P/N 06-237620-001
June 2020, Rev. AB

Kidde Fire Systems Natura™ Inert Gas Fire Suppression System

Owner's Manual
with FM Approval and UL Listing

EXPORT INFORMATION (USA)
Jurisdiction: EAR
US ECCN: EAR99
This document contains technical data subject to the EAR

FOREWORD

This manual is written for those who own or are responsible for Kidde Fire Systems Natura™ Inert Gas Fire Suppression System (Natura IGS system) with IG-01, IG-55, IG-100, or IG-541 or IG-100 (herein refer to collectively as the "Agent") manufactured after June 2018.

IMPORTANT

Kidde Fire Systems assumes no responsibility for the application of any systems other than those addressed in this manual. The technical data contained herein is limited strictly for information purposes only. Kidde Fire Systems believes this data to be accurate, but it is published and presented without any guarantee or warranty whatsoever. Kidde Fire Systems disclaims any liability for any use that may be made of the data and information contained herein by any and all other parties.

The Natura IGS System is to be designed, installed, inspected, maintained, tested and recharged by authorized, trained personnel in accordance with the following:

- Standard of the National Fire Protection Association No. 2001, Edition 2015 titled Clean Agent Fire Extinguishing Systems.
- Standard of Gaseous Fire Extinguishing Systems from International Organization for Standardization (ISO 14520)
- Standard of Fixed Fire Fighting Systems – Gas Extinguishing Systems from the British Standards and Codes of Practice for the Fire Industry (BS EN 15004-1)
- All instructions, limitations, etc. contained in this manual and in the Kidde Fire Systems® Inerts Gas Engineered Fire Suppression System Design, Installation, Operation and Maintenance Manual with FM Approval (Natura IGS DIOM), P/N 06-237619-001.
- All information contained on the system cylinder nameplate(s).

Storage, handling, transportation, service, maintenance, recharge and test of agent storage cylinders shall be performed only by qualified and trained personnel in accordance with the information in this manual and Compressed Gas Association pamphlets C-1, C-6 and P-1:

- C-1, Methods for Hydrostatic Testing of Compressed Gas Cylinders.
- C-6, Standards for Visual Inspection of Compressed Gas Cylinders.
- P-1, Safe Handling of Compressed Gases In Containers.

The system must be designed, installed, operated and maintained only in accordance with the following documents and specifications:

- Natura IGS DIOM, P/N 06-237619-001, available from the Kidde Fire Systems distributor or from Kidde Fire Systems directly.
- CGA pamphlets are published by the Compressed Gas Association: http://www.cganet.com
- National Fire Protection Association Standard No. 2001, Edition 2015, available from:

  www.NFPA.org
- ISO Standard of Gaseous Fire Extinguishing Systems available from:

  www.ISO.org
- British Standards and Codes of Practice for the Fire Industry are available from:

  www.bsigroup.com

Questions concerning the information presented in this manual should be addressed to:

Kidde Fire Systems
400 Main Street
Ashland, MA 01721
Phone: (508) 881-2000
Fax: (508) 881-8920
www.kiddefiresystems.com
Email: Kidde_techsupport@fs.utc.com

ATTENTION INSTALLERS

This form must be signed by the system owner indicating that he/she has received a copy of this Owner's Manual, P/N: 06-237620-001. Have the system installer fill in this form. Retain a copy of this form for your records.

1. System Installed:

_____

_____

_____

_____

_____

2. Listing of Major System Components:

_____

_____

_____

_____

_____

_____

3. Description of Hazard Protected by System:

_____

_____

_____

_____

_____

_____

Owner or Authorized Representative

Date

_____

Title

_____

SAFETY SUMMARY

Safety precautions are essential whenever electrical or mechanical equipment is involved. Take precautions when handling, servicing and/or charging agent Fire Suppression Systems Cylinders. Using this equipment with the respect and caution demanded will considerably lessen the possibility of personal injury. If safety precautions are overlooked or ignored, personal injury or property damage could occur.

The following symbols are used throughout this manual. Always heed these precautions. They are essential to the safe use of the equipment described in this manual.

DEFINITIONS

WARNING — **The warning symbol identifies immediate hazards and provides specific instructions or procedures which if not correctly followed will result in severe personal injury or death.**

CAUTION — **This caution symbol identifies specific instructions or procedures which if not correctly followed could result in minor personal injury or equipment or property damage.**

The following safety precautions should always be followed:

WARNING — **Pressurized (charged) cylinders are capable of violent discharge and, as such, are extremely hazardous. Pressurized cylinders must be handled safely to avoid accidents that could cause bodily injury, death, or property damage.**

1. Read and understand this manual and the other documents referenced herein.
2. The valve Anti-recoil Safety Cap and Safety Transport Cap, Guard, or Shroud **MUST** be installed on the cylinder valve at all times and only removed when installed or performing charging, testing, or salvaging operations in accordance with the procedures contained in this manual.
3. Wear all proper personal protective equipment (PPE) when working with pressurized cylinders and charging equipment
4. Make sure that all release units or slave gauge cylinders have been removed from the cylinder valves before transportation. Ensure the Anti-recoil safety cap is installed before performing any charging, leak tests or salvage operations.

Don't get careless. Never assume a cylinder is empty. Treat all cylinders as if they are fully charged.

Smoking is prohibited in agent and nitrogen fill and charging areas.

SAFETY DATA SHEETS

Hard copies of the Safety Data Sheets (SDS) are not included with this manual. The latest version of the SDS can also be found online at the Kidde Fire Systems website (www.kiddefiresystems.com). Use the built-in navigation links to view the desired sheet.

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CHAPTER 1
GENERAL INFORMATION

1-1 INTRODUCTION

This document is provided to instruct and familiarize the owner with the Kidde Fire Systems Natura™ Inert Gas Fire Suppression System (Natura IGS system) with IG-100, IG-541, IG-55, or IG-01 or IG-55 (herein refer to collectively as the "Agent"). This manual covers:

- Information about the system
- How the Natura IGS system operates
- How the agents works
- Instructions in case of fire
- Post-operation instructions
- Inspection and maintenance of the system
- Responsibilities and related equipment requirements

Important: This owner's manual does not cover every detail of step-by-step installation procedures for the Natura IGS systems.

The system consists of components tested within the limitations defined in the detailed Natura IGS DIOM, P/N 06-237619-001. The system designer must be consulted whenever changes are planned for the system or area of protection.

A certified Kidde Fire Systems distributor must be consulted after the system has been discharged. The technical data contained herein is limited strictly for informational purposes only.

CAUTION

It is the owner's responsibility to read, understand, and follow the instructions in this manual and to ensure correct system operation and personnel safety.

Follow the instructions in this manual and on the cylinder nameplates. Review this information semi-annually, or as needed. Place this manual in an accessible place near the fire suppression system for ready reference.

Kidde Fire Systems believes this data to be accurate, however, it is published and presented without any guarantee or warranty whatsoever. Kidde Fire Systems disclaims any liability for the information contained herein by any, and all, other parties.

NAME OF KIDDE FIRE SYSTEMS DISTRIBUTOR IS:

_____

ENTER EMERGENCY NUMBER FOR THE LOCAL FIRE DEPARTMENT HERE:

_____

Before handling Kidde Fire Systems products, all personnel must be trained in the safe handling of the cylinders as well as in the correct procedures for installation, removal, filling and connection of other critical devices, such as solenoids, cable assemblies, pressure switches and safety caps. READ, UNDERSTAND and ALWAYS FOLLOW the operation and maintenance manuals, owner's manuals, service manuals, etc., that are provided with the individual systems.

1-2 SAFE CYLINDER HANDLING PROCEDURES

WARNING

Pressurized (charged) cylinders are capable of violent discharge and, as such, are extremely hazardous. Pressurized cylinders must be handled safely to avoid accidents that could cause bodily injury, death, or property damage.

Before handling Natura IGS products, all personnel must be trained in the safe handling of the containers as well as in the proper procedures for installation, removal, filling, and connection of other critical devices, such as flex hoses; actuation devices; pressure monitoring devices; transportation safety caps, guards, or shrouds; and anti-recoil devices.

READ, UNDERSTAND and ALWAYS FOLLOW the design, installation, operation and maintenance manuals, owners manuals, service manuals, etc., that are provided with the individual systems.

WARNING

The instructions contained in this foreword and throughout the manual must be followed in the exact sequence as written to prevent serious injury, death, or property damage.

1-2.1 Transporting Container

Containers must be shipped securely either upright in steel stillages or horizontally on pallets using a minimum of 3 bands to secure the container/s to the pallet.

On site, containers must not be rolled, dragged, or slid, nor allowed to be slid from tailgates of vehicles. A suitable hand truck, fork truck, single cylinder trolley, roll platform, or similar device must be used.

1-2.2 Rough Handling

Containers must not be dropped or permitted to strike violently against each other or other surfaces.

