

Ansul



60/ANSUL/250/0106/EN

Equipment supplied

The restaurant fire suppression system is a pre-engineered; wet chemical, cartridge-operated,

regulated pressure type with a fixed nozzle agent distribution network. It is listed with Underwriters Laboratories, Inc. (UL).

Operation instructions

The system provides automatic actuation; or it can be actuated manually through a remote pull station. The gas or electrical supply to all protected appliances will be immediately shut off upon actuation of the system, using appropriate gas shut-off or electrical shutdown devices (if fitted, by others).

The R-102 system suppresses fire by spraying the plenum area; the filters, cooking surfaces, and the exhaust duct system with a predetermined flow rate of ANSULEX Low pH Liquid Fire Suppressant. When the liquid agent is discharged onto a cooking appliance fire, it cools the grease surface, and reacts with the hot grease (saponification) forming a layer of soap-like foam on the surface of the fat. This layer acts as insulation between the hot grease and the atmosphere, thus helping to prevent the escape of combustible vapours.

Exhaust fans in the ventilating systems should be left on. The forced draft of these fans assists the movement of the liquid agent through the ventilation system, thus aiding in the fire suppression process. These fans also provide a cooling effect in the plenum and duct after the fire suppression system has been discharged.

It is also recommended that make-up or supply-air fans be shut down upon system actuation. Shutdown of fuel and power to all appliances located under protected ventilating equipment is required upon system actuation (if fitted, by others).

For continued fire protection, the R-102 fire suppression system must be re-charged by an authorized Ansul distributor immediately after a system discharge.

Maintenance instructions

Never use corrosive cleaning solutions on the fusible link or cables.

Check to make certain there is no corrosion to any of the detection system components. Certain high alkaline cleaners could cause corrosion.

Ensure that metal fusible links are replaced at least annually.

Deterioration of these links could cause the system to be actuated or to malfunction in case of a fire.

Make certain the releasing unit has not been tampered with, and that visual inspection seals are not broken or missing.

At daily intervals check your system for loose pipes and missing or grease covered nozzle caps. Make certain nozzle caps are in place over the ends of each nozzle.

Temporarily remove cap, check to make certain it is not brittle, and snap back on nozzle.

Check each metal blow-off cap and make certain the cap can be turned freely on the nozzle.

Periodically check your visual indicator on the releasing unit to make certain the system is cocked.

Have your system inspected by Halton Vent Master

at a maximum of 6-month intervals and immediately after major hood and duct cleaning. Often fusible links are wired shut during the cleaning process to prevent accidental activation. This will prevent the system from operating automatically. It's also possible that your system might have been disconnected, damaged, or has accumulated excessive deposits of grease causing your system to become inoperative. Check that the manual pull station is not obstructed, has not been tampered with, and is ready for operation.

Make certain that each tank and releasing unit is mounted in an area with a temperature range of 32°. Under certain circumstances hood and duct cleaning operations may render the fire suppression system ineffective due to a coating of cleaning chemical left on the detection equipment or mishandling of the system by cleaning service personnel.

Therefore, it is strongly recommended that the R-102 system be completely inspected and serviced by an authorized Ansul distributor immediately following any such cleaning operations.

Technical Performance data and cash sheets: R-102™ Restaurant Fire Suppression Systems

Features

- Low pH Agent
- Proven Design
- Reliable Cartridge Operated
- Aesthetically Appealing
- UL Listed – Meets Requirements of UL 300

Application

The Ansul R-102 Restaurant Fire Suppression System is an automatic, pre-engineered, fire suppression system designed to protect the following areas associated with cooking equipment; ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant charbroilers and woks. The system is ideally suitable for use in restaurants, hospitals, nursing homes, hotels, schools, airports,

and other similar facilities.

Use of the R-102 system is limited to interior applications only. The regulated release and tank assemblies must be mounted in an area where the air temperature will not fall below 32 °F (0 °C) or exceed 130 °F (54 °C). The system must be designed and installed within the guidelines of the UL Listed Design, Installation, Recharge, and Maintenance Manual.

System description

The restaurant fire suppression system is a pre-engineered, wet chemical, cartridge-operated, regulated pressure type with a fixed nozzle agent distribution network. It is listed with Underwriters Laboratories, Inc. (UL).

