




SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**
Trade Name: Anodamine LPFG
Alternative Names: Non-toxic mixture of surface-active polyamines, surface active amines
- 1.2 Relevant identified uses of the substance or mixture and uses advised against.**
Industrial uses: Medium to low-pressure boiler metal passivation scale and corrosion inhibition for industrial water treatment.
- 1.3 Details of the supplier of the safety data sheet**
Supplier
Anodamine Inc
Street address 7800 Bronco Lane
Postcode and post office Lago Vista, Texas 78645 USA
Telephone + 1 (512) 244 2318
Email info@anodamine.com, webpage: www.anodamine.com
Contact details of person responsible for SDS
Technical Support Services contact (info@anodamine.com)
Telephone: +1 (512) 244-2318
- 1.4 Emergency telephone number**
For USA: Chemtrec: 1-800-424-9300
For Canada: CanuTec: 613-996-6666
Email: ers@chemtelinc.com
Hours of operation: 24 hrs
Language of phone service: English

SECTION 2: HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
In accordance with Regulation (EC) No. 1272/2008 (CLP) this substance has not been classified as hazardous.
GHS-US Classification: Not classified
Additional Information: For full text of Hazard Statements, See Section 16
- 2.2 Label elements**
GHS-US labeling:
Hazard Pictogram: 
Signal Word: Warning
Hazard Statement: H315: Causes skin irritation
H319: Causes serious eye irritation
Precautionary Statements: P264: Wash thoroughly exposed body areas with water immediately after handling.
P280: Wear protective gloves/protective clothing/eye protection/ face protection.
P321: Specific treatment (see section 4.1 of this Safety Data Sheet)
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P332 + P313: If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313: If eye irritation persists: Get medical advice/attention
Storage: None
Disposal: None
Supplemental Hazard Info: None
There is no need for label elements in accordance with current regulations since this substance has not been classified as hazardous.
- 2.3 Other hazards**
Not a PBT or a vPvB
- 2.4 Unknown acute toxicity (GHS-US)**
None as per REACH Regulations 2018



SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

- 3.2 Mixtures**
Chemical Characterization: Polyamines
- 3.3 Hazardous components:**
Chemical Name: Cyclohexylamine (not mandatory)
CAS No.: 108-91-8
GHS Classification: H226; H302; H312; H314
% Purity: ≥ 5 - ≤ 10

SECTION 4: FIRST AID MEASURES

- 4.1 Description of first aid measures**
Handling and industrial use of this product possesses little to no safety risk to either personnel or the environment.
- 4.2 Inhalation**
No effects or symptoms are expected when handling the product. If irritation occurs get medical attention and move to fresh air. No respiratory PPE is required.
- 4.3 Skin contact**
Remove contaminated clothing and shoes. Immediately wash affected area with plenty of soap and rinse area with large amounts of water. Get medical aid if required.
- 4.4 Eye contact**
Remove any contact lenses and continue flushing eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid if necessary. Do NOT allow victim to rub or keep eyes closed. Safety glasses should be worn.
- 4.5 Ingestion**
Do NOT induce vomiting. If victim is conscious and alert, wash out mouth with water, give several glasses of water. Get medical aid immediately if necessary.
- 4.6 Most important symptoms and effects, both acute and delayed**
Refer to Section 11 for more information on health effects and symptoms.

SECTION 5: FIRE FIGHTING MEASURES

- 5.1 Extinguishing media**
Suitable extinguishing media
Use water fog or spray, dry chemical foam or carbon dioxide.
Unsuitable Extinguishing media
None known
- 5.2 Special hazards arising from the substance or mixture**
May produce carbon dioxide if heated to $>550^{\circ}\text{C}$ (1022°F) or above.
Hazardous Combustion Product: Thermal decomposition products may release toxic and/or hazardous fumes or gases including carbon oxides (CO & CO₂) in absence of O₂, ammonia
- 5.3 Advice for firefighters**
Wear self-contained breathing and acid resistant clothing

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures**
Use of personal protection is always recommended as good chemical handling practice would dictate. Evacuate the spill area safely to permit authorized personnel to handle the spill. Emergency responders must wear the proper personal protective equipment (and have appropriate fire-suppression equipment) suitable for the situation to which they respond.
- 6.2 Environmental precautions**
Avoid release to the environment. Collect leaking substance with suitable acid proof containers. Do not allow large volume losses to enter into drain or surface waters. Dispose of contaminated material and its container as waste according to local regulations.
Water Spill: The material will not cause any adverse environmental impact if it reaches waterways however avoid release into



waterways. The product is considered non-hazardous to aquatic environment.