1-2.3 Storage

Containers must be stored standing upright where they are not likely to be knocked over or the containers must be secured.

1-2.4 Anti-recoil safety cap

- Each Agent cylinder is factory equipped with an anti-recoil safety cap installed on the valve discharge outlet, and securely fixed to the valve via a stainless steel, PVC coated cable to prevent loss. This device is a safety feature, and will prevent discharge when installed if the cylinder is actuated accidentally.
- The anti-recoil safety cap must be installed on the valve outlet AT ALL TIMES except when the cylinders are connected into the system piping.

1-2.5 Safety Transportation Cap, Guard, or Shroud

The Safety Transportation cap, guard, or shroud is factory installed on the cylinder. The safety transportation cap, guard, or shroud covers the cylinder valve to protect it during transportation and handling. No attachments (release unit or slave gauge assemblies) are to be connected to the cylinder valve during shipment, storage, or handling.

For additional information on safe handling of compressed gas cylinders, see CGA Pamphlet P1 titled "Safe Handling of Compressed Gases in Containers." CGA pamphlets may be purchased from the Compressed Gas Association: http://www.cganet.com.

1-3 ABOUT THE SYSTEM

The fire suppression system is designed for suppression of the fire classes listed in Table 1-1. Different standards have different fire classifications.

Table 1-1. Fire Classifications

Description	European Standard	NFPA Standard	Asia
Combustible materials (wood, paper, fabric, refuse)	Class A	Class A	Class A
Flammable liquids	Class B	Class B	Class B
Flammable gas	Class C	Class B	Class C
Electrical fire	not classified (formerly Class E)	Class C	Class E

1-4 AGENTS OVERVIEW

Natura IGS systems are approved for use with the following four Agents:

- IG-100: Fixed fire extinguishing systems that use the pure inert gas Nitrogen
- IG-541: Fixed fire extinguishing systems that use inert, gaseous mixture of 52% Nitrogen, 40% Argon, and 8% Carbon Dioxide
- IG-55: Fixed fire extinguishing systems that use inert, gaseous mixture of 50% Nitrogen and 50% Argon
- IG-01: Fixed fire extinguishing systems that use the pure inert gas Argon

The gases used in Natura IGS systems occur naturally within the earth’s atmosphere. Carbon Dioxide constitutes approximately 0.04%, Nitrogen constitutes approximately 78%, and Argon approximately 0.9% of the atmosphere. As a result, the global warming effect of the Natura IGS systems is zero, the Ozone depleting factor is zero, and the atmospheric lifetime is not a consideration as the gases are benign to the environment.

1-4.1 Agent Safety Concentrations

Natura IGS agents are used at relatively high concentrations to extinguish fires, typically in the range of 40 to 50% agent in air, or more. At a Natura IGS agent concentration of 45%, the residual oxygen concentration is 11.5%, compared with 21% in normal air. The principal health risk from exposure to atmospheres having such low oxygen concentrations is "hypoxia," meaning insufficient oxygen concentration in the blood. The resulting guidelines for exposures to atmospheres flooded with Natura IGS agents are as follows:

- Unnecessary exposure to Natura IGS agent systems resulting in low oxygen atmospheres shall be avoided.
- The maximum exposure time in any case shall not exceed 5 minutes.
- Unprotected personnel shall not enter the area during or after Agent discharge.

The following additional provisions shall apply:

- Natura IGS systems designed to concentrations below 43 percent (corresponding to an oxygen concentration of 12 percent, sea level equivalent of oxygen) shall be permitted where means are provided to limit exposure to no longer than 5 minutes.
- Natura IGS systems designed to concentrations between 43 and 52 percent (corresponding to between 12 and 10 percent oxygen, sea level equivalent of oxygen) shall be permitted where means are provided to limit exposure to no longer than 3 minutes.

- Natura IGS systems designed to concentrations between 52 and 62 percent (corresponding to between 10 and 8 percent oxygen, sea level equivalent of oxygen) shall be permitted given the following:
  - The space is normally unoccupied
  - Where personnel could possibly be exposed, means are provided to limit the exposure to less than 30 seconds
- Natura IGS systems designed to concentrations above 62 percent (corresponding to 8 percent oxygen or below, sea level equivalent of oxygen) shall be used only in unoccupied areas where personnel are not exposed to such oxygen depletion.

Note: The term "…sea level equivalent of oxygen…," used above, deserves some clarification. The allowed exposure limit to air diluted with Natura IGS agents relates to the residual oxygen concentration. At sea level the atmospheric pressure is 14.7 psi (101,325 Pa). The sea level equivalent of oxygen is the "partial pressure" of oxygen in air when the atmospheric pressure is 14.7 psi. The volume fraction of air that is oxygen is 0.21, or 21%. Thus, at sea level the partial pressure of oxygen in air is 3.09 psi (21,290 Pa). Thus, the provisions outlined above can be summarized in as shown in Table 1-2.

Table 1-2. Egress time limits for spaces flooded with an Natura IGS Agent

Agent Conc. vol %	**% O_2 at Sea Level**	**P_{O2}, psi**	**Allowed Occupancy**	**Egress Time Limit**
C < 43	**%O_2** > 12	**P_{O2}** > 1.78	Normally occupied	5 min
43 < C < 52	12 > **%O_2** > 10	1.78 > **P_{O2}** > 1.47	Normally occupied	3 min
52 < C < 62	10 > **%O_2** > 8	1.47 > **P_{O2}** > 1.18	Not normally occupied	30 s
C > 62	**%O_2** < 8	**P_{O2}** < 1.18	Unoccupied areas only	n/a

1-4.2 IG-100 (Nitrogen)

Natura IGS systems with IG-100 are fixed fire extinguishing systems that use the inert gas Nitrogen, UN number 1066. The purity of the Nitrogen shall be as follows:

- Nitrogen greater than or equal to 99.7%.
- Oxygen less than or equal to 10 ppm.
- Water less than or equal to 10 ppm.

Note: Only principal contaminants are shown. Other measurements may include: Carbon Monoxide, Carbon Dioxide, Nitrogen Oxide, and Nitrogen Dioxide most < 20 ppm.

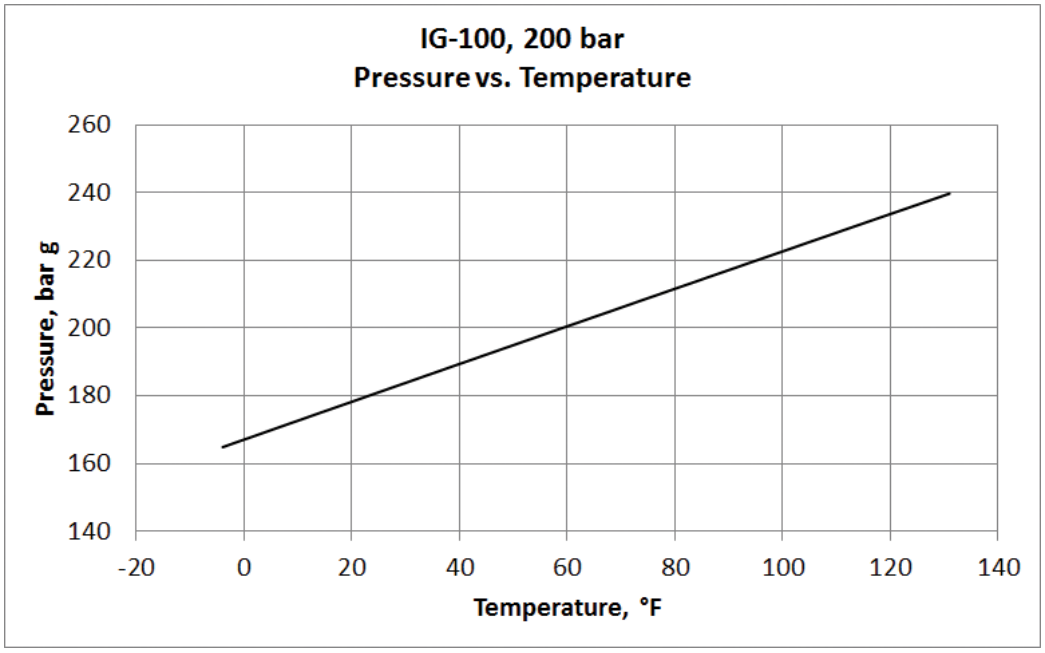

Figure 1-1. IG-100 Pressure/Temperature Curve Isometric Diagram for 200 bar, U.S. Customary Units

