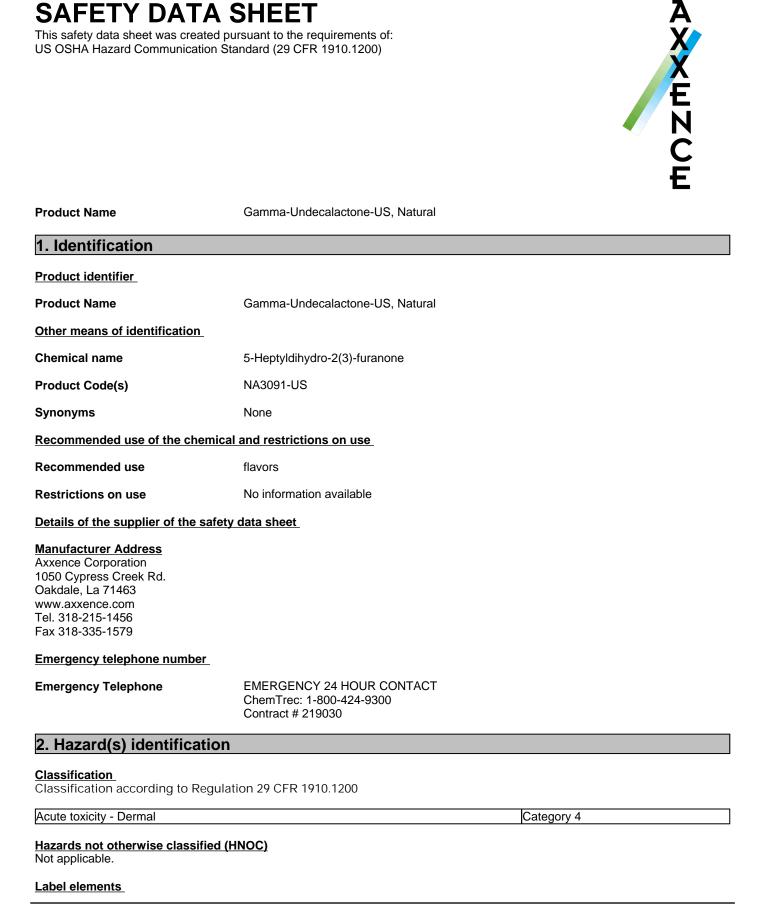
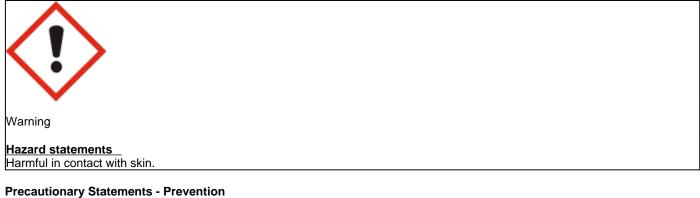
SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard (29 CFR 1910.1200)





Wear protective gloves and protective clothing.

IF ON SKIN: Wash with plenty of water and soap. Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse.

Precautionary Statements - Disposal

Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available.

Other information

No information available.

Product Name	Gamma-Undecalactone-US, Natural			
Substance				
Formula	C11H20O2			
Molecular weight	148.28 g/mol			
Chemical name	CAS No.	EC No (EU Index No)	Weight-%	Trade secret
Undecalactone, gamma-	104-67-6	203-225-4	100	-

Description of first aid measures	
General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Remove to fresh air.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact	Wash off immediately with plenty of water for at least 15 minutes. If symptoms persist, call a physician.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8).

Most important symptoms and effect	ets, both acute and delayed		
Symptoms	No information available.		
Effects of Exposure	No information available.		
Indication of any immediate medica	I attention and special treatment needed		
Note to physicians	Treat symptomatically.		
5. Fire-fighting measures			
Flash point	153 °C / 307.4 °F		
Flammability Limit in Air Upper flammability or explosive limits	No data available		
Lower flammability or explosive limits	No data available		
Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.		
Unsuitable extinguishing media Specific hazards arising from the chemical	Do not scatter spilled material with high pressure water streams. No information available.		
Explosion data Sensitivity to mechanical impact Sensitivity to static discharge	t None. None.		
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.		
Special attention to fire and explosion	None		
6. Accidental release meas	ures		
Personal precautions, protective eq	uipment and emergency procedures		
Personal precautions	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required.		
Other information	Refer to protective measures listed in Sections 7 and 8.		
Methods and material for containme	ent and cleaning up		
Methods for containment Methods for cleaning up Prevention of secondary hazards	Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labeled containers. Clean contaminated objects and areas thoroughly observing environmental regulations.		
7. Handling and storage			
Precautions for safe handling			
Advice on safe handling	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation.		
General hygiene considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.		
Conditions for safe storage, including	ng any incompatibilities		
Storage Conditions	Cool, Dark area. Purge with Nitrogen after each opening. Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up.		

