applications as a monomer for the manufacture of polyamide, polymers, thermoplastics, intermediate in the production of glue. 12-Aminododecanoic acid is also used in the laboratory as a reagent.

PHYSICAL CHEMICAL PROPERTIES

12-Aminododecanoic acid is a white solid and almost odorless compound. At 20°C, the relative density is 1.17, which is higher than that of water, and the vapor pressure is 0.000000001 Pa. The melting point of this substance is 185.7°C and the boiling point 210°C. Since the substance does not react with water or contain any groups that might oxidize or spontaneously ignite, it is not expected that 12-Aminododecanoic acid would be flammable, self-ignite, oxidize or explode at ambient conditions.

Melting point/range: 185.7 °C at 101.3 kPa.
Boiling point/boiling range: 210 °C at 101.2 kPa.
Decomposition temperature: >210 °C
Flammability (solid, gaseous): non-flammable
Explosive properties: non-explosive
Auto-ignition temperature: Not applicable.
Molecular weight: 215.332 g/mol.
Water solubility: 0.137 g/L at 20 °C
logPow: -0.607 at 24.6 °C
Vapor pressure: 0.000000001 Pa at 25°C
Relative density: 1.17 g/cm^3 at 20°C
Oxidizing properties: No oxidizing properties.

HEALTH EFFECTS

12-Aminododecanoic acid has no marked health hazard properties, but after repeated oral ingestion in rats, 12-Aminododecanoic acid showed adverse effects for kidney and hematological and blood chemical changes in the higher doses tested. Based on available data, 12-Aminododecanoic acid has no relevant acute toxicity if swallowed or in contact with skin after a one-time exposure. Due to a low vapor pressure, inhalation exposure is unlikely; therefore, no data is available. 12-Aminododecanoic is not irritating to skin and eyes. Based on available data the substance is not considered to be a skin sensitizer. Standard tests indicate 12-Aminododecanoic acid is not mutagenic nor genotoxic. Available data show no evidence that the substance is carcinogenic. Based on available data there is no evidence that 12-Aminododecanoic acid is a reproductive or developmental toxin.

EFFECT ASSESSMENT	RESULT
Acute Toxicity (oral/dermal/inhalation)	12-Aminododecanoic acid is of low acute toxicity via all routes of exposure.
Irritation/Corrosivity (skin/eye/respiratory tract)	12-Aminododecanoic acid is not irritating to skin and eyes. Corrosivity was not tested on the basis of the absence of irritation properties.
Sensitization (skin/respiratory tract)	Based on the available data 12-Aminododecanoic acid is not considered to have skin or respiratory sensitization properties.
Mutagenicity	All available in vitro test data indicates that 12-Aminododecanoic acid does not cause mutagenic effects.
Carcinogenicity	No carcinogenicity data has been generated due to the negative mutagenicity results.
Reproductive Toxicity	Screening test information indicates that 12-Aminododecanoic acid has no adverse reproductive effects.
Repeated Exposure	The oral administration of 12-aminododecanoic acid to rats by garbage, at dose levels of 0, 50, 250, 1,000 mg/kg/day, resulted in treatment related effects at 250 and 1,000 mg/kg/day. The kidney, hematological and blood chemical changes were considered to represent an adverse.

ENVIRONMENTAL EFFECTS

The results of all acute aquatic studies on fish, algae, plants and invertebrates indicate that 12-Aminododecanoic acid is not toxic to fish and to daphnia and has a low toxicity to algae and aquatic plants. 12-Aminododecanoic acid is readily biodegradable and it has a low bioaccumulation potential. Considering all available data on biotic and abiotic degradation, bioaccumulation and toxicity, it can be stated that the

substance is neither persistent nor toxic to the environment and that it will not bio-accumulate. Overall, 12-Aminododecanoic acid has a low environmental hazard potential.

EFFECT ASSESSMENT	RESULT
Aquatic Toxicity	Studies indicate that 12-Aminododecanoic acid is not toxic to fish and to daphnia and has a low toxicity to algae and aquatic plants.

FATE AND BEHAVIOR	RESULT
Biodegradation	12-Aminododecanoic acid is readily biodegradable.
Bioaccumulation potential	12-Aminododecanoic acid has a low bioaccumulation potential.
PBT/vPvB conclusion	Based on its low toxicity, bioaccumulation potential and ready biodegradability, 12-Aminododecanoic acid does not meet the criteria for PBT or vPvB.

EXPOSURE

Human Health

12-Aminododecanoic acid is used in many different applications. 12-Aminododecanoic acid is used in industrial applications as a monomer for the manufacture of polyamide, polymers, thermoplastics, intermediate in the production of glue. 12-Aminododecanoic acid is also used in the laboratory as a reagent. But its main industrial use is as monomer or reactant; therefore, 12-Aminododecanoic acid will no longer be present as such in downstream products, practically eliminating the exposure potential for consumers. General population will not come in contact significantly with this chemical via environment due to the production of the substance as 12-Aminododecanoic acid is manufactured in closed processes which also minimizes exposure potential to workers. The direct exposure of general population is very unlikely as this substance is manufactured in industrial settings for industrial/professional use. The polymerization is a polycondensation reaction above 200°C. Only vaporized water is released during the condensation reaction and though if this water that contains 12-Aminododecanoic acid is a trace amount. Direct dermal contact occurs only exceptionally during the handling of heated 12-Aminododecanoic acid and formulations, but repeated daily exposure is unlikely.