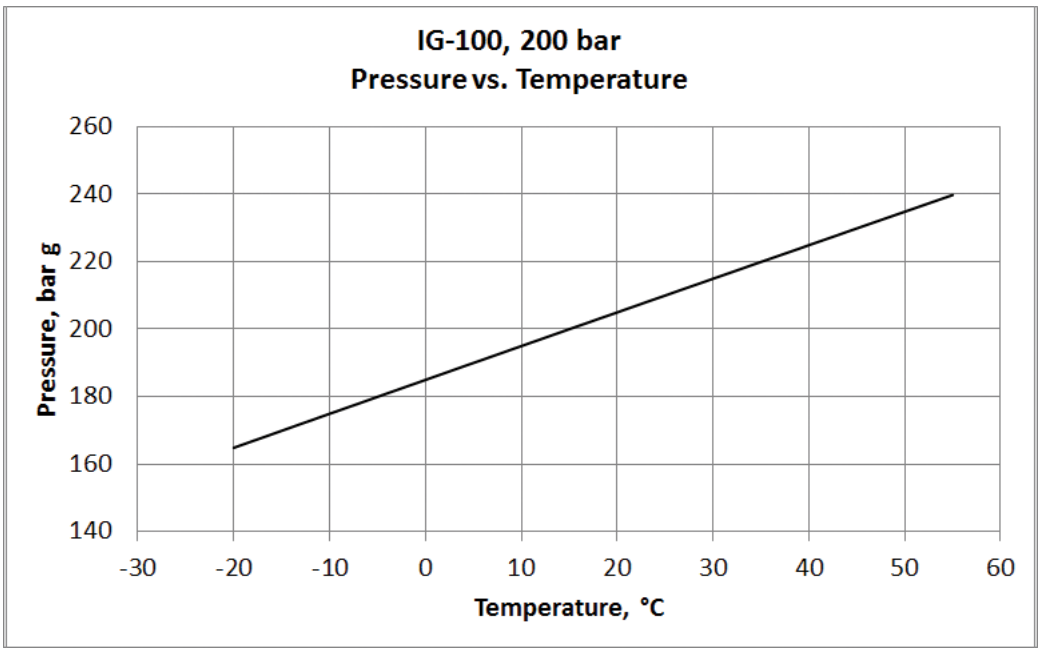

Figure 1-2. IG-100 Pressure/Temperature Curve Isometric Diagram for 200 bar, SI Units

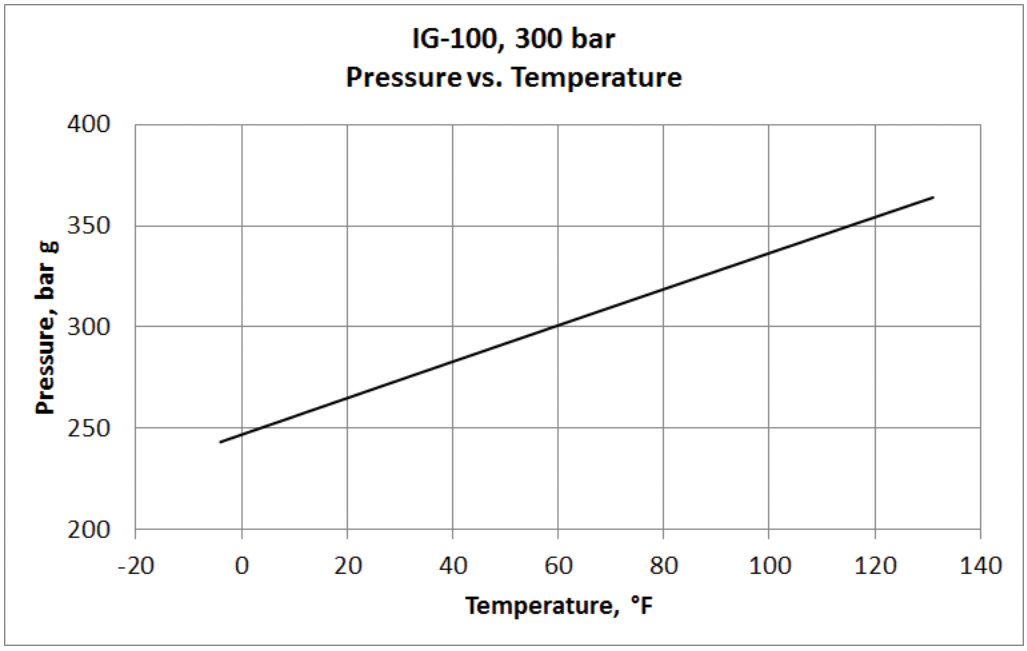

Figure 1-3. IG-100 Pressure/Temperature Curve Isometric Diagram for 300 bar, U.S. Customary Units

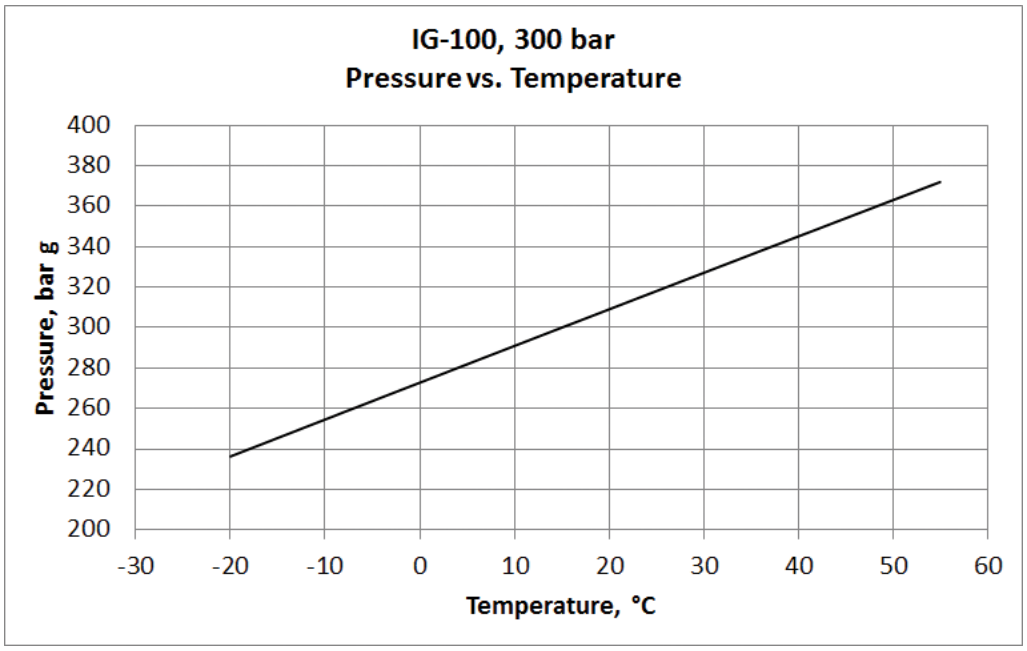

Figure 1-4. IG-100 Pressure/Temperature Curve Isometric Diagram for 300 bar, SI Units

1-4.3 IG541 (Nitrogen, Argon, and Carbon Dioxide)

Natura IGS systems with IG-541 are fixed fire extinguishing systems that use an inert gaseous mixture of 52% Nitrogen, 40% Argon, and 8% Carbon Dioxide (IG-541), UN number 1956.

Specification for IG-541 is a Nitrogen/Argon/Carbon Dioxide 52%/40%/8% ratio by volume. The tolerance of the mixture in air is as follows:

- Nitrogen: 52% +/- 4 %
- Argon: 40% +/- 4%
- Carbon Dioxide: 8% + 1%/ - 0%

1-4.3.1 Purity

Each element shall conform to the following purity specification:

Argon:

- Argon greater than or equal to 99.99%.
- Oxygen less than or equal to 10 ppm.
- Water less than or equal to 10 ppm.

Nitrogen:

- Nitrogen greater than or equal to 99.7%
- Oxygen less than or equal to 10 ppm.
- Water less than or equal to 10 ppm.

Carbon Dioxide:

- Carbon Dioxide greater than or equal to 99.7%
- Oxygen less than or equal to 10 ppm.
- Water less than or equal to 10 ppm.

Note: Only principal contaminants are shown. Other measurements may include: Carbon Monoxide, Carbon Dioxide, Nitrogen Oxide, and Nitrogen Dioxide most < 20 ppm.

