

NITROSYL CHLORIDE

NTC

CAUTIONARY RESPONSE INFORMATION

Common Synonyms	Gas Orange red Choking odor
	Liquid sinks and reacts with water. Poisonous visible vapor cloud is produced.
	Keep people away. AVOID CONTACT WITH LIQUID AND VAPOR. Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves). Evacuate area in case of large discharge. Stay upwind and use water spray to "knock down" vapor. Notify local health and pollution control agencies. Protect water intakes.
Fire	Not flammable. POISONOUS GASES ARE PRODUCED WHEN HEATED. Wear goggles and self-contained breathing apparatus.
Exposure	CALL FOR MEDICAL AID. VAPOR POISONOUS IF INHALED OR IF SKIN IS EXPOSED. Irritating to eyes. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen. LIQUID POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED. Irritating to eyes. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water.
Water Pollution	HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Dilute and disperse
Stop discharge
Chemical and Physical Treatment:
Neutralize

2. CHEMICAL DESIGNATIONS

2.1 CG Compatibility Group: Not listed.
2.2 Formula: NOCl
2.3 IMO/UN Designation: 2.0/1069
2.4 DOT ID No.: 1069
2.5 CAS Registry No.: 2696-92-6
2.6 NAERG Guide No.: 125
2.7 Standard Industrial Trade Classification: 52241

3. HEALTH HAZARDS

- 3.1 **Personal Protective Equipment:** Self-contained breathing apparatus (approved mask may be used for short exposures only); rubberized clothing; gloves; shoes; chemical goggles.
- 3.2 **Symptoms Following Exposure:** Gas is highly toxic. Inhalation causes severe irritation of respiratory tract and damage to mucous membranes. Delayed effects, which include severe pulmonary edema, may not be apparent for several hours.
- 3.3 **Treatment of Exposure:** INHALATION: remove victim to fresh air; call a doctor; enforce complete rest until doctor arrives; observe at least 24 hours for delayed effects. SKIN OR EYES: flush with water for at least 15 min.; consult physician.
- 3.4 **TLV-TWA:** Not listed.
3.5 **TLV-STEL:** Not listed.
3.6 **TLV-Ceiling:** Not listed.
3.7 **Toxicity by Ingestion:** Currently not available
3.8 **Toxicity by Inhalation:** Currently not available.
3.9 **Chronic Toxicity:** None
3.10 **Vapor (Gas) Irritant Characteristics:** Vapors cause severe irritation of eye and throat and can cause eye and lung injury. They cannot be tolerated even at low concentrations.
3.11 **Liquid or Solid Characteristics:** Severe burns to eyes and skin.
3.12 **Odor Threshold:** Currently not available
3.13 **IDLH Value:** Not listed.
3.14 **OSHA PEL-TWA:** Not listed.
3.15 **OSHA PEL-STEL:** Not listed.
3.16 **OSHA PEL-Ceiling:** Not listed.
3.17 **EPA AEGL:** Not listed

4. FIRE HAZARDS

- 4.1 **Flash Point:**
Not flammable
- 4.2 **Flammable Limits in Air:** Not flammable
- 4.3 **Fire Extinguishing Agents:** Not pertinent
- 4.4 **Fire Extinguishing Agents Not to Be Used:** Not pertinent
- 4.5 **Special Hazards of Combustion Products:** Very toxic gases are generated when heated
- 4.6 **Behavior in Fire:** Not pertinent
- 4.7 **Auto Ignition Temperature:** Not flammable
- 4.8 **Electrical Hazards:** Not pertinent
- 4.9 **Burning Rate:** Not flammable
- 4.10 **Adiabatic Flame Temperature:** Currently not available
- 4.11 **Stoichiometric Air to Fuel Ratio:** Not pertinent.
- 4.12 **Flame Temperature:** Currently not available
- 4.13 **Combustion Molar Ratio (Reactant to Product):** Not pertinent.
- 4.14 **Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

5. CHEMICAL REACTIVITY

- 5.1 **Reactivity with Water:** Dissolves and reacts to form acid solution and toxic red oxides of nitrogen.
- 5.2 **Reactivity with Common Materials:** Corrosive to most metals, but reaction is not hazardous.
- 5.3 **Stability During Transport:** Stable
- 5.4 **Neutralizing Agents for Acids and Caustics:** Flush with water. Residual acid may be neutralized with soda ash.
- 5.5 **Polymerization:** Not pertinent
- 5.6 **Inhibitor of Polymerization:** Not pertinent

6. WATER POLLUTION

- 6.1 **Aquatic Toxicity:**
Currently not available
- 6.2 **Waterfowl Toxicity:** Currently not available
- 6.3 **Biological Oxygen Demand (BOD):**
Currently not available
- 6.4 **Food Chain Concentration Potential:**
None
- 6.5 **GESAMP Hazard Profile:**
Bioaccumulation: 0
Damage to living resources: 2
Human Oral hazard: -
Human Contact hazard: II
Reduction of amenities: XX

