

LANDA[®] VAPOR CORROSION INHIBITOR

Safety Data Sheet

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)
Issue date: 10/21/2022 Revision date: 7/15/2025 Supersedes: 10/21/2022 Version: 2.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product code : 1943LAN

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

KARCHER NORTH AMERICA
6398 N Karcher Way
Aurora, 80239
United States
T 303-738-2400
info@karcher.com

1.4. Emergency telephone number

Emergency number : 800-535-5053
For Chemical Emergency Call INFOTRAC 24hr/day 7days/week
Within USA and Canada: 800-535-5053
Outside USA and Canada: 1-352-323-3500
(collect calls accepted)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation, Category 1B	H314	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation, Category 1	H318	Causes serious eye damage.
Full text of H-statements: see section 16		

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US)



Signal word (GHS US)	: Danger
Hazard statements (GHS US)	: H314 - Causes severe skin burns and eye damage
Precautionary statements (GHS US)	: P260 - Do not breathe dusts or mists. P264 - Wash hands, forearms and face thoroughly after handling. P280 - Wear protective gloves, protective clothing, eye and face protection. P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting. P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER, a doctor.

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P321 - Specific treatment (see supplemental first aid instruction on this label).
P363 - Take off immediately all contaminated clothing and wash it before reuse.
P405 - Store locked up.
P501 - Dispose of hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%
MORPHOLINE	CAS-No.: 110-91-8	8.82 – 9.8

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : None under normal conditions.
Symptoms/effects after skin contact : Burns.
Symptoms/effects after eye contact : Serious damage to eyes.
Symptoms/effects after ingestion : Burns.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media : Do not use a heavy water stream.

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5.2. Specific hazards arising from the chemical

Fire hazard	: Heating increases the fire hazard.
Explosion hazard	: No direct explosion hazard.
Hazardous decomposition products in case of fire	: Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Do not handle until all safety precautions have been read and understood. Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear recommended personal protective equipment.
Emergency procedures	: Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures	: Evacuate unnecessary personnel. Stop leak if safe to do so.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Absorb spilled material with sand or earth. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.
Methods for cleaning up	: Take up liquid spill into absorbent material.
Other information	: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling	: Ensure good ventilation of the work station. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.
Hygiene measures	: Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Comply with applicable regulations.
Storage conditions	: Store locked up.
Packaging materials	: Store always product in container of same material as original container.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available

MORPHOLINE 110-91-8

No additional information available

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA	20 ppm
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8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Colour	: Amber
Odour	: Mild odour
Odour threshold	: No data available
pH	: 10.5
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available

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Relative evaporation rate (butylacetate=1)	: No data available
Flammability	: Not applicable.
Vapour pressure	: No data available
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: No data available
Acute toxicity (dermal)	: No data available
Acute toxicity (inhalation)	: No data available

MORPHOLINE (110-91-8)

LD50 oral rat	1900 mg/kg bodyweight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rabbit	500 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male, Experimental value, Dermal, 14 day(s))
ATE US (oral)	1900 mg/kg bodyweight

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MORPHOLINE (110-91-8)	
ATE US (dermal)	500 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

Skin corrosion/irritation	: Causes severe skin burns. pH: 10.5
Serious eye damage/irritation	: Causes serious eye damage. pH: 10.5
Respiratory or skin sensitisation	: No data available
Germ cell mutagenicity	: No data available
Carcinogenicity	: No data available

MORPHOLINE (110-91-8)	
IARC group	3 - Not classifiable
Reproductive toxicity	: No data available
STOT-single exposure	: No data available
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available
Viscosity, kinematic	: No data available
Symptoms/effects after inhalation	: None under normal conditions.
Symptoms/effects after skin contact	: Burns.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Before neutralisation, the product may represent a danger to aquatic organisms.
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MORPHOLINE110-91-8	
LC50 - Fish [1]	380 mg/l (96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	44.5 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Fresh water, Experimental value, Locomotor effect)

12.2. Persistence and degradability

MORPHOLINE110-91-8	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.02 g O ₂ /g substance
ThOD	2.6 g O ₂ /g substance

12.3. Bioaccumulative potential

MORPHOLINE110-91-8	
BCF - Fish [1]	< 2.8 (Equivalent or similar to OECD 305, 6 week(s), Cyprinus carpio, Flow-through system, Fresh water, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	-2.55 – -0.84 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 25 °C)

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MORPHOLINE110-91-8

Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
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12.4. Mobility in soil

MORPHOLINE110-91-8

Surface tension	No data available in the literature
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1.81 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

SECTION 14: Transport information

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Not applicable
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14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT)	: Not applicable
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14.4. Packing group

Packing group (DOT)	: Not applicable
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14.5. Environmental hazards

Other information	: No supplementary information available.
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14.6. Special precautions for user

DOT
No data available

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

Not applicable

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SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

15.2. International regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION 16: Other information

according to 29 CFR § 1910.1200, Hazard Communication Standard (HCS)

Revision date : 7/15/2025

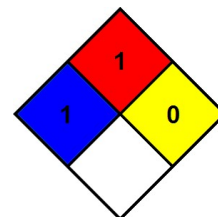
Full text of hazard classes and H-statements

H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard : 1 - Materials that must be preheated before ignition can occur.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection : B - Safety glasses, Gloves

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.