Land spill: None

Air Spill: None known

6.3 Methods and materials for containment and cleaning up

Contain large spills with containment walls and transfer the material to appropriate containers for reclamation or disposal. Collect by sweep, scoop or vacuum and remove. Flush spill area with water. The spill area may be slippery. Soak up liquid residue with suitable absorbent such as clay or sawdusts.

6.4 Reference to other sections

See also section 13 for disposal consideration.

Additional information: Avoid contact with skin and eyes as part of safe handling. If spillage occurs on the public highway, indicate the danger and notify the authorities (police, fire brigade).

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures:

Avoid unnecessary repeated contact with skin and eyes. Do not open the containers until ready for use. Close the containers properly.

Handle in accordance with good industrial hygiene and safety practices, as mentioned in section 8.2. These practices include using appropriate personal protection, avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Do not eat, drink or smoke when handling this product.

Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. The reuse of this material's container for non-industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Advice on general occupational hygiene:

Keep personal protective equipment in a clean place, away from the work area. Use clean and correctly maintained personal protective equipment. Always wash your hands after handling the product.

Do NOT eat or drink in the workplace.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Take all necessary precautions to avoid the accidental release of the product outside due to the rupture of containers or transfer systems. Ensure there is a suitable retention system.

Storage facilities should be dry and clean.

Packing Material:

The product is compatible with most common storage materials. Suitable packing and storage materials include: SS 304 or 316, original containers or metal containers with glass, PVC, CPVC, PP, PE, Viton, EPDM, PTFE, HPDE or GRP lining

Unsuitable packing and storage material: Avoid contact with aluminum

Requirements for storage rooms and vessels:

Storage should be done in original PE drums or original IBC Containers.

Store the containers in cool and dry place at ambient temperature at temperature > 37 OF (freezing protection) or < 180 OF typically ensure a useable shelf life of 3-5 years. After freezing, thawing destroys the product without limitations.

Should not store above 180°F as product may degrade and may overpressure the container.

Advice on common storage:

No special restriction on storage with other products

Further information on storage conditions:

Shelf life: 3-5 years

Storage Class: 12

7.3 Specific end use(s)

Refer section 1.2

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

No specific occupational exposure limit is known or established on components present in the product.

8.2 Exposure controls

Appropriate engineering controls

Technical protection measures:

No specific additional engineering controls are required. Provide good natural ventilation or artificial ventilation.

Organizational protection measures:

Environmental, health and safety guidelines or written instructions on the standard operating procedure (SOP) are utilized.



Safety Data Sheet compliant with OSHA Hazardous Communication Standard, 2012 (OSHA-HCS)
In accordance with Regulation (EC) No. 1272/2008 (CLP) this substance has not been classified as hazardous.

Personnel are trained in environment, health and safety issues, i.e. in safe handling of chemicals and good housekeeping.
Good hygiene measures practiced.

8.3 Individual protection measures

Respiratory protection

Avoid breathing vapor / mist. Use approved respiratory protection equipment when air borne exposure is excessive. Consult respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer. In case of insufficient ventilation, wear suitable respiratory equipment.

Skin/Hand/Other Skin protection

Wear latex gloves of suitable material. Wear suitable protective clothing including chemical aprons, boots, or a suitable acid resistant chemical suit. Wash thoroughly after handling. Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice.

Eye/face protection

Use safety glasses or chemical goggles. Have eye wash facilities immediately available at any location where eye contact can occur.