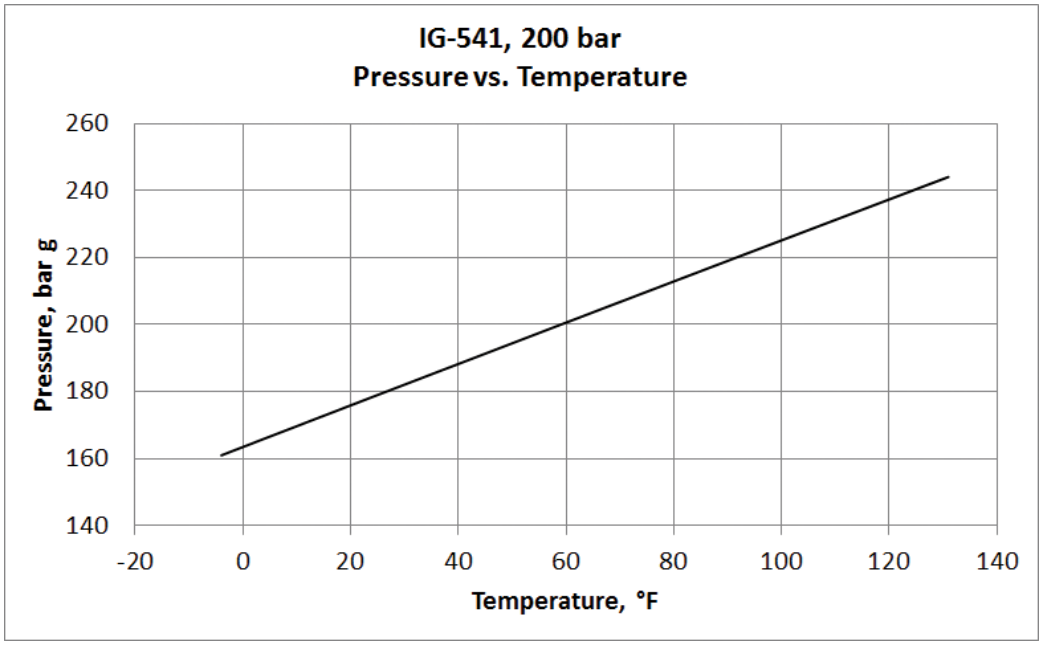

Figure 1-5. IG-541 Pressure/Temperature Curve Isometric Diagram for 200 bar, U.S. Customary Units

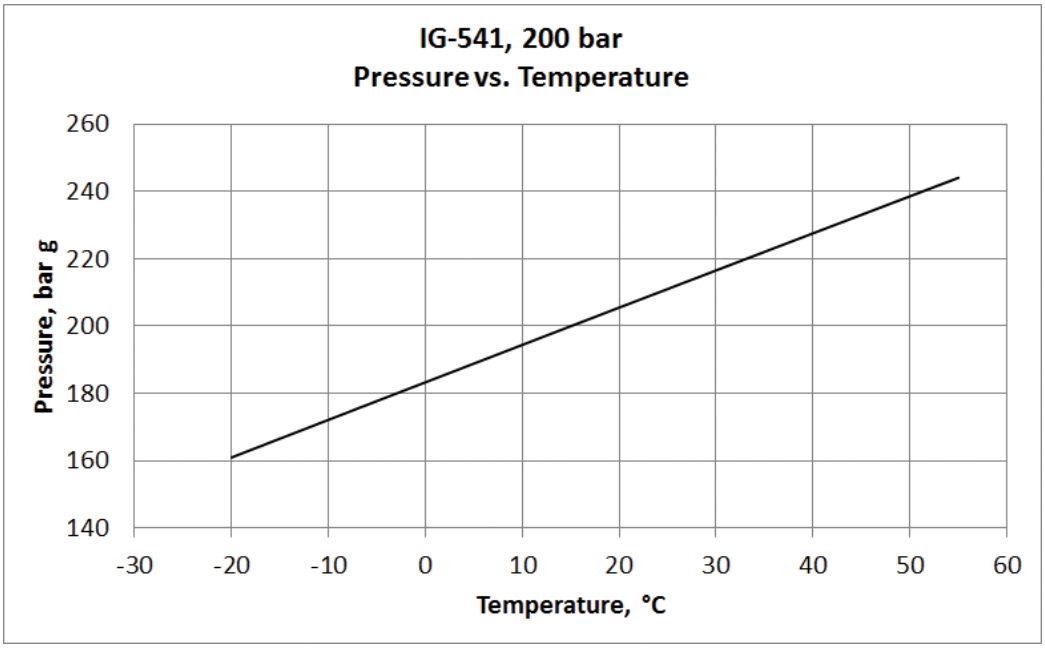

Figure 1-6. IG-541 Pressure/Temperature Curve Isometric Diagram for 200 bar, SI Units

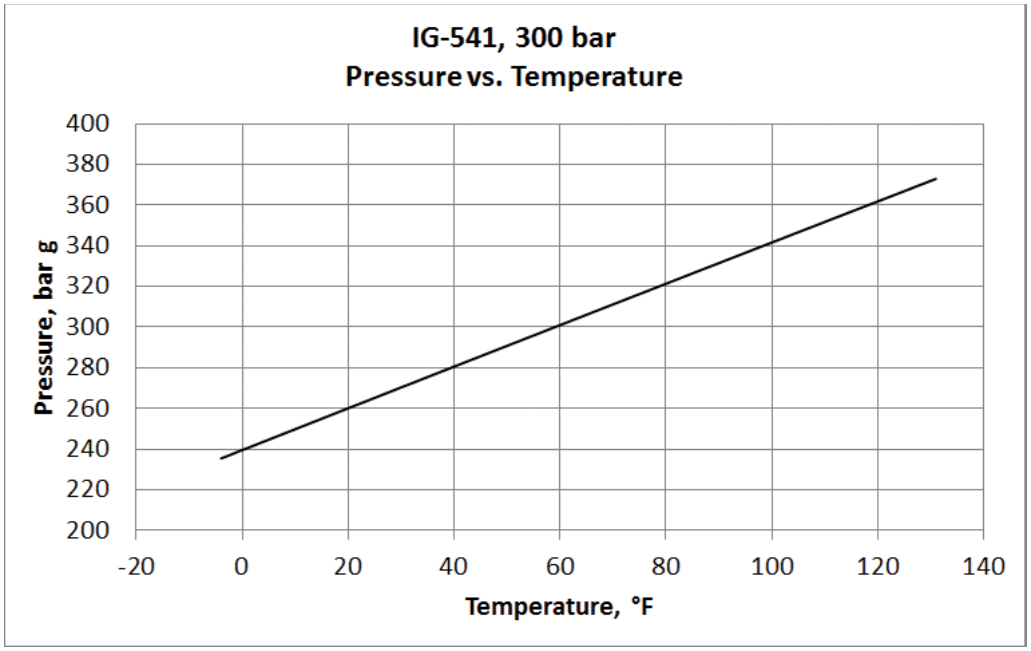

Figure 1-7. IG-541 Pressure/Temperature Curve Isometric Diagram for 300 bar, U.S. Customary Units

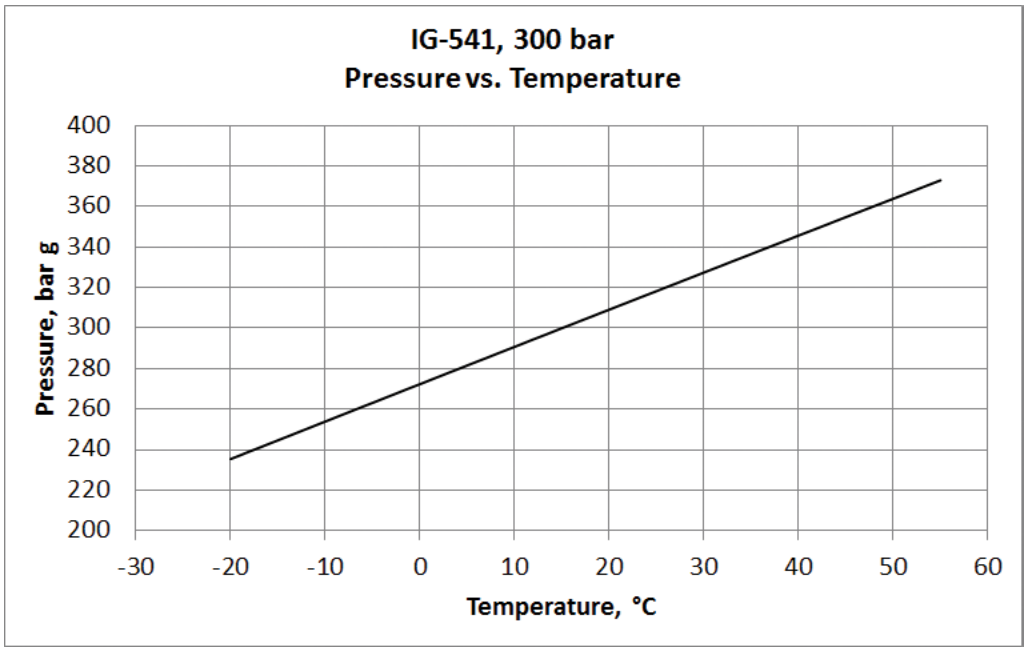

Figure 1-8. IG-541 Pressure/Temperature Curve Isometric Diagram for 300 bar, SI Units

1-4.4 IG-55 (Nitrogen and Argon)

Natura IGS systems with IG-55 are fixed fire extinguishing systems that use an inert, gaseous mixture of 50% Nitrogen and 50% Argon known as Argonite®, UN number of 1956.