7. SHIPPING INFORMATION

- 7.1 **Grades of Purity:** 97%
- 7.2 **Storage Temperature:** Ambient
- 7.3 **Inert Atmosphere:** No requirement
- 7.4 **Venting:** Safety relief
- 7.5 **IMO Pollution Category:** Currently not available
- 7.6 **Ship Type:** Currently not available
- 7.7 **Barge Hull Type:** Currently not available

8. HAZARD CLASSIFICATIONS

- 8.1 **49 CFR Category:** Poison gas
- 8.2 **49 CFR Class:** 2.3
- 8.3 **49 CFR Package Group:** Not pertinent.
- 8.4 **Marine Pollutant:** No
- 8.5 **NFPA Hazard Classification:** Not listed
- 8.6 **EPA Reportable Quantity:** Not listed.
- 8.7 **EPA Pollution Category:** Not listed.
- 8.8 **RCRA Waste Number:** Not listed
- 8.9 **EPA FWPCA List:** Not listed

9. PHYSICAL & CHEMICAL PROPERTIES

- 9.1 **Physical State at 15° C and 1 atm:** Gas
- 9.2 **Molecular Weight:** 65.46
- 9.3 **Boiling Point at 1 atm:** 21.6°F = -5.8°C = 267.4°K
- 9.4 **Freezing Point:** -74°F = -59°C = 214°K
- 9.5 **Critical Temperature:** 334.4°F = 168°C = 441.2°K
- 9.6 **Critical Pressure:** 1300 psia = 90 atm = 9.1 MN/m²
- 9.7 **Specific Gravity:** 1.36 at -5.7°C (liquid)
- 9.8 **Liquid Surface Tension:** Not pertinent
- 9.9 **Liquid Water Interfacial Tension:** Not pertinent
- 9.10 **Vapor (Gas) Specific Gravity:** 2.3
- 9.11 **Ratio of Specific Heats of Vapor (Gas):** 1.229
- 9.12 **Latent Heat of Vaporization:** 164 Btu/lb = 91.0 cal/g = 3.81 X 10⁵ J/kg
- 9.13 **Heat of Combustion:** Not pertinent
- 9.14 **Heat of Decomposition:** Not pertinent
- 9.15 **Heat of Solution:** Not pertinent
- 9.16 **Heat of Polymerization:** Not pertinent
- 9.17 **Heat of Fusion:** Currently not available
- 9.18 **Limiting Value:** Currently not available
- 9.19 **Reid Vapor Pressure:** Currently not available

NOTES

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9.20 SATURATED LIQUID DENSITY		9.21 LIQUID HEAT CAPACITY		9.22 LIQUID THERMAL CONDUCTIVITY		9.23 LIQUID VISCOSITY	
Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F	Temperature (degrees F)	British thermal unit inch per hour-square foot-F	Temperature (degrees F)	Centipoise
-20	88.599	-2	0.230		N		N
-18	88.429	0	0.230		O		O
-16	88.270	2	0.230		T		T
-14	88.099	4	0.230				
-12	87.929	6	0.230		P		P
-10	87.770	8	0.230		E		E
-8	87.599	10	0.230		R		R
-6	87.429	12	0.230		T		T
-4	87.271	14	0.230		I		I
-2	87.099	16	0.230		N		N
0	86.929	18	0.230		E		E
2	86.770	20	0.230		N		N
4	86.599				T		T
6	86.440						
8	86.270						
10	86.099						
12	85.941						
14	85.770						
16	85.599						
18	85.440						
20	85.270						

9.24 SOLUBILITY IN WATER		9.25 SATURATED VAPOR PRESSURE		9.26 SATURATED VAPOR DENSITY		9.27 IDEAL GAS HEAT CAPACITY	
Temperature (degrees F)	Pounds per 100 pounds of water	Temperature (degrees F)	Pounds per square inch	Temperature (degrees F)	Pounds per cubic foot	Temperature (degrees F)	British thermal unit per pound-F
R		-35	3.202	-35	0.04598	0	0.158
E		-30	3.723	-30	0.05284	25	0.160
A		-25	4.314	-25	0.06052	50	0.161
C		-20	4.982	-20	0.06910	75	0.163
T		-15	5.735	-15	0.07864	100	0.164
S		-10	6.581	-10	0.08924	125	0.166
		-5	7.528	-5	0.10100	150	0.167
		0	8.588	0	0.11390	175	0.169
		5	9.768	5	0.12820	200	0.170
		10	11.080	10	0.14390	225	0.171
		15	12.540	15	0.16110	250	0.172
		20	14.150	20	0.17980	275	0.173
		25	15.920	25	0.20030	300	0.175
		30	17.880	30	0.22270	325	0.176
		35	20.030	35	0.24690	350	0.177
		40	22.390	40	0.27330	375	0.178
		45	24.970	45	0.30170	400	0.179
		50	27.790	50	0.33250	425	0.180
		55	30.860	55	0.36570	450	0.180
		60	34.210	60	0.40140	475	0.181
		65	37.840	65	0.43980	500	0.182
						525	0.183
						550	0.183
						575	0.184
						600	0.185