A system owner's guide is available containing basic information pertaining to system operation and maintenance. A detailed technical manual is also available including system description, design, installation, recharge, and maintenance procedures, plus additional equipment installation and resetting instructions.

The system is installed and serviced by authorized distributors that are trained by the manufacturer. The basic system consists of an ANSUL AUTOMAN regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank housed within a single enclosure. Nozzle blow-off caps, detectors, cartridges, agent, fusible links, and pulley elbows are supplied in separate packages in

the quantities needed for fire suppression system arrangements.

Additional equipment includes remote manual pull station, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic equipment and gas line shut-off. Accessories can be added such as alarms, warning lights, etc., to installations where required.

Tanks can be used in multiple arrangements to allow for larger hazard coverage. Each tank is limited to a listed maximum amount of flow numbers.

The system is capable of automatic detection and actuation and/or remote manual actuation. Additional equipment is available for mechanical or electrical as line shut-off applications.

The detection portion of the fire suppression system allows for automatic detection by means of specific alloy rated fusible links, which, when the temperature exceeds the rating of the link, the link separates, allowing the regulated release to actuate.

Component description

Wet Chemical Agent — The extinguishing agent is a mixture of organic salts designed for rapid flame knockdown and foam securement of grease related fires. It is available in plastic containers with instructions for wet chemical handling and usage.

Agent Tank — The agent tank is installed in a stainless steel enclosure or wall bracket. The tank is constructed of stainless steel.

Tanks are available in two sizes: 1.5 gallon (5.7 L) and 3.0 gallon (11.4 L). The tanks have a working pressure of 100 psi (6.9 bar), a test pressure of 300 psi (20.7 bar), and a minimum burst pressure of 600 psi (41.4 bar).

The tank includes an adaptor/tube assembly. The adaptor is chrome-plated steel with a 1/4 in. NPT female gas inlet and a 3/8 in. NPT female agent outlet. The adaptor also contains a bursting disc seal which prevents the siphoning of agent up the pipe during extreme temperature variations.

Regulated Release Mechanism — The regulated release mechanism is a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks, depending on the capacity of the gas cartridge used. It contains a factory installed regulator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). It has automatic actuation capabilities by a fusible link detection system and remote manual actuation by a mechanical pull station.

The regulated release mechanism contains a release assembly, regulator, expellant gas hose, and agent

storage tank housed in a stainless steel enclosure with cover. The enclosure contains knockouts for 1/2 in. conduit. The cover contains an opening for a visual status indicator.

It is compatible with mechanical gas shut-off devices; or, when equipped with a field or factory-installed switch, it is compatible with electric gas line or appliance shut-off devices.

Regulated Actuator Assembly — When more than two agent tanks are required, the regulated actuator is available to provide expellant gas for additional tanks. It is connected to the cartridge receiver outlet of the regulated release mechanism providing simultaneous agent discharge. It contains a regulated actuator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). It has automatic actuation capabilities by a fusible link detection system and remote manual actuation by a mechanical pull station.

The regulated actuator assembly contains a regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure contains knockouts to permit installation of the expellant gas line.

Discharge Nozzles — Each discharge nozzle is tested and listed with the R-102 system for a specific application. Nozzle tips are stamped with the flow number designation (1/2, 1, 2, and 3). Each nozzle must have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease build-up.

Approvals

Applicable Standards: ULI listed under EX-3470; ULC listed under CEX-747; meets requirements of NFPA 96 (Standard for the Installation of Equipment for the

Removal of Smoke and Grease-Laden Vapours from Commercial Cooking Equipment); NFPA 17A (Standard on Wet Chemical Extinguishing Systems).

Ordering information

Order all system components through your local authorized Ansul Distributor.

Specifications

Ansul R-102 Fire Suppression System shall be furnished. The system shall be capable of protecting all hazard areas associated with cooking equipment.