Specification for IG-55 is an Argon/Nitrogen 50%/50% ratio by volume. Tolerance of mixture in air is as follows:

- Argon: 50% +/- 5%
- Nitrogen: 50% +/- 5%

1-4.4.1 Purity of Argon and Nitrogen

Each element shall conform to the following purity specification:

Argon:

- Argon greater than or equal to 99.99%
- Oxygen less than or equal to 10 ppm
- Water less than or equal to 10 ppm

Nitrogen:

- Nitrogen greater than or equal to 99.7%
- Oxygen less than or equal to 10 ppm
- Water less than or equal to 10 ppm

Note: Only principal contaminants are shown. Other measurements may include: Carbon Monoxide, Carbon Dioxide, Nitrogen Oxide, and Nitrogen Dioxide most < 20 ppm.

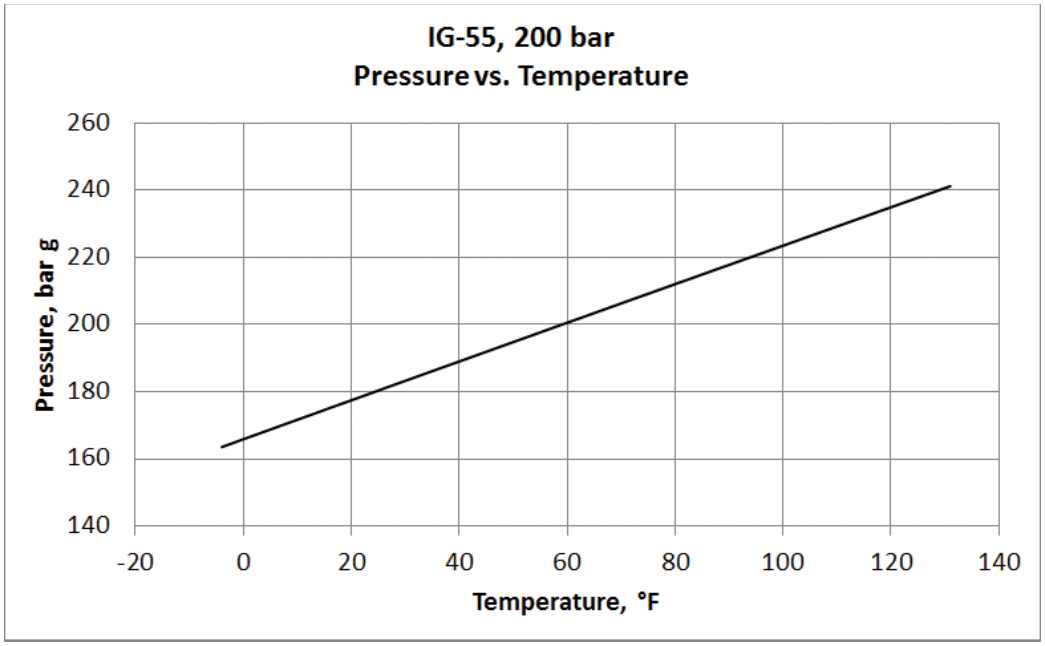

Figure 1-9. IG-55 Pressure/Temperature Curve Isometric Diagram for 200 bar, U.S. Customary Units

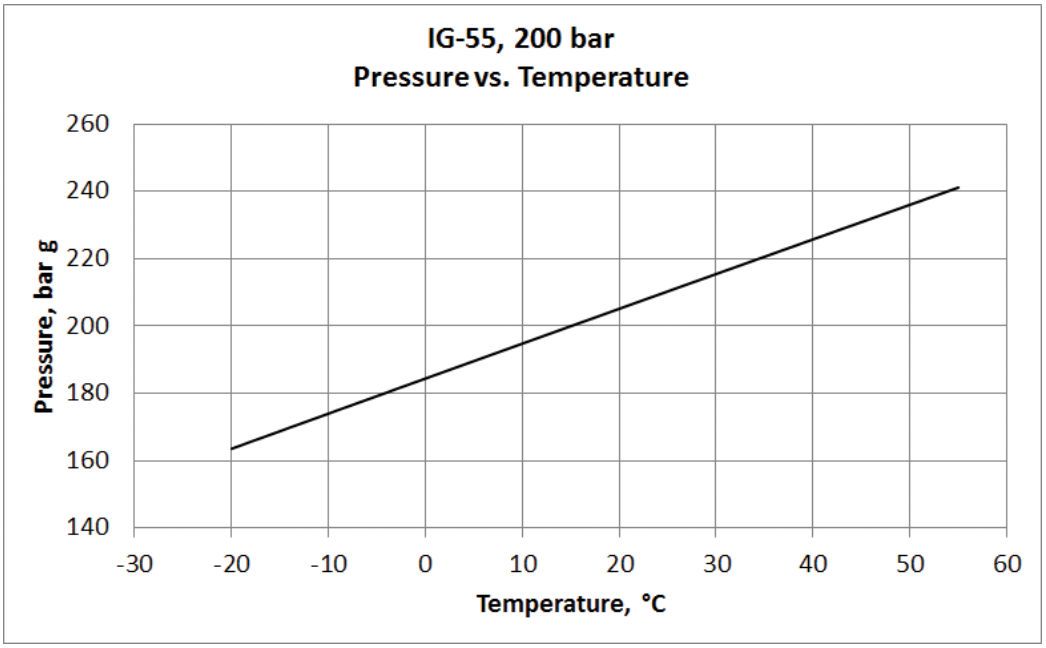

Figure 1-10. IG-55 Pressure/Temperature Curve Isometric Diagram for 200 bar, SI Units

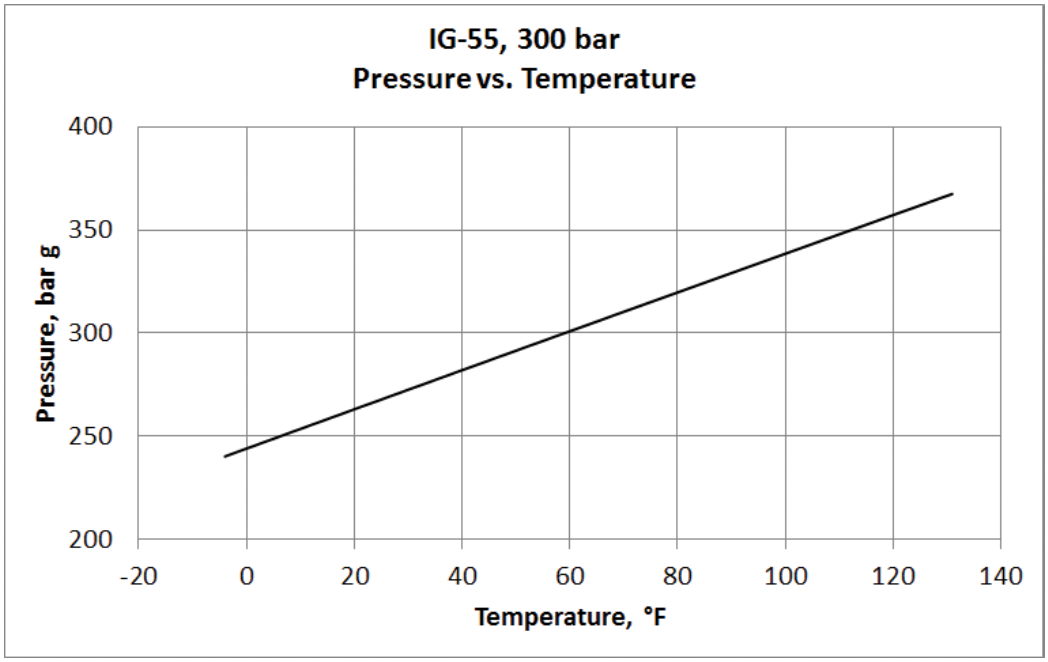

Figure 1-11. IG-55 Pressure/Temperature Curve Isometric Diagram for 300 bar, U.S. Customary Units