8. Exposure controls/personal protection

Control Parameters

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Exposure Limits
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This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering controls	Showers Eyewash stations Ventilation systems
Individual protection measures, su	ich as personal protective equipment
Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand protection	Wear suitable gloves.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing.
Respiratory protection	Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction.
General hygiene considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

9. Physical and chemical properties

Information on basic physical and chemical properties

	Clear	
Appearance		
Physical state	Liquid	
Color	Colorless; to; Slight yellow	
Odor (includes odor threshold)	fruity, peach	
D		
Property	Values	Remarks • Method
Melting point / freezing point	No data available	None known
Boiling point (or initial boiling point	or 294 °C / 561.2 °F	None known
boiling range)		
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive li		
Lower flammability or explosive li		
Flash point	153 °C / 307.4 °F	CC (closed cup)
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
SADT (°C)	No data available	None known
рН	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Solubility	Alcohol Oil	None known
Water solubility	No data available Insoluble in water	None known
Partition coefficient n-octanol/water	(log No data available	None known
value)		
Vapor pressure (includes evaporatio	on rate)No data available	None known
Evaporation rate	No data available	None known
Density and/or relative density	0.9234 - 0.9634	None known
Bulk density	No data available	
Liquid Density	No data available	
Relative vapor density	>1.0	None known
Particle characteristics		None known
Particle Size	No data available	
Particle Size Distribution	No data available	
Other information		

Molecular weight	148.28 g/mol
Refractive Index	1.4473

10. Stability and reactivity			
Reactivity	No information available.		
Chemical stability	Stable under normal conditions.		
Possibility of hazardous reactions	None under normal processing.		
Conditions to avoid	None known based on information supplied.		
Incompatible materials	None known based on information supplied.		
Hazardous decomposition products None known based on information supplied.			

11. Toxicological information

Information on likely routes of exposure

Product Information Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	May be absorbed through the skin in harmful amounts. Harmful in contact with skin. (based on components).
Ingestion	Specific test data for the substance or mixture is not available.
Symptoms related to the phy	ysical, chemical and toxicological characteristics
Symptome	No information available

Symptoms	No information available.
Acute toxicity	Harmful by skin contact.

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Undecalactone, gamma- 104-67-6	= 18500 mg/kg (Rat)	> 2000 mg/kg (Rat)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Other adverse effects	No information available.
Interactive effects	No information available.

12. Ecological information

Ecotoxicity Persistence and degradability Bioaccumulation The environmental impact of this product has not been fully investigated. No information available.

Component Information

Chemical name	Partition coefficient	
Undecalactone, gamma-	3.6	
104-67-6		

Other adverse effects

No information available.

13. Disposal considerations		
Disposal methods		
Waste from residues/unused productsDispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. Do not reuse empty containers.Contaminated packagingDo not reuse empty containers.		
14. Transport information		
DOT	Not regulated	
IATA	Not regulated	
IMDG	Not regulated	

15. Regulatory information

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

Listed

DSL/NDSL	Listed
EINECS/ELINCS	Listed
ENCS	Listed
IECSC	Listed
KECL	Listed
PICCS	Listed
AIIC	Listed
NZIoC	Listed
NZIOC	Listed
Taiwan	Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AIIC - Australian Inventory of Industrial Chemicals

NZIOC - New Zealand Inventory of Chemicals

TCSI - Taiwan Chemical Substance Inventory

Personal protection -

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations. Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CAA (Clean Air Act)

This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. EPA Label Information

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EPA Pesticide Registration Number Not applicable

16. Other info	rmation			
NFPA	Health hazards 0	Flammability 0	Instability 0	Special hazards -

Flammability 0 Physical hazards 0 HMIS

Key or legend to abbreviations and acronyms used in the safety data sheet

Health hazards 0

Legend		
ACGIH	American Conference of Governmental Industrial Hygienists	
ADN	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)	
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)	
AIIC	Australian Inventory of Industrial Chemicals	
ATE	Acute Toxicity Estimate	
ASTM	American Society for the Testing of Materials	
bar	Biological Reference Values for Chemical Compounds in the Work Area	
BAT	Biological tolerance values for occupational exposure	
BEL	Biological exposure limits	
bw	Body weight	
Ceiling	Maximum limit value	