1.0 General

1.1 References

- 1.1.1 Underwriters Laboratories, Inc. (UL)
 - 1.1.1.1 UL Standard 1254
 - 1.1.1.2 UL Standard 300
- 1.1.2 National Fire Protection Association (NFPA)
 - 1.1.2.1 NFPA 96
 - 1.1.2.2 NFPA 17A

1.2 Submittals

- 1.2.1 Submit two sets of manufacturer's data sheets
- 1.2.2 Submit two sets of piping design drawings

1.3 System Description

- 1.3.1 The system shall be an automatic fire suppression system using a wet chemical agent for grease related fires.
- 1.3.2 The system shall be capable of suppressing fires in the following areas associated with cooking equipment: ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant char-broilers.
- 1.3.3 The system shall be the pre-engineered type having minimum and maximum guidelines established by the manufacturer and listed by Underwriters Laboratories, Inc. (UL).
- 1.3.4 The system shall be installed and serviced by personnel trained by the manufacturer.
- 1.3.5 The system shall be capable of protecting cooking appliances by utilizing either dedicated appliance protection and/or overlapping appliance protection.

1.4 Quality Control

- 1.4.1 Manufacturer: The R-102 Restaurant Fire Suppression System shall be manufactured by a company with at least thirty years experience in the design and manufacture of preengineered fire suppression systems. The manufacturer shall be ISO 9001 registered.
- 1.4.2 Certificates: The wet agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.8 - 8.2, designed for flame

knockdown and foam securement of grease- related fires.

1.5 Warranty, Disclaimer, and Limitations

- 1.5.1 The pre-engineered restaurant fire suppression system components shall be warranted for five years from date of delivery against defects in workmanship and mate.

1.6 Delivery

- 1.6.1 Packaging: All system components shall be securely packaged to provide protection during shipment.

1.7 Environmental Conditions

- 1.7.1 The R-102 system shall be capable of operating in a temperature range of 32 °F to 130 °F (0 °C to 54 °C).

2.0 product

2.1 Manufacturer

- 2.1.1 Ansul Fire Protection, One Stanton Street, Marinette, Wisconsin 54143-2542, Telephone (715) 735-7411.

2.2 Components

- 2.2.1 The basic system shall consist of an ANSUL AUTOMAN regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank housed within a single enclosure. Nozzles, blow-off caps, detectors, cartridges, agent, fusible links, and pulley elbows shall be supplied in separate packages in the quantities needed for fire suppression system arrangements. Additional equipment shall include remote manual pull station, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic equipment and gas line shut-off.
- 2.2.2 Wet Chemical Agent: The extinguishing agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.8 – 8.2, designed for flame knockdown and foam securement of grease related fires.
- 2.2.3 Agent Tank: The agent tank shall be installed in a

stainless steel enclosure or wall bracket. The tank shall be constructed of stainless steel. Tanks shall be available in two sizes; 1.5 gallon (5.7 L) and 3.0 gallon (11.4 L). The tanks shall have a working pressure of 100 psi (6.9 bar), a test pressure of 300 psi (20.7 bar), and a minimum burst pressure of 600 psi (41.4 bar). The tank shall include an adaptor/tube assembly containing a burst disc union.

2.2.4 Regulated Release Mechanism: The regulated release mechanism shall be a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks depending on the capacity of the gas cartridge used. It shall contain a factory installed regulator deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar).

It shall have the following actuation capabilities: automatic actuation by a fusible link detection system and remote manual actuation by a mechanical pull station.

The regulated release mechanism shall contain a release assembly, regulator, expellant gas hose, and agent storage tank housed in a stainless steel enclosure with cover. The enclosure shall contain knock-outs for 1/2 in. conduit. The cover shall contain an opening for a visual status indicator.

It shall be compatible with mechanical gas shut-off devices; or, when equipped with a field or factory-installed switch, it shall be compatible with electric gas line or appliance shut-off devices.

2.2.5 Regulated Actuator Assembly: When more than two agent tanks are required, the regulated actuator shall be available to provide expellant gas for additional tanks. It shall be connected to the cartridge receiver outlet of the regulated release mechanism providing simultaneous agent discharge.

The regulator shall be deadset at 100 psi (6.9 bar) with an internal relief of approximately 145 psi (10.0 bar). The regulated actuator assembly shall contain a regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure shall contain knockouts to permit installation of the expellant gas line.

2.2.6 Discharge Nozzles: Each discharge nozzle shall be tested and listed with the R-102 system for a specific application. Nozzles tips shall be stamped with the flow number designation (1/2, 1, 2, and 3). Each nozzle shall have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease build-up.

2.2.7. Distribution Piping: Distribution piping shall be Schedule 40 black iron, chrome-plated, or stainless steel pipe

conforming to ASTM A120, A53, or A106.

2.2.8. Detectors: The detectors shall be the fusible link style designed to separate at a specific temperature.

2.2.9. Cartridges: The cartridge shall be a sealed steel pressure vessel containing either carbon dioxide or nitrogen gas. The cartridge seal shall be designed to be punctured by the releasing device supplying the required pressure to expel wet chemical agent from the storage tank.

3.0 implementation

3.1 Installation

3.1.1 The R-102 fire suppression system shall be designed, installed, inspected, maintained, and recharged in accordance with the manufacturer's listed instruction manual.

3.2 Training

3.2.1 Training shall be conducted by representatives of the manufacturer.

R-102 FLUSHING CONCENTRATE MATERIAL SAFETY DATA SHEET ACCORDING TO 91/155/EEC**ANSUL INCORPORATED MARINETTE, WI 54143-2542**

60/ANSUL/250/0106/EN

I. Identification of the Substance / Preparation and of the Company

- I.1 Trade Name: R-102 Flushing Concentrate
 I.2 Manufacturer/ Supplier: ANSUL INCORPORATED
 Address: One Stanton Street, Marinette, WI 54143-2542
 Prepared by: Health and Safety Department
 Internet /Home Page Address: <http://www.ansul.com>
 I.3 Emergency Phone Number: CHEMTREC 800-424-9300 or (703) 527-3887

II. Composition / Information on Ingredients

- II.1 Chemical Formula: N/A CAS No.: N/A
 Chemical Name: N/A This is a mixture Chemical Family: Mixture

II.2 Substances with Exposure Limits:

Component(s) (chemical and common name(s))	Wt. %	CAS No.	Acute Toxicity Data
Potassium Carbonate	30-35	584-08-7	Oral LD50(rat)1870 mg/kg
Potassium Acetate	18	127-08-2	Oral LD2(rat)3250 mg/kg
Yellow Food Colour	344 ppm	N/E	NDA
Water	Approx 50	7732-18-5	NDA

III. Hazards Identification

- III.1 For Humans:
 Threshold Limit Value: None Established
 Routes of Entry:
 Eye Contact: Irritant. Prolonged contact can cause chemical burns
 Skin Contact: Irritant. Prolonged contact can cause chemical burns
 Inhalation: Not an expected route
 Ingestion: Irritating to mucous membrane of entry.
 Signs and Symptoms: Acute Overexposure; Due to alkaline nature, Material irritates skin, eyes and mucous membrane. Prolonged contact may cause skin burns.
 Chronic Exposure: None Known
 Medical Conditions Generally: None Known
 Chemical Listed as: National Toxicology Program: I.A.R.C. Monographs:
 OSHA:
 Carcinogen or Potential: Yes No Yes No Yes No

IV. First Aid Measures

- IV.1 Inhalation: Fresh air if symptoms occur. Seek Medical attention if irritation persists
 IV.2 Eye Contact: Flush and irrigate with water for 15 minutes while holding eyelids open. If irritation persists, seek Medical attention
 IV.3 Skin Contact: Wash thoroughly with soap and water. If irritation persists, seek medical attention
 IV.4 Ingestion: Dilute by drinking large quantities of water

V. Fire-Fighting Measures

- Special Fire Fighting Procedures: None
 Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

- VI.1 Personal Precautions:
 Protective Gloves: Rubber gloves for spill/leak
 Eye Protection: Chemical goggles recommended during flushing procedures
 VI.2 Environmental Precautions:
 Steps to be taken in Case: Stop leaks. Contain Spill. Remove as much as possible. Place in closed container for proper disposal. Wash spill area with large amounts of water to remove traces and neutralize.
 Material is released or spilled:
 VI.3 Clean-Up Methods: Dispose of in compliance with local, state and federal regulations

VII Storage and Handling

VII.1 Precautions to be taken In Handling and Storage: Store in original container. Keep tightly closed. Keep separate from acid.

VIII Exposure Controls / Personal Protection

VIII.1 Breath Protection: N/A
 VIII.2 Hand Protection: Protective Gloves: Rubber gloves for spill/leak
 VIII.3 Eye Protection: Chemical goggles recommended during flushing procedures
 VIII.4 Body Protection: Other Protected Clothing or Equipment: Eye wash and safety showers are good safe practices

IX Physical and Chemical Properties

IX.1 Appearance and Odour: Yellow coloured liquid, mild odour
 IX.2 Boling Point: 113° C Specific Gravity (H²O)=1): 1.53
 IX.3 Vapour Pressure (mm Hg): Not Determined Percent Volatile by Volume(%): 50
 IX.4 Vapour Density (Air =1): 1.03 Evaporation Rate (Butyl Acetate = 1): Approx 0.005
 IX.5 Solubility in Water: 100% Reactivity in Water: Mild exothermic
 IX.6 Flash point: None to boiling Flammable Limits in Air % by Vol: N/A

X Stability and Reactivity

X.1 Conditions to Avoid: Stability: Unstable [] Conditions to Avoid: N/A
 Stable [x]
 X.2 Hazardous Polymerisation May Occur []
 Will Not Occur [x]
 X.3 Materials to Avoid: Incompatibility (Materials to Avoid): Reactive metals, CIF3, electrically energized equipment, Any material reactive with water
 Hazardous Decomposition Products: Not established, acrid fumes

XI Ecological Information

XI.1 Degradability: Not Determined, materials not considered to be aquatic pollutant
 XI.2 Environmental Impact Rating: Not Determined, materials not considered to be aquatic pollutant
 XI.3 Acute Aquatic Toxicity: Not Determined, materials not considered to be aquatic pollutant
 XI.4 Other Indications: Not Determined, materials not considered to be aquatic pollutant

XII Other Information

XII.1 Further Information: Contact Ansul Incorporated

I. Identification of the Substance / Preparation and of the Company

I.1 Trade Name: ANSULEX Low pH Liquid Fire Suppressant
 I.2 Manufacturer/ Supplier: ANSUL INCORPORATED
 Address: One Stanton Street, Marinette, WI 54143-2542
 Prepared by: Health and Safety Department
 Internet /Home Page Address: <http://www.ansul.com>
 I.3 Emergency Phone Number: CHEMTREC 800-424-9300 or (703) 527-3887

II. Composition / Information on Ingredients

II.1 Chemical Formula: N/A CAS No.: N/A
 Chemical Name: N/A This is a mixture Chemical Family: Mixture
 II.2 Substances with Exposure Limits:

Component(s) (chemical and common name(s))	Wt. %	CAS No.	Acute Toxicity Data
Proprietary mixture of organic and inorganic salts and water			NDA
Phosphoric Acid	0.2	7664-38-2	
EDTA	0.65	64-02-8	
Yellow – Green Fluorescent Dye	0.011	518-47-8	Oral LD50 (rat)6800 mg/kg

III. Hazards Identification

III.1 For Humans:
 Threshold Limit Value None Established
 Routes of Entry:
 Eye Contact: Irritant
 Skin Contact: Irritant
 Inhalation: Not an expected route
 Ingestion: Irritating to mucous membrane of entry.
 Signs and Symptoms: Acute Overexposure; Material irritates skin, eyes and mucous membrane
 Chronic Exposure: None Known
 Medical Conditions Generally: None Known
 Chemical Listed as: National Toxicology Program: I.A.R.C. Monographs: OSHA:
 Carcinogen or Potential: [] Yes [x] No [] Yes [x] No [] Yes [x] No

IV First Aid Measures

IV.1 Inhalation: Fresh air if symptoms occur. Seek Medical attention if irritation persists
 IV.2 Eye Contact: Flush and irrigate with water for 15 minutes while holding eyelids open. If irritation persists, seek Medical attention
 IV.3 Skin Contact: Wash thoroughly with soap and water. If irritation persists, seek medical attention
 IV.4 Ingestion: Dilute by drinking large quantities of water

V. Fire-Fighting Measures

Special Fire Fighting Procedures: NONE-THIS IS AN EXTINGUISHING AGENT
 Unusual Fire and Explosion Hazards: None

VI. Accidental Release Measures

VI.1 Personal Precautions:
 Protective Gloves: Rubber gloves for spill/leak
 Eye Protection: Chemical goggles recommended during spill/leak procedures
 VI.2 Environmental Precautions:
 Steps to be taken in Case Material is released or spilled: Stop leaks. Contain Spill. Remove as much as possible. Place in closed container for proper disposal. Wash spill area with large amounts of water to remove traces and neutralize.
 VI.3 Clean-Up Methods: Dispose of in compliance with local, state and federal regulations

VII Storage and Handling

- VII.1 Precautions to be taken In Handling and Storage: Store in original container. Keep tightly closed. Keep separate from acid.
- VIII Exposure Controls / Personal Protection
- VIII.1 Breath Protection: N/A
- VIII.2 Hand Protection: Protective Gloves: Rubber gloves for spill/leak
- VIII.3 Eye Protection: Chemical goggles recommended during spill/leak procedures
- VIII.4 Body Protection: Other Protected Clothing or Equipment: Eye wash and safety showers are good safe practices

IX Physical and Chemical Properties

- IX.1 Appearance and Odour: Fluorescent Yellow coloured liquid, mild odour
- IX.2 Boling Point: 113° C Specific Gravity (H2O)=1): 1.33
- IX.3 Vapour Pressure (mm Hg): Not Determined Percent Volatile by Volume(%): 50
- IX.4 Vapour Density (Air =1): 1.03 Evaporation Rate (=1): 0.13
- IX.5 Solubility in Water: 100% Reactivity in Water: Mild exothermic
- IX.6 Flash point: None to boiling Flammable Limits in Air % by Vol: N/A

X Stability and Reactivity

- X.1 Conditions to Avoid: Stability: Unstable [] Stable [x] Conditions to Avoid: N/A
- X.2 Hazardous Polymerisation: May Occur [] Will Not Occur [x]
- X.3 Materials to Avoid: Incompatibility (Materials to Avoid): Reactive metals, ClF3, electrically energized equipment, Any material reactive with water
Hazardous Decomposition Products: Not established, acrid fumes

XI Toxicology Information

- XI.1 Toxicology Information: LC50> 5000 mg/kg oral rat.

XII Ecological Information

- XII.1 Degradability: Not Determined, materials not considered to be aquatic pollutant
- XII.2 Environmental Impact Rating: Not Determined, materials not considered to be aquatic pollutant
- XII.3 Acute Aquatic Toxicity: Not Determined, materials not considered to be aquatic pollutant
- XII.4 Other Indications: Not Determined, materials not considered to be aquatic pollutant

XIII Other Information

- XIII.1 Further Information: Contact Ansul Incorporated

NITROGEN MATERIAL SAFETY DATA SHEET ACCORDING TO 91/155/EEC**ANSUL INCORPORATED MARINETTE, WI 54143-2542**

60/ANSUL/250/0106/EN

I. Identification of the Substance / Preparation and of the Company

- I.1 Trade Name: NITROGEN
- I.2 Manufacturer/ Supplier: ANSUL INCORPORATED
 Address: One Stanton Street, Marinette, WI 54143-2542
 Prepared by: Health and Safety Department
 Internet /Home Page Address: <http://www.ansul.com>
- I.3 Emergency Phone Number: CHEMTREC 800-424-9300 or (703) 527-3887

II. Composition / Information on Ingredients

- II.1 Chemical Formula: N₂ CAS No.: 7727-37-9
 Chemical Name: Nitrogen Chemical Family: Gas
- II.2 Substances with Exposure Limits:
- | Component(s) (chemical and common name(s)) | Wt. % | CAS No. | Acute Toxicity Data |
|--|-------|-----------|---------------------|
| Nitrogen | 100 | 7727-37-9 | NDA |

III. Hazards Identification

- III.1 For Humans:
- Threshold Limit Value: None Listed
- Routes of Entry:
- Eye Contact: Avoid contact with liquefied form of N₂. Can produce chilling sensation and discomfort, also frostbite.
- Skin Contact: Evaporation of liquid from the skin can cause a chilling sensation. Frostbite can occur. Avoid N₂ liquid.
- Inhalation: In high concentrations, it is a simple asphyxiant – dizziness, shortness of breath, unconsciousness, or suffocation may occur
- Ingestion: Ingestion is not likely to occur since this material is gas at room temperature
- Signs and Symptoms: Acute Overexposure; Dizziness, headaches, tinnitus, difficulty breathing
 Drowsiness, depending on length of exposure and concentrations
 Chronic Exposure; Compressed air illness
- Medical Conditions Generally: None Known
- Chemical Listed as: National Toxicology Program: I.A.R.C. Monographs: OSHA:
 Carcinogen or Potential: [] Yes [x] No [] Yes [x] No [] Yes [x] No

IV. First Aid Measures

- IV.1 Inhalation: Fresh air if symptoms occur. If cough or other respiratory symptoms occur, consult medical personnel. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Consult medical personnel
- IV.2 Eye Contact: Flush and irrigate with water for 15 minutes while holding eyelids open. If redness, itching or burning sensation develops, get Medical attention. Treat for frostbite if necessary
- IV.3 Skin Contact: Wash the material off the skin with copious amounts of soap and water for at least 15 minutes. If redness, itching or burning sensation develops get Medical attention. Treat for frostbite if necessary
- IV.4 Ingestion: Ingestion is not likely to occur as material is gas at room temperature

V. Fire-Fighting Measures

- Special Fire Fighting Procedures: Though gas cylinders are equipped with pressure and temperature relief devices, they should be removed from high temperatures or fire to avoid risk of rupture
- Unusual Fire and Explosion Hazards: None

NITROGEN MATERIAL SAFETY DATA SHEET ACCORDING TO 91/155/EEC**ANSUL INCORPORATED MARINETTE, WI 54143-2542**

60/ANSUL/250/0106/EN

VI. Accidental Release Measures

- VI.1 Personal Precautions:
 Protective Gloves: Protective gloves for contact with liquid
 Eye Protection: Chemical goggles recommended when handling liquid. Full face shield if splashing is possible
- VI.2 Steps to be taken in Case Material is released or spilled: Ventilate to outside
- VI.3 Waste Disposal Method: Dispose of in compliance with local, state and federal regulations

VII Storage and Handling

- VII.1 Precautions to be taken In Handling and Storage: Store containers in a clean, dry well-ventilated area, away from heat above 125°F. Store as a compressed gas in DOT approved vessels. If cylinder is not attached to a system, it must be safely capped to protect against violent vessel movement or force of escaping gas if valve is actuated or seal is accidentally puncture

VIII Exposure Controls / Personal Protection

- VIII.1 Breath Protection: N/A
- VIII.2 Hand Protection:
 Protective Gloves: Rubber gloves for contact with liquid
- VIII.3 Eye Protection: Chemical goggles recommended during handling. Full face shield if splashing is possible
- VIII.4 Body Protection:
 Other Protected Clothing or Equipment: Protective clothing for contact with liquid

IX Physical and Chemical Properties

- IX.1 Appearance and Odour: Colourless gas with no odour
- IX.2 Boling Point: -195.8° C Specific Gravity (H₂O)=1):N/A
- IX.3 Vapour Pressure (mm Hg): Not Determined Percent Volatile by Volume(%): 100
- IX.4 Vapour Density (Air =1): 0.98 Evaporation Rate (=1): N/A
- IX.5 Solubility in Water: Slight Reactivity in Water: Slight-forms N₂CO₃
- IX.6 Flash point: None Flammable Limits in Air % by Vol: N/A

X Stability and Reactivity

- X.1 Conditions to Avoid: Stability: Unstable [] Conditions to Avoid: N/A
 Stable [x]
- X.2 Hazardous Polymerisation May Occur []
 Will Not Occur [x]
- X.3 Materials to Avoid:
 Incompatibility (Materials to Avoid): Can react violently with Li, Nd, Ti under proper conditions
 Hazardous Decomposition Products: None

XI Toxicology Information

- XI.1 Toxicology Information: LC50> 5000 mg/kg oral rat.

XII Ecological Information

- XII.1 Degradability: Not Determined, materials not considered to be aquatic pollutant
- XII.2 Environmental Impact Rating: Not Determined, materials not considered to be aquatic pollutant
- XII.3 Acute Aquatic Toxicity: Not Determined, materials not considered to be aquatic pollutant
- XII.4 Other Indications: Not Determined, materials not considered to be aquatic pollutant

XIII Other Information

- XIII.1 Further Information: Contact Ansul Incorporated