Environment

The manufacture is a closed process and no significant exposure to the environment is expected. 12-Aminododecanoic acid is solid at room temperature and it has low volatility in liquid form above its boiling point. Therefore, the probability of release in pure form to any of the environmental compartments is low, under normal industrial use conditions. The polymerization is a polycondensation reaction above 200°C. Only vaporized water is released during the condensation reaction and though if this water that contains 12-Aminododecanoic acid is a trace amount. Any exposures will generally be lower than concern levels. Direct use by the general population is not intended and thus environmental exposure via this route is unlikely to occur.

RISK MANAGEMENT RECOMMENDATIONS

12-Aminododecanoic acid does not pose severe human health and it poses low environmental risks. After repeated oral ingestion in rats, 12-Aminododecanoic acid showed adverse effects for kidney and hematological and blood chemical changes. Dermal and inhalation repeated dose exposure testing is not conducted, but it is considered that 12-Aminododecanoic acid does not have a high human health hazard potential. Good ventilation is required in areas where 12-Aminododecanoic acid is handled. When using chemicals make sure that there is adequate ventilation. Protective clothing, gloves and safety glasses with side shields should be worn when handling 12-Aminododecanoic acid. 12-Aminododecanoic acid is not flammable; however, it is good practice to prevent the build-up of electrostatic charge when storing it. For

environmental protection in case of accidental release: do not allow product to reach sewage system or any water course. Retain and dispose of contaminated wash water.
The usual general precautionary measures to prevent worker and environmental exposure to chemicals should also be taken when handling 12-Aminododecanoic acid in industrial uses.

STATE AGENCY REVIEW

This substance has been registered under REACH (EC) No. 1907/2006.
12-Aminododecanoic acid is included in the OECD list of High Production Volume (HPV) chemicals.
12-Aminododecanoic acid is listed in the following Chemical Inventories: TSCA, EINECS, ENCS, KECI
12-Aminododecanoic acid is not listed in the following Chemical Inventories:
Canadian DSL, AICS, NZIoC, PICCS, IECSC

REGULATORY INFORMATION/CLASSIFICATION AND LABELING

Classification of the substance according to REGULATION (EC) No 1272/2008:

Specific target organ toxicity
- Repeated exposure: Category 2; H373 May cause damage to organs (kidney, blood) through prolonged or repeated oral exposure.

Labeling according to REGULATION (EC) No 1272/2008:

Pictogram:

Signal word: Warning

Hazard statements:
H373: May cause damage to organs (kidney, blood) through prolonged or repeated oral exposure.

CONTACT INFORMATION WITHIN COMPANY

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

Company: UBE Chemical Europe, S.A
Department: Product Liability
Address: Poligono Industrial El Serrallo, s/n
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E-mail: sds.ube.eu@ube.es

Additional information can be found at:
http://www.ube.es
http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/

GLOSSARY

Acute toxicity	Harmful effect resulting from a single or short term exposure to a substance.
Biodegradation	Decomposition or breakdown of a substance under natural conditions (actions of micro organisms etc).
Bioaccumulation	Progressive accumulation in living organisms of a chemical substance present in the environment.
Canadian DSL	Domestic Substances List of Canada.
Carcinogenicity	Substance effects causing cancer.
CAS	Chemical Abstracts Service (division of the American Chemical Society).
Chronic toxicity	Harmful effect after repeated exposures or long term exposure to a substance.
EINECS	European Inventory of Existing Commercial Chemical Substances
Flash point	The lowest temperature at which vapor of the substance may form an ignitable mixture with air.
Genotoxicity	Substance effect that causes damage to genes, including mutagenicity and clastogenicity.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
HPV	High Production Volume Chemicals.
Hydrolyze	Undergo hydrolysis; decompose by reacting with water.
Intermediate	Substance that is manufactured for and consumed in or used for chemical processing in order to be transformed into another substance.
Monomer	Means a substance which is capable of forming covalent bonds with a sequence of additional like or unlike molecules under the conditions of the relevant polymer-forming reaction used for the particular process.
Mutagenicity	Substance effect that cause mutation on genes.
PBT	Persistent, bioaccumulative, toxic chemical.
Persistence	Refers to the length of time a compound stays in the environment, once introduced.
Risk Management Measures	Engineering controls, conditions and protective equipment needed to be implemented to ensure that the risks to human health and the environment are adequately controlled.
REACH (EC) No. 1907/2006	European Commission Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
REGULATION (EC) No 1272/2008	European Commission Regulation on Classification, Labelling and Packaging of Substances and Mixtures.
Reprotoxicity	Including teratogenicity, embryotoxicity and harmful effects on fertility.
Sensitizing	Allergenic.
Sediment	Topsoil, sand and minerals washed from land into water forming in the end a layer at the bottom of

	rivers and sea.
TSCA	Toxic Substance Control Act
Vapor pressure	A measure of a substance's property to evaporate.
vPvB	Very persistent, very bioaccumulative.

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REVISION

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DISCLAIMER

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