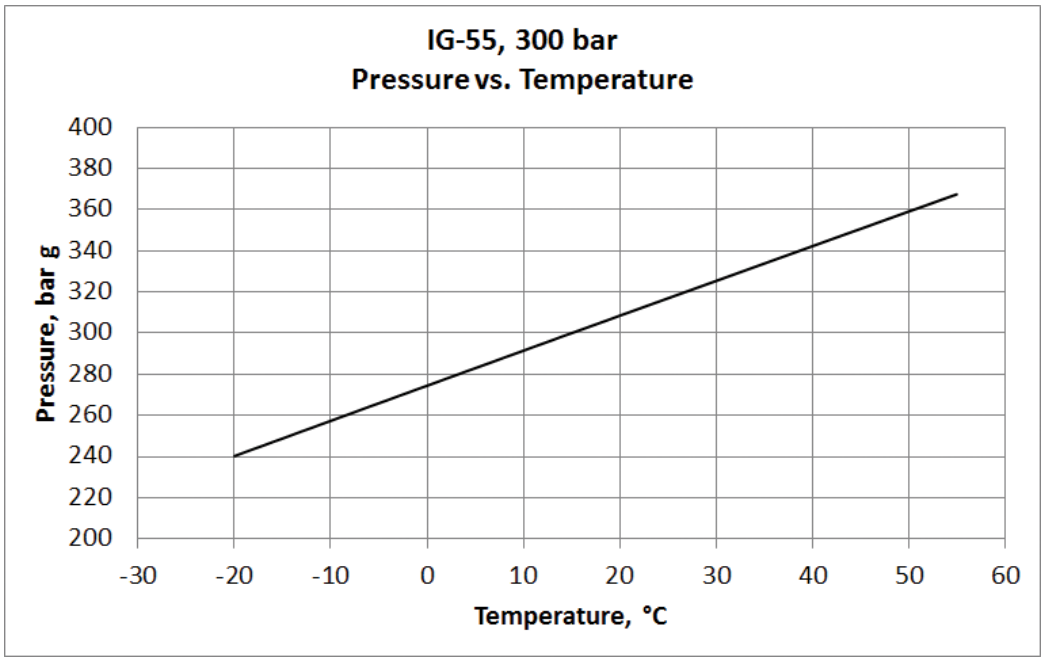

Figure 1-12. IG-55 Pressure/Temperature Curve Isometric Diagram for 300 bar, SI Units

1-4.5 IG-01 (Argon)

Natura IGS systems with IG-01 are fixed fire extinguishing systems that use the inert gas Argon, UN number 1006. The purity of the Argon shall be as follows:

- Argon greater than or equal to 99.99%
- Water less than or equal to 5 ppm

Note: Only principal contaminants are shown.

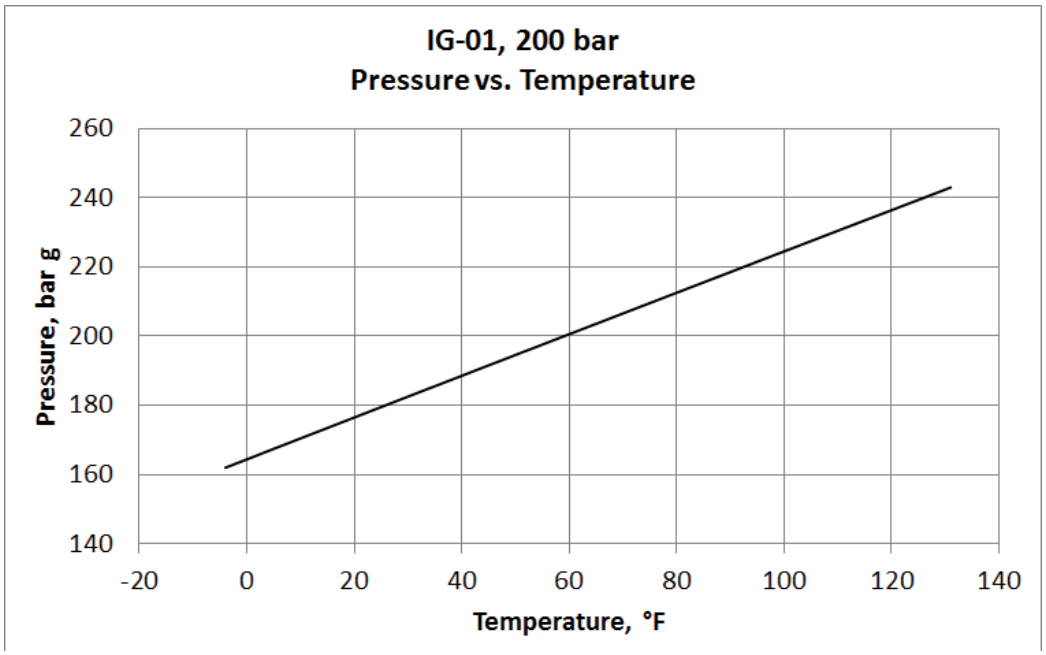

Figure 1-13. IG-01 Pressure/Temperature Curve Isometric Diagram for 200 bar, U.S. Customary Units

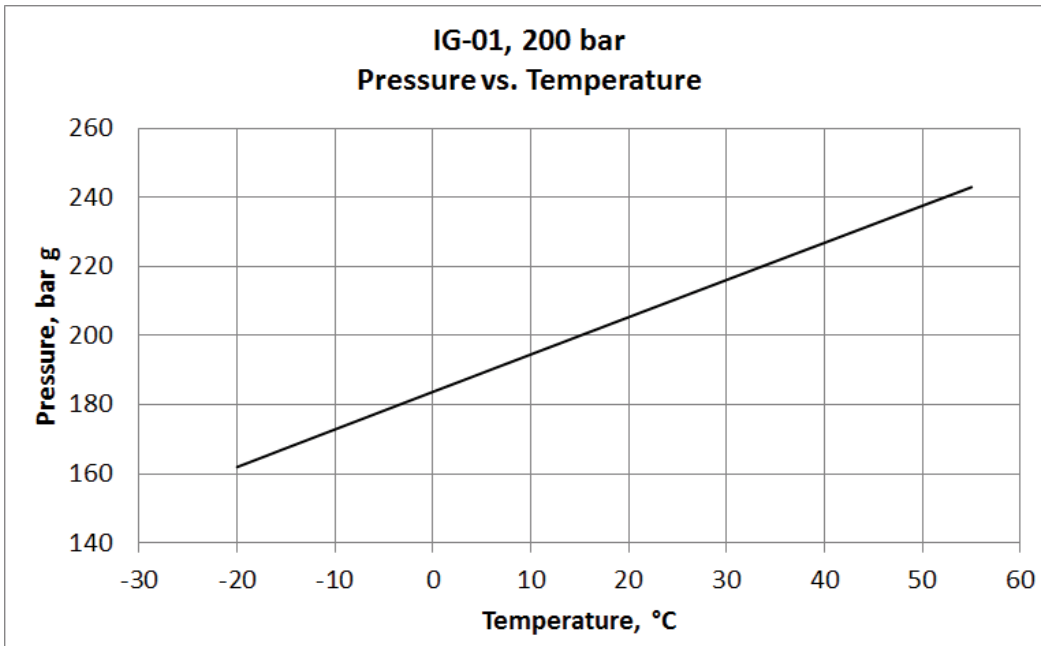

Figure 1-14. IG-01 Pressure/Temperature Curve Isometric Diagram for 200 bar, SI Units

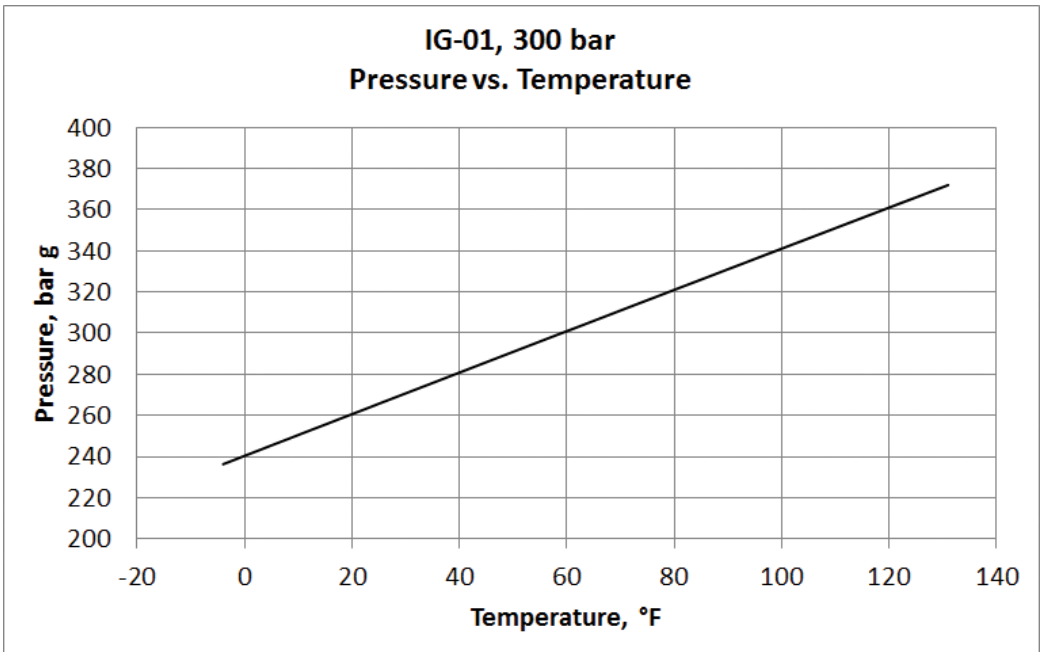

Figure 1-15. IG-01 Pressure/Temperature Curve Isometric Diagram for 300 bar, U.S. Customary Units

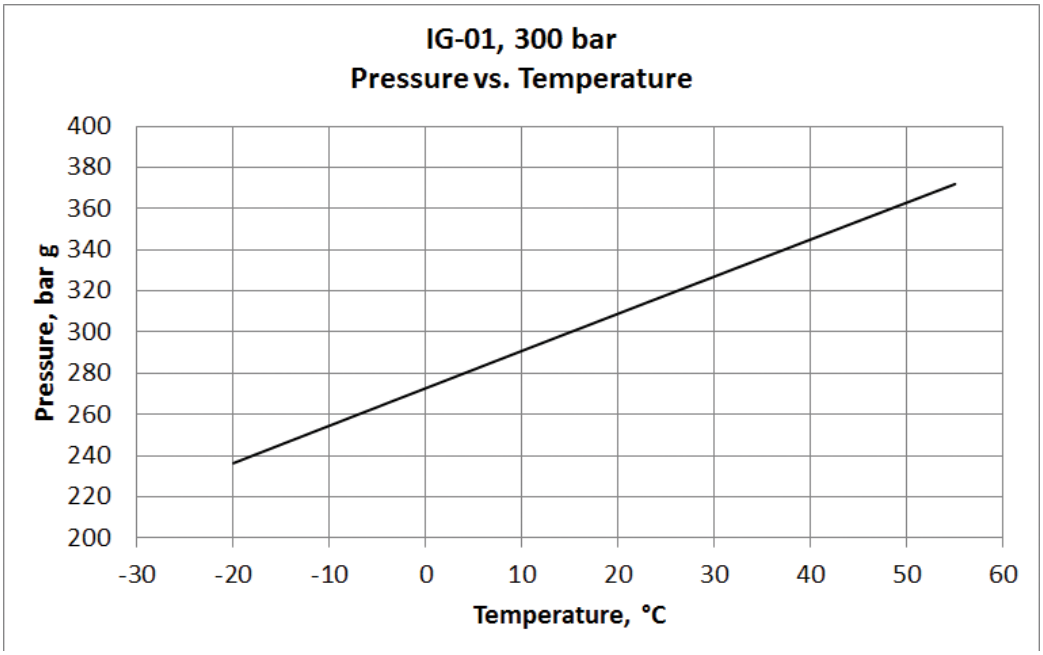

Figure 1-16. IG-01 Pressure/Temperature Curve Isometric Diagram for 300 bar, SI Units

CHAPTER 2
INSTALLATION AND MAINTENANCE

2-1 INTRODUCTION

The Kidde Fire Systems Natura™ Inert Gas Fire Suppression System (Natura IGS system) with IG-100, IG-541, IG-55, or IG-01 or IG-55 (herein refer to collectively as the "Agent") is designed to discharge a specific quantity of the agent from nozzles located in the protected hazard area. The design quantity of agent has been carefully determined to meet the requirements set by Standard of Gaseous Fire Extinguishing Systems from International Organization for Standardization (ISO 14520) the National Fire Protection Association (NFPA), Underwriters Laboratories (UL), and FM Approvals. Additional requirements may apply depending upon the application, design specifications, and requirements of the Authority Having Jurisdiction (AHJ).

The Natura IGS system consists of:

- Agent cylinder(s), discharge piping, and nozzles
- Actuation devices
- Detection, alarm devices
- Control panel

An electric release unit is normally used to actuate the agent cylinder valve, which is part of the agent storage container assembly. In addition to a means of automatic fire detection and system actuation (where provided), the system must be provided with a means for manual actuation using one or more of the following UL Listed or FM Approved devices, in conjunction with required associated components:

- Manual Operated option on the cylinder/valve assembly's release unit
- Electric Remote Pull Station

Automatic system actuation (if provided) can be electric using UL Listed or FM Approved heat detectors, photoelectric, ionization smoke detectors, or optical flame detectors.

Pressure from the discharge may be used to open the container valves on additional containers.

If the system has a control panel, refer to the appropriate control panel manual, as applicable.

2-2 INSTALLATION

The Natura IGS must be installed only by an authorized Kidde Fire Systems distributor. The system must be installed using genuine Kidde Fire Systems components and installation materials in accordance with the Natura IGS DIOM, P/N 06-237619-001.

Note: The installer must have a current Kidde Fire Systems installation certificate.

The following items must be checked after the system is installed:

- All areas requiring protection are protected.
- A means of manually discharging the Natura IGS is provided in a readily accessible location where it can be operated while leaving the vicinity of the hazard area. The manual control must be clearly labeled. Additionally, in the case of systems using selector valves, the manual operation of the selector valves must be labeled and the handles must be near the valves in case required for manual operation during an emergency. The installer of the system should answer any questions regarding the components and coverage of the system.

The installer must also demonstrate that the installed system conforms to the requirements of the Natura IGS DIOM, P/N 06-237619-001 and the requirements of the insurance carrier and the Authorities Having Jurisdiction in the area.

2-3 AGENT STORAGE CYLINDERS

Agent storage cylinders are pressurized vessels containing the agent pressurized to 300 bar gauge at 15°C (4351 psig at 60°F) or 200 bar gauge at 15°C (2901 psig at 60°F). as listed on the label. The pressure of the stored

Agent varies substantially with temperature changes, as illustrated by the temperature verses pressure graphs shown previously for each Agent. When discharged, the Agent is a gas and is uniformly distributed as it enters the fire area.

Handle the cylinder carefully to prevent damaging the gauge and other attached fixtures. The cylinder must not be subjected to temperatures above 130°F (54°C), or the pressure relief device may operate, releasing the agent.

2-4 INSTRUCTIONS IN CASE OF FIRE

2-4.1 Automatic Operation

When a system is operated automatically by means of a detection and control system, everyone must evacuate the hazard area promptly upon hearing the pre-discharge alarm. Make sure no one enters the hazard area. Call the fire department immediately.

2-4.2 Local Manual Operation (Single Area)

Manual control is not part of normal system actuation and should only be used in an emergency as a last resort. Ensure the hazard area is evacuated and emergency services are being called.

1. Proceed to appropriate Natura IGS cylinder for the hazard.
2. Remove the safety pull pin from the cylinder release unit. This will also break the tamper proof seal.
3. Operate the manual release knob in the direction indicated by the arrow on the unit.

Note: Allow no one to enter the hazard area. Call the fire department immediately.

2-4.3 Local Manual Operation (Multi Area System)

Manual control of selector valves is not part of normal system actuation and should only be used in an emergency. Ensure the hazard area is evacuated and emergency services are being called:

1. Proceed to appropriate Natura IGS selector valve for the hazard.
2. Remove the handle stored on the side of the selector valve.

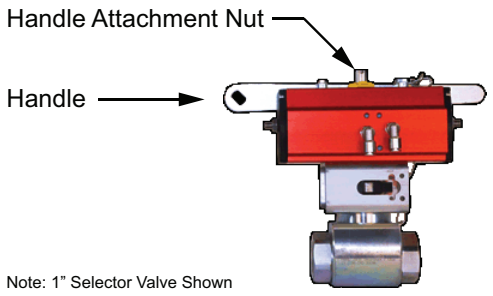

Figure 2-1. Selector Valve Handle and Attachment Nut

3. Attach the handle to nut on the selector valve, and turn the valve open.
1. Proceed to appropriate Natura IGS master cylinder release unit for the hazard.
2. Remove the safety pull pin from the cylinder release unit. This will also break the tamper proof seal.
3. Operate the manual release knob in the direction indicated by the arrow on the unit.

Note: Allow no one to enter the hazard area. Call the fire department immediately.

2-4.4 Post-Fire Operation

After a Natura IGS discharge, qualified fire suppression system maintenance personnel must perform post-fire maintenance after system discharge. Observe all warnings, especially those pertaining to the length of elapsed time before entering the hazard area.

WARNING

Do not enter a hazard area with an open flame or lighted smoking materials.

Flammable vapors may cause re-ignition or explosion. Ensure the fire is completely extinguished before ventilating the area. Ventilate the area thoroughly before permitting anyone to enter the hazard area, or use a self-contained breathing apparatus.

2-5 MAIN AND RESERVE SYSTEMS

WARNING

The following procedures can be applied only when the reserve system has not been previously discharged.

After operating the "main" system as described above and the area is clear of smoke or other hazards, place the "reserve" system in standby mode as follows:

1. Reset all manually operated release units, pressure operated trips, discharge indicators, manual operation stations, and pressure operated switches. Ensure that the control panel and all detectors are reset.
2. If the system uses selector valves, reset solenoids on the valve.
3. Proceed to the main/reserve transfer switch. Set the transfer switch to the RESERVE position.
4. Immediately contact a Kidde Fire Systems distributor for service.

If the system is not equipped with reserve cylinders, contact an Authorized Kidde Fire Systems Distributor for refilling or replacement of the cylinders. Until the cylinders are refilled and installed, arrange for fire watch to protect the hazard during this time.

2-6 MAINTENANCE PROCEDURES

WARNING

Natura IGS cylinders and components must be handled, installed, inspected and serviced only by qualified and trained personnel in accordance with the instructions contained in this manual and Compressed Gas Association (CGA) pamphlets C-1, C-6 and P-1. CGA pamphlets my be obtained from the Compressed Gas Association website: http://www.cganet.com.

A program of systematic maintenance is essential for continuous, proper operation of all Natura IGS Systems. Follow a periodic maintenance schedule as outlined in Table 2-1. Additionally, have an Authorized Natura IGS Systems Distributor perform preventative maintenance as outlined in Table 2-2.

If areas of rust or corrosion are found during the inspection of cylinders contact your Authorized Natura IGS Systems Distributor for further examination.

2-6.1 Preventative Maintenance Schedule

As an owner, perform preventative maintenance per Table 2-1.

Table 2-1. Owner Preventive Maintenance Schedule

Schedule	Requirement	Paragraph
Weekly	Inspect Natura IGS cylinder and check the cylinder pressures	Section 2-7.1
	Check nitrogen pilot cylinder pressures	Section 2-7.2
	Perform hazard and enclosure inspection	Section 2-7.3
	Perform pipework and controls inspection	Section 2-7.4
Monthly	Perform Weekly Inspection as outlined in Section 2-7 and the following additional tasks:	
	Perform General Inspection	Section 2-8.1
	Inspect Hazard Access	Section 2-8.2
	Inspect Hoses	Section 2-8.3
	Inspect Release Units and Slave Gauges	Section 2-8.4
	Inspect Cylinder and Valve Assembly	Section 2-8.5
	Inspect Electric Control Heads	Section 2-8.6

Have an Authorized Kidde Fire Systems Natura IGS Systems Distributor, perform periodic preventative maintenance per Table 2-2.

Table 2-2. Authorized Kidde Fire Systems Distributor Preventive Maintenance Schedule

Schedule	Requirement
Semi-Annual	Perform Monthly inspection and the following additional tasks:
	Check lockout valves
	Check actuators on selector valves
	Check distribution pipework and nozzles
	Inspect the protected room
	Test pressure switches
	Test release units
	Test Nitrogen Pilot Control Heads (if applicable)
	Inspect Flexible Hoses
	Verify Odorizer Assembly
Annual	Perform Semi-Annual inspection and the following additional tasks:
	Check Natura IGS System Cylinder Pressure Gauges
Every 2 Years	Perform Annual inspection and the following additional tasks:
	Blow out distribution piping
Every 5 Years (CFR)	Perform 2 year Inspection and the following additional tasks:
	Agent cylinder hydrostatic pressure test and/or inspection
	Nitrogen pilot cylinder hydrostatic pressure test and/or inspection
	Flexible hose hydrostatic pressure test and inspection
Every 10 Years (EU)	Perform 2 year Inspection and the following additional tasks:
	Agent cylinder hydrostatic pressure test
	Nitrogen pilot cylinder hydrostatic pressure test

2-7 WEEKLY

2-7.1 Check Natura IGS System Cylinder Pressure

Check the Natura IGS System cylinder pressure gauges for proper operating pressure (refer to Section 1-4). If the pressure gauge indicates a pressure loss (adjusted for temperature) of more than 5%, contact an Authorized Kidde Fire Systems Distributor to have the cylinder replaced. Cylinders should have a pressure of either 300 bar gauge at 15°C (4351 psig at 59°F) or 200 bar gauge at 15°C (2901 psig at 59°F) depending on the pressure specified on the label.

2-7.2 Check Nitrogen Pilot Cylinder Pressure

If used, check the nitrogen pilot cylinder pressure gauge for proper operating pressure. If there is a pressure loss (adjusted for temperature) of more than 10%, contact an Authorized Kidde Fire Systems Distributor to have the cylinder replaced.

2-7.3 Hazard and Enclosure Inspection

Visually inspect the hazard and the integrity of the enclosure for changes which may affect the performance of the system as per the requirements of BS EN 14520-1 or NFPA 2001. If you suspect changes, contact an Authorized Kidde Fire Systems Distributor to inspect the enclosure.

2-7.4 Pipework and Controls Inspection

Visually inspect the pipework for damage and that all operating controls and components are properly set and undamaged.

2-8 MONTHLY

In addition to performing the weekly inspection, perform the following procedures every month:

2-8.1 Perform General Inspection

Make a general inspection survey of all cylinders and equipment for damaged or missing parts. If the equipment requires replacement, contact an Authorized Kidde Fire Systems Distributor.

2-8.1.1 Inspect Discharge Nozzles

Inspect discharge nozzles for dirt and physical damage. if dirty or damaged, contact an Authorized Kidde Fire Systems Distributor for repairs.

CAUTION

Nozzles must never be painted. A part number is located on each nozzle. Nozzles must be replaced by nozzles of the same part number. Nozzles must never be interchanged since random interchanging of nozzles could adversely affect proper agent distribution and concentration within a hazard area.

2-8.1.2 Inspect Pull Stations

Inspect all manual pull stations for cracks, broken or cracked glass plates, dirt or distortion. Inspect the station for signs of physical damage. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.1.3 Inspect Pressure Switches

Inspect pressure switches for deformations, cracks, dirt or other damage. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.1.4 Personnel

Check that all personnel who may have to operate the system are properly trained and authorized to do so. All new employees must be instructed in its use.

2-8.2 Inspect Hazard Access

Ensure access to hazard areas, manual pull stations, discharge nozzles, and cylinders are unobstructed and nothing obstructs the operation of the equipment or distribution of agent.

2-8.3 Inspect Hoses

Inspect actuation and discharge hoses for loose fittings, damaged threads, cracks, distortion, cuts, dirt, and frayed wire braid. Inspect the adapters, couplings and tees at the Natura IGS cylinder pilot outlets for tightness. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.4 Inspect Release Units and Slave Gauge Assemblies

Inspect the Natura IGS System cylinder release units and slave gauge assemblies for physical damage, deterioration, corrosion, distortion, cracks, dirt and loose couplings. Check the release unit’s or slave gauge assembly’s electrical line for wear and damage Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.5 Inspect Cylinder and Valve Assembly

Inspect the Natura IGS cylinder and valve assembly for leakage and physical damage such as cracks, dents, distortion and worn parts. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.6 Inspect Electric Control Heads on Nitrogen Pilot Cylinders

If applicable, inspect the IGS nitrogen pilot cylinder electric control heads for damage, corrosion, and dirt. Check the control heads' flexible electrical line for wear and damage. Check the control head for loose coupling and tighten if necessary. Check that the indicator is in the SET position, the pull pin is installed in the manual lever, and the seal wire is intact. Replace the control head if damaged. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.6.1 Inspect Brackets, Straps, Cradles and Mounting Hardware

Inspect the Natura IGS cylinder brackets, straps, cradles, and mounting hardware for loose, damaged, or broken parts. Check the cylinder brackets, straps, and associated parts for corrosion, oil, grease, and grime. Contact an Authorized Kidde Fire Systems Distributor if replacements or repairs are needed.

2-8.7 Semi-Annual and Other Inspections

The system must be inspected on a semiannual basis by a your Authorized Kidde Fire Systems Distributor. As part of the semi-annual inspection, the system must be functionally tested per the instructions in the Natura IGS DIOM P/N 06-237619-001. These instructions call for functional test of the system and verification of the agent quantity in each container. Agent will not be discharged as a part of the inspection.

For more information regarding inspection and maintenance, contact an Authorized Kidde Fire Systems Distributor or Kidde Fire Systems directly.

2-9 ADDITIONAL REQUIREMENTS

Portable fire extinguishers are required in addition to the Natura IGS systems and for areas not protected by the system. Consult with the insurance carrier, local Authorities Having Jurisdiction, and the portable fire extinguisher distributor for sizes, types, spacing and location requirements.

Read, understand and follow the instructions in this manual and on the container nameplates. Review these instructions with employees semiannually, or more frequently. Place this manual in an accessible area near the Natura IGS system for ready reference. Post the name, phone number and address of the Kidde Fire Systems distributor near the telephone. Also, post the emergency telephone number of the fire department and the building street address near all telephones.

If any condition exists which would render the Natura IGS system inoperative or ineffective, **SUSPEND ALL OPERATIONS IN THE PROTECTED AREA IMMEDIATELY.** Have the condition corrected by the Kidde Fire Systems distributor before resuming operations.

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Kidde Fire Systems

400 Main Street
Ashland, MA 01721
Ph: 508.881.2000
Fax: 508.881.8920
www.kiddefiresystems.com

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