	Carcinogen, Mutagen or Reproductive Toxicant	
DOT	Department of Transportation (United States)	
	Domestic Substances List (Canada)	
EmS	Emergency Schedule	
ENCS	Existing and New Chemical Substances (Japan)	
EPA	Environmental Protection Agency	
GHS	Globally Harmonized System	
HMIS	Hazardous Materials Identification System	
IARC	International Agency for Research on Cancer	
IATA	International Air Transport Association	
IBC	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk	
ICAO	International Civil Aviation Organization	
IECSC	Inventory of Existing Chemical Substances in China	
IMDG	International Maritime Dangerous Goods	
IMO	International Maritime Organization	
ISO	International Organization for Standardization	
KECI	Korean Existing Chemicals Inventory	
LC50	Lethal Concentration to 50% of a test population	
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)	
MARPOL	International Convention for the Prevention of Pollution from Ships	
NFPA	National Fire Protection Association	
NIOSH	National Institute for Occupational Safety and Health	
n.o.s.	Not Otherwise Specified	
NOAEC	No Observed Adverse Effect Concentration	
NOAEL	No Observed Adverse Effect Level	
NOELR	No Observable Effect Loading Rate	
NTP	National Toxicology Program (United States)	
NZIoC	New Zealand Inventory of Chemicals	
OECD	Organization for Economic Cooperation and Development	
OEL	Occupational exposure limits	
OSHA	Occupational Safety and Health Administration of the US Department of Labor	
РВТ	Persistent, Bioaccumulative and Toxic substance	
PICCS	Philippines Inventory of Chemicals and Chemical Substances	
PMT	Persistent, Mobile and Toxic	
PPE	Personal protective equipment	
QSAR	Quantitative Structure Activity Relationship	
RID	Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)	
SADT	Self-Accelerating Decomposition Temperature	
SAR	Structure-activity relationship	
SARA	Superfund Amendments and Reauthorization Act	
SDS	Safety Data Sheet	
SL	Surface Limit	
STEL	Short Term Exposure Limit	
STOT RE	Specific target organ toxicity - Repeated exposure	
STOT SE	Specific target organ toxicity - Single exposure	
TCSI	Taiwan Chemical Substance Inventory	
TDG	Transport of Dangerous Goods (Canada)	
TSCA	Toxic Substances Control Act (United States)	
TWA	Time-Weighted Average	
UN	United Nations	
VOC	Volatile organic compounds	
vPvB	Very Persistent and Very Bioaccumulative	
vPvM	Very Persistent and Very Mobile	
As		
DS	Allergenic substance Dermal Sensitizer	
Ot	Ototoxicant	
pOt		
μοι	Ototoxicant - potential to cause hearing disorders	

PS	Photosensitizer	
RS	Respiratory Sensitizer	
S	Sensitizer	
poS	Sensitizer - capable of causing occupational asthma	
Sa	Simple asphyxiant	
Sd	Skin designation	
pSd	Skin designation - potential for cutaneous absorption	
Sdv	Skin designation - vacated	
Sk	Skin notation	
dSk	Skin notation - danger of cutaneous absorption	
pSk	Skin notation - potential for cutaneous absorption	

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

U.S. Environmental Protection Agency ChemView Database

European Food Safety Authority (EFSA)

Environmental Protection Agency

Acute Exposure Guideline Level(s) (AEGL(s))

U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act

U.S. Environmental Protection Agency High Production Volume Chemicals

Food Research Journal

Hazardous Substance Database

International Uniform Chemical Information Database (IUCLID)

National Institute of Technology and Evaluation (NITE)

Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)

NIOSH (National Institute for Occupational Safety and Health)

National Library of Medicine's ChemID Plus (NLM CIP)

National Library of Medicine's PubMed database (NLM PUBMED)

U.S. National Toxicology Program (NTP)

New Zealand's Chemical Classification and Information Database (CCID)

Organization for Economic Co-operation and Development Environment, Health, and Safety Publications

Organization for Economic Co-operation and Development High Production Volume Chemicals Program

Organization for Economic Co-operation and Development Screening Information Data Set

World Health Organization

Revision Number	1
Revision date	27-Feb-2025
Revision Note	No information available.
<u>Disclaimer</u>	

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet