



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

1.1 Product identifier

Trade Name: Anodamine HPFG
Alternative Names: Surface-active corrosion inhibitor

1.2 Product code

Substance name: long chain aliphatic, nitrogen containing
CAS-No.: proprietary technology

1.3 Relevant identified uses of the substance or mixture and uses advised against.

Industrial uses: High-pressure boiler metal passivation scale and corrosion inhibition for industrial water treatment.

1.4 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

1.5 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:	No hazard pictograms required
Signal Word:	No signal word required
Precautionary Statements:	Response: None
Storage:	None
Disposal:	None
Supplemental Hazard Info:	None

There is no need for label elements in accordance with current regulations since this substance has been classified as non-hazardous.

2.3 Other hazards

The substance does not fulfill the PBT criteria (not PBT) nor the vPvB criteria (not vPvB).

2.4 Unknown acute toxicity (GHS-US)

None as per REACH Regulations 2018



SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance of unknown or variable composition, complex reaction products or biological materials (UVCB). This substance consists of a mixture of surface-active non-toxic substances. This substance does not include any hazardous constituents. This substance does not legally require an SDS as it is non-hazardous. For that reason, the name of the substance is kept confidential.

3.2 Mixtures

Not applicable.

3.3 Other information

No hazardous ingredients present according to REACH and OSHA-GHS 2012.

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.

4.1.2 Inhalation

No effects or symptoms are expected when handling the product. If irritation occurs get medical attention. No respiratory PPE is required.

4.1.3 Skin contact

No effects or symptoms are expected when handling the product. Remove contaminated clothing and shoes and immediately wash affected area with plenty of soap and rinse area with large amounts of water. Get medical aid if required.

4.1.4 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.

4.1.5 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.

4.2 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

None known

May produce carbon dioxide if heated to >700°C (1292°F) or above.

Hazardous Combustion Product: None

5.3 Advice for firefighters

Usual fire protective clothing should be worn.



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 containers. Do not allow large volume losses to enter into drain or surface waters. Collect contaminated material in containers. 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 saw dusts.

6.4 Reference to other sections

See also section 8.

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. Avoid unnecessary exposure with 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 not 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: None.

Requirements for storage rooms and vessels: Storage should be done in original PE drums or original IBC Containers.

Store the containers in a cool and dry place at ambient temperature of $> 0^{\circ}\text{C} / 32^{\circ}\text{F}$ (freezing protection) or $<$



43°C / 110°F to typically ensure a useable shelf life of 2 years.
Even after freezing, thawing may allow re-use of the product without limitations.
Advice on common storage:
No special restriction on storage with other products

- 7.3 Specific end use(s)**
No exposure risks, as the substance is non-hazardous.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Control parameters**
No data available.
- 8.1.4 DNELs**
DNELs for workers:
Inhalation-systemic-long-term effects: DNEL (Derived No Effect Level) = 23.5 mg/L. No studies are conducted for the substance or relevant read-across substances via inhalation route. Thus, the most reliable and lowest dose descriptor (NOAEL systemic toxicity = 1000 mg/kg/day, sub-acute, oral exposure, rats) was selected from a guideline compliant OECD 422 study conducted for the read-across substance.
Overall Assessment Factor: 75
Dermal-systemic-long-term effects: DNEL (Derived No Effect Level): 3,3 mg/kg bw/day. No studies are conducted for the substance or relevant read-across substances via dermal route. Thus, the most reliable and lowest dose descriptor (NOAEL systemic toxicity = 1000 mg/kg/day, sub-acute, oral exposure, rats) was selected from a guideline compliant OECD 422 study conducted for the read-across substance.
Overall Assessment Factor: 300
DNELs for the general population: (ONLY if consumer uses)
General population DNELs has not been derived since there is no consumer or professional use applications for this substance.
- 8.1.5 PNECs**
PNEC aqua (freshwater): 25 mg/L Intermittent releases: 25 mg/L. Assessment factor: 500. Extrapolation method: assessment factor.
PNEC aqua (fresh water) was derived based on the lowest of two long-term aquatic toxicity results (NOECs) covering two trophic levels (crustaceans and fish).
The NOEC of 12500 mg/L to water flea (*Ceriodaphnia dubia*) was divided by the assessment factor of 500.
PNEC aqua (marine water): 25 mg/L Intermittent releases: 25 mg/L. Assessment factor: 500. Extrapolation method: Assessment factor.
The PNEC aqua (marine water) was derived based on the lowest of two long-term aquatic toxicity results (NOECs) covering two trophic levels (crustaceans and fish).
The NOEC of 12500 mg/L to water flea (*Ceriodaphnia dubia*) was divided by the assessment factor of 500.
PNEC sediment (freshwater): No hazard identified. The substance is readily biodegradable, and it has low potential for adsorption to sediment.
PNEC sediment (marine water): No hazard identified. The substance is readily biodegradable, and it has low potential for adsorption to sediment.
PNEC soil: No hazard identified. The substance is readily biodegradable, and it has low potential for adsorption to soil.
PNEC STP: 100 mg/L. Assessment factor: 10. Extrapolation method: Assessment factor:
The PNEC STP was derived based on the activated sludge respiration study results (OECD 209). The NOEC value of 1000 mg/L divided by the AF of 10 was used to derive to PNEC value.
- 8.2 Exposure controls**
- 8.2.1 Appropriate engineering controls**
Technical protection measures:
No specific additional engineering controls are required. Natural ventilation is acceptable.
Organizational protection measures:
Environmental, health and safety guidelines or written instructions on the standard operating procedure (SOP) are utilized.



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

Good hygiene measures are practiced.

8.2.2 Individual protection measures

8.2.2.1 Respiratory protection

At handling temperatures, the product displays no vapor, mist or smell, therefore, respiratory protection is not required.

8.2.2.2 Hand protection

Although this product does not present a skin concern, minimize skin contamination by following good industrial practice.

8.2.2.3 Eye/face protection

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

8.2.2.4 Skin protection

Wear suitable protective clothing - acid resistant chemical clothing is not required.

8.2.3 Environmental exposure controls

No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important Health Safety and Environmental Information

Appearance

Liquid at 20°C and 101.3 kPa
Clear liquid to light straw color

Odor None

Odor threshold None

pH 4 ≈ 0.5

Melting point/freezing point 0.78°C at 101.3 kPa (OECD 102, GLP)

Initial boiling point and boiling range 102.4°C at 101.3 kPa (OECD 103, GLP)

Flash point Not applicable

Evaporation rate Not applicable

Flammability (solid, gas) Non-flammable (EC A12, GLP)

Explosive properties None

Lower explosion limit Not applicable

Upper explosion limit Not applicable

Vapor pressure 2402 Pa at 68°F (OECD 102, GLP)

Vapor density No information available

Relative density 0.998 at 68°F (OECD 104, GLP)

Water solubility Miscible in water: 1x10⁶ mg/L at 77°F (OECD 105, GLP)

Fat solubility (solvent - oil to be specified) No information available

Partition coefficient: n-octanol/water Log Kow (Log Pow): 0.3 at 77°F (OECD 117, GLP)

Auto-ignition temperature No information available

Decomposition temperature > 700 °C (1292 °F)

Viscosity Similar to water

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

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

9.2 Other information: No other information available.



SECTION 10: STABILITY AND REACTIVITY

- 10.1 Reactivity**
Non-hazardous reaction with acids, metals and strong oxidizing agents.
Hazardous polymerization: None
- 10.2 Chemical stability**
Stable under recommended storage and handling conditions. Refer to Section 7
- 10.3 Possibility of hazardous reactions**
Hazardous polymerization is not expected to occur under normal temperatures and pressures.
- 10.4 Conditions to avoid**
None.
- 10.5 Incompatible materials**
Strong acids and oxidizers.
- 10.6 Hazardous decomposition products**
Carbon dioxide (CO₂)

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1 Information on toxicological effects**
The target UVCB substance consists of a mixture of surface-active non-toxic substances.
- 11.1.1 Acute toxicity**
No classification regarding acute toxicity is required.
LD50 for Anodamine HPGF is 169,600 mg/lit
Oral: The oral LD50 (rat) is > 2000 mg/kg bw
Inhalation: No study available, no expected route of human exposure.
Dermal: No study available, no expected route of human exposure.
- 11.1.2 Irritation and corrosion**
No classification regarding irritation and corrosion is required.
Skin irritation: Not Irritating
Eye irritation: Not Irritating
- 11.1.3 Sensitization**
No classification regarding sensitization is required.
LLNA (key study): Skin sensitization was studied using Local Lymph Node Assay (LLNA) carried for the target substance. In this study the test substance was not shown to have sensitization potential.
- 11.1.4 Sub-acute, sub chronic and prolonged toxicity**
Repeated dose toxicity:
No classification regarding repeated dose toxicity is required.
Oral route - systemic effects:
no adverse effect observed (NOAEL : 1000 mg/kg bw/day) (sub-acute ; rat [common rodent species])
Inhalation - systemic effects:
no study available.
Inhalation - local effects: no study available.
Dermal - systemic effects:
no study available.
Dermal - local effects: no study available.



Mutagenicity

No classification regarding mutagenicity is required.

Ames test (OECD 471): non-mutagenic with or without metabolic activation

In vivo cytogenicity assay (OECD 473): negative with or without metabolic activation

In vitro gene mutation assay (OECD 476): negative with or without metabolic activation

Carcinogenicity:

No classification regarding carcinogenicity is required.

Reproductive toxicity:

No classification regarding reproductive toxicity is required.

Route: oral

no adverse effect observed (NOAEL) 1000 mg/kg bw/day (sub acute ; rat [common rodent species])

Route: dermal

no study available.

Route: inhalation

no study available.

11.1.5 STOT-single exposure

No classification regarding STOT-single exposure is required.

11.1.6 STOT-repeated exposure

No classification regarding STOT-repeated exposure is required.

11.1.7 Aspiration hazard

No classification regarding aspiration hazard is required.

11.1.8 Other information on acute toxicity

No further information available.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity

Based on the study results on daphnids, fish and algae determined for the registered substance, no toxicity occurred up to the maximum test concentration of 12.5 g/l (daphnids), 100 g/l (fish) and >100 mg/l (algae). The results were based on nominal test concentrations.

Acute aquatic toxicity:

Short-term aquatic toxicity results are available across the different trophic levels:

Toxicity to algae (*Desmodesmus subspicatus*): 72h EC50 >100 mg/L (OECD 201, GLP).

EC10, EC50, NOEC, LOEC values were determined. No toxicity was observed at the concentrations tested. Based on the available data, the lowest value (EC50) was selected as a key value.

Toxicity to invertebrates (*Ceriodaphnia dubia*): 48h LC50: 132 g/L. (95% CL 120.2 – 144.8 g/l). (EPA-821-R-02-012, Method 2002.0) Based on the available data, the 48-h LC50 value was selected as a key value.

Toxicity to fish (*Pimephales promelas*): 48h LC50: 161.6 g/L. (95% CL 138.4 – 188.6 g/L) (EPA-821-R-02-012, Method 2000.0) Based on the available data, the 48-h LC50-value was selected as a key value.

Respiratory inhibition of activated sludge: 3h NOEC: 1000 mg/L (OECD 209, GLP)

EC10, EC50 and NOEC values were determined. No toxicity was observed at the concentrations tested. Therefore, based on the available data, 3-h NOEC was selected as a key value.

Conclusion: No acute toxic effects. The data obtained from testing on freshwater species has been used as basis for assessment of effects in marine environment as well as for extrapolation of the measured effects to other compartments within the aquatic ecosystem (e.g. sediment) and soil.

Chronic aquatic toxicity:

Toxicity to invertebrates (*Ceriodaphnia dubia*): NOEC: 12.5 g/L; 48h LC50: 75.79 g/L (EPA-821-R-02-013, Method 1002.0). As a result, NOEC values were determined. 7-day NOEC (survival) was 50 g/L and 7-day NOEC (reproduction) was 12.5 g/l; IC25 was calculated as 13.75 g/L.

Based on the available data, the 7-day NOEC indicating the highest toxicity response were selected as a key value.



Toxicity to fish (Pimephales promelas): NOEC: 100 g/L; 96h LC50: 136.6 g/L (EPA-821-R-02-013, Method 1000.0). NOEC values were calculated. The 7-day NOEC (survival) was 100 g/L and the 7-day NOEC (dry mean weight) was 100 g/l. The 7-day IC25 (dry mean weight) was 116.8 g/l.

Based on the available data, the 7-day NOEC indicating the highest toxicity response were selected as a key value.