Environmental exposure controls

Avoid direct discharge into drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important Health Safety and Environmental Information

Appearance	Liquid
Color	Clear colorless to slight straw color
Odor	Slight smell of amonia
Odor threshold	Not available
pH	10.0 to 11.5 of 2% solution at 25 °C
Freezing point / range	< 37 °F
Initial boiling point / range	>100 OC (Similar to water)
Flash point	250 °C
Evaporation rate	Not determined
Flammability (solid, gas)	Not flammable or combustible
Explosive properties	None
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	Same as water
Vapor density	No information available
Specific gravity@ 25C	0.98
Solubility	Miscible in water
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	No information available

Explosive properties: There are no chemical groups associated with explosive properties present in this substance.

Oxidizing properties: Substance does not contain functional groups oxidizing properties. with

9.2 Other information: Please refer to technical datasheet

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Reacts with acids, metals and strong oxidizing agents.

Chemical stability

Stable under recommended storage and handling conditions.

10.2 Possibility of hazardous reactions



Safety Data Sheet compliant with OSHA Hazardous Communication Standard, 2012 (OSHA-HCS)
In accordance with Regulation (EC) No. 1272/2008 (CLP) this substance has not been classified as hazardous.

Hazardous polymerization is not expected to occur under normal temperatures and pressures.

10.3

Conditions to avoid

Avoid contact with aluminum and temperature above 250°C (482°F)

10.4

Incompatible materials

Acidic and strong oxidizers

10.5

Hazardous decomposition products

At temperature above 550 °C, the product may decompose and release the following:
Small concentrations of Carbon oxide fumes (CO, CO₂) in presence of
Oxygen, ammonia, low alkyl amines, acetaldehyde

SECTION 11: TOXICOLOGICAL INFORMATION

11.1

Information on toxicological effects

The target UVCB substance consists of a mixture of surface-active non-toxic substances.

11.2

Acute oral toxicity

Species: rat

Route of administration: oral

LD50: >5000 mg/kg

Not classified for acute oral toxicity as per OSHA-GHS regulation

11.3

Acute inhalation toxicity:

No test data available

11.4

Acute dermal toxicity:

Species: rat

Route of administration: Dermal

LD50: >5000 mg/kg

Not classified for acute dermal toxicity as per OSHA-GHS regulation

11.5

Skin Irritation:

Species: Rabbit

Exposure: 4 hour

Result: Irritating

11.6

Sensitization:

Species: Guinea Pig

Result: Not sensitizing

11.7

Repeated dose toxicity:

No classification regarding repeated dose toxicity is required.

11.8

Germ Cell Mutagenicity:

Negative results obtained in Ames, CHO HGPRT forward mutation and micronucleus tests.

Note: The presented data from similar structural analogues

11.9

Carcinogenicity:

Not expected to be a carcinogen

11.10

Reproductive toxicity:

No classification required for Reproductive toxicity

11.11

STOT-single exposure

No data available

11.12

STOT-repeated exposure

No data available

11.13

Aspiration hazard

No data available

SECTION 12: ECOLOGICAL INFORMATION

12.1

Toxicity

Toxicity to fish

Species: Pimephales promelas



Duration: 96 h
LC50: >100mg/l

Toxicity on Invertebrates:

Species: Daphnia magna
Duration: 48 h
EC50: >100 mg/l

12.2 Persistence and degradability

Biodegradation

Test Method: OECD 301D (Ready Biodegradability: Closed Bottle Test) 28 d
Degree of Removal: 90%

Chemical degradation

No information available.

12.3 Bio accumulative potential

Not expected

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance does not fulfil the criteria for PBT or vPvB

12.6 Other adverse effects

No further information available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

All local and national regulations should be followed. Consult regulatory officials for disposal requirement. For small quantities, neutralize with lime or soda ash and flush away with plenty of water. For large quantities, send to special waste disposal system and burn in proper incinerator. This product should not be dumped in public storage and sewers / waterways.

13.2 US EPA RCRA Status: This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261.

13.3 Disposal considerations: Incineration, Recycle

13.4 Waste from residues / unused products

Where possible re-use and recycling is preferred to final disposal.

SECTION 14: TRANSPORT INFORMATION

The Product does not meet for classification as dangerous goods according to local or international transport regulations. The product is classified as not dangerous goods.

14.1 UN number not applicable.

14.2 UN proper shipping name not applicable.

14.3 Transport hazard class(es) not applicable.

14.4 Packing group not applicable.

14.5 Environmental hazards: The substance is not classified as hazardous for the environment.

14.6 Special precautions for Users: None

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available.

SECTION 15: REGULATORY INFORMATION

Inventory status: All components are on the following inventories:

US TSCA, Canadian DSL, EU EINECS

US Federal Regulations:

US TSCA (12b) This product does not contain any chemical substances subjected to the US Toxic Substance Control Act (TSCA) 12 (b) export reporting requirements.

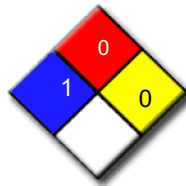
Product is compliance with TSCA regulation.



Safety Data Sheet compliant with OSHA Hazardous Communication Standard, 2012 (OSHA-HCS)
In accordance with Regulation (EC) No. 1272/2008 (CLP) this substance has not been classified as hazardous.

SARA Hazard Notification:	
Hazard Categories Under Title III Rules (40 CFR 370)	Not applicable
SARA Section 311/312 Hazard Categories	Not applicable
SARA Title III Section 302 Extremely Hazardous Substances	None
SARA Title III Section 313 Toxic Chemicals	This product does not contain any chemical with known CAS numbers that exceeds the threshold (De Minimis) reporting levels established SARA Title III, Section 313.
US EPA CERCLA Hazardous Substances (40 CFR 302)	None
OSHA Process Safety Management, 29 CFR 1910.119	Not applicable
CERCLA Reportable Quantity	Not applicable
California proposition 65	To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.
Hazardous air pollutants (Clean Air Act)	The product does not contain any hazardous air pollutants as listed under section 112 of the Clean Air Act
Clean water act (CWA)	None listed
The product does not contain any	chemicals which are listed as a carcinogen by IARA, NTP & OSHA

NFPA Rating



HMIS	Health: 1 Flammability:0 Physical hazards:0 Special Hazard: NA
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HAZCOM Standard Status	This material is not considered to be hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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Other International regulations

Canada:

Canadian WHMIS classification	D2(B) - Materials Causing Other Toxic Effects
National Pollutants Release Inventory (NPRI)	The product does not contain any components listed on Environment Canada's NPRI
Priority Substances List 1 and Priority Substances List 2 (PSL 1 and PSL2)	The product does not contain any components listed on Environment Canada's PSL1 and PSL2

EU regulations

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Skin Irritation category 1 Eye Irritation category 1
Classification according to Directive 67/548/EEC	Xi; R36/38 S2, S24/25, S37/39
SVHC or restricted substances list as per REACH regulation	No substances on this list have been intentionally added to the product. Concentration of impurities, if any, is expected to be below 0.1%.
Water Hazard Class (Germany)	WGK: Slightly water endangering



SECTION 16: OTHER INFORMATION

16.1 Additions, Deletions, Revisions

All sections revised to meet OSHA-GHS requirements
Procedure used to derive the classification according to OSHA HCS (GHS) 2012s
Classification: Skin Irritation, Category 2
Judgement: Bridging principle "Concentration of highly hazardous mixtures"
Classification: Eye Irritation, Category 2A
Judgement: Bridging Principle "Concentration of highly hazardous mixtures"

16.2 Key or legend to abbreviations and acronyms

CSR = Chemical Safety Report
DNEL = Derived No Effect Level
LD50 = Median lethal dose
PNEC = Predicted No Effect Concentration
STEL = Short term exposure limit
TLV = Threshold limits
TWA = time weighted average
CLP = Classification, Labeling and Packaging Regulation according to 1272/2008/EC
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods Code
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
PBT = Persistent Bio accumulative Toxic
vPvB = very Persistent and very Bio accumulative

Key literature references and sources for data.

Environmental Properties and safety Assessment of Organic used for Surface-active polyamines detergent and water treatment Applications----W.E. Gledhill and T.C.J. Feijtel
Relevant Risk Phrases (in full): R36/38 Irritating to eyes and skin
Relevant H Statements (in full): H315: Causes skin irritation; H319: Causes serious eye irritation
Further information: No information available

DISCLAIMER OF LIABILITY: The information in this SDS was obtained from recent Chemical Safety Report of this substance from REACH registration. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

16.5 **Date:** Friday, July 12, 2019