Conclusion: No chronic toxic effects. The data obtained from testing on freshwater species has been used as basis for assessment of effects in marine environment as well as for extrapolation of the measured effects to other compartments within the aquatic ecosystem (e.g. sediment) and soil.

Toxicity to other organisms

No relevant information available.

12.2 Persistence and degradability

Biodegradation

Biodegradation is not an important fate process for the substance. The organic chemical groups in the reaction products will be biodegradable. Therefore, the substance is not considered persistent.

Conclusion: Readily biodegradable.

Chemical degradation

No information available.

12.3 Bio accumulative potential

The substance has a low potential for bioaccumulation ($K_{ow} < 0.3$). Therefore, the substance is not considered as bio-accumulative.

Conclusion: Not bio-accumulative

12.4 Mobility in soil

High mobility in soil based on high water solubility and estimated adsorption coefficients (K_{oc}) of the most critical constituents of the substance.

12.5 Results of PBT and vPvB assessment

This substance is neither fulfilling the criteria for persistent, bio accumulative, and toxic substances (PBT substances), nor the criteria for very persistent and very bio accumulative substances (vPvB-substances).

12.6 Other adverse effects

No further information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of product and product residue in accordance with the instructions of the person responsible for waste disposal. Refer to local waste management regulations and dispose of in accordance with the waste classification.

13.1 Waste treatment methods

All local and national regulations should be followed. Consult regulatory officials for disposal requirement. For or small quantities, 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. This material when discarded is a non-hazardous waste.

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

13.4 Waste from residues / unused products

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

SECTION 14: TRANSPORT INFORMATION

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

14.2 UN number not applicable.



- 14.3 UN proper shipping name** not applicable.
- 14.4 Transport hazard class(es)** not applicable.
- 14.5 Packing group** not applicable.
- 14.6 Environmental hazards:** The substance is classified as non-hazardous to the environment.
- 14.7 Special precautions for Users:**
None.
- 14.8 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
No data available.

SECTION 15: REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
EU Regulation (EC) No. 1907/2006 (REACH)
Annex XIV - List of substances subject to authorization, Substances of very high concern
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- 15.2 Chemical safety assessment**
In accordance with Regulation (EC) No. 1907/2006 (REACH) Article 14, a Chemical Safety Assessment has been carried out for this substance.
- 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.
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 (40CFR 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

HAZCOM Standard Status: This material is not considered to be hazardous by the OSHA Hazard



Communication Standard (29 CFR 1910.1200).

SECTION 16: OTHER INFORMATION

16.1 Additions, Deletions, Revisions

Version **1.0**, all sections aligned with the REACH Chemical Safety Report.

This safety data sheet is drawn up to comply with the requirements of Regulation (EC) No. 1907/2006 (REACH), as amended by Annex II to Commission Regulation (EU) No. 2015/830 of 28 May 2015.

This substance does not legally require an SDS as it is non-hazardous. For that reason, the name of the substance is kept confidential.

16.2 Key or legend to abbreviations and acronyms

AF - Assessment factor

CLP - Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

DNEL - Derived no-effect level

EC50 - Concentration of the substance that causes 50 % reduction of a certain effect on test organisms

EWC - European Waste Catalogue

GLP - Good Laboratory Practice

Koc - Soil adsorption coefficient

LC50 - Concentration of the substance that causes 50 % mortality of the test population

LD50 - Lethal dose of the substance that causes 50 % mortality of the test population

LL50 - Lethal loading rate of the substance that cause 50 % mortality of the test organisms

NOAEL - No observed adverse effect level

NOEC - No observed effect concentration

OECD - Organization for Economic Co-operation and Development

PBT/vPvB - Persistent, bio-accumulative and toxic/ very persistent and very bio-accumulative

PNEC - Predicted no-effect concentration

REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals

STOT RE - Specific Target Organ Toxicity, Repeated Exposure

STOT SE - Specific Target Organ Toxicity, Single Exposure

STP - Sewage treatment plant

TLV - Threshold limit value

16.3 Key literature references and sources for data.

REACH Chemical Safety Report Part B.

All referenced studies within this safety data sheet can be found from the original Chemical Safety Report.

16.4 Classification procedure

In accordance with Regulation (EC) No. 1272/2008 (CLP) this substance has been classified as non-hazardous.

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: Thursday, Jul 6, 2023