



FROTH-PAK™ ULTRA PREMIUM FOAM INSULATION MANUAL



INSTALL MANUAL | United States | RESIDENTIAL
2015 EDITION

FROTH-PAK **ULTRA**
premium foam insulation by 

Table of Contents

Drawings	A-1
FROTH-PAK™ ULTRA Air Delivery System (ADS)	A-1
FROTH-PAK™ ULTRA Nitrogen Delivery System (NDS)	A-2
FROTH-PAK™ ULTRA Nitrogen Regulator Assembly	A-3
FROTH-PAK™ ULTRA Dispenser	A-4
Nozzles	A-4
Introduction	2
Section 1 System Information	3
1.1 Ordering Information	3
1.2 Accessories	3
1.3 FROTH-PAK™ ULTRA Starter Kits	4
1.4 Shipping Weights	6
1.5 Tank Dimensions	6
1.6 Freight Classification for Tank Return	6
Section 2 Safety Precautions	7
2.1 Respiratory Protection	7
2.2 Isocyanate-Induced Occupational Asthma	7
2.3 Safety Clothing	7
2.4 Skin Contact	7
2.5 Eye Contact	7
2.6 Ingestion	8
2.7 Removal of Cured Foam on Skin	8
2.8 Overfilling Restricted Spaces	8
2.9 Chemical Information	8
2.10 Chemical Spills	8
2.10.1 "A" Chemical	8
2.10.2 "B" Chemical	8
2.11 Cautions	8
2.11.1 Storage and Transportation Temperature	8
2.11.2 Building Codes	8
2.11.3 Surface Temperature Restrictions	8
2.11.4 Open Flame / Spark Source	8
2.11.5 Excessive Foam Dispensing	8
2.12 Training	8
Section 3 System Installation	9
3.1 Tank Positioning/Hose labeling	9
3.2 Cylinder pressurization set up	9
3.2.1 Air Delivery System (ADS) Setup	9

	3.2.2 Nitrogen Delivery System (NDS) Setup	10
	3.3 FROTH-PAK™ ULTRA Tank/Hose/Dispenser Set-up	10
Section 4	Start-Up Procedure	12
	4.1 System Pressurization	12
	4.2 Calibration Instructions	13
	4.3 System Purging and Testing	14
	4.4 Nozzle Replacement	14
Section 5	Spraying Foam	15
	5.1 FROTH-PAK™ ULTRA Dispenser Operation	15
	5.2 Spraying FROTH-PAK™ ULTRA Premium Foam Insulation	15
Section 6	Shut-down Procedure	16
Section 7	Storage	16
Section 8	Re-start Procedure	16
Section 9	Tank Change-over	17
	9.1 “A” Tank Change-over	17
	9.2 “B” Tank Change-over	18
	9.3 Tank Return	18
	9.4 New Cylinder Startup	18
Section 10	Troubleshooting	18
	10.1 Temperature	18
	10.2 Foam Color and Quality	19
	10.3 Low Air Flow to Dispenser	20
Section 11	Yield Notes	21
	11.1 Operator Technique	21
	11.2 Application	21
	11.3 Temperature	21
Section 12	Pressure Settings	21
Section 13	Nitrogen Regulator (Optional)	21
	13.1 Important - Safety Information	21
	13.1.1 Instructions	21
Section 14	Tank Heater Bands	22
	14.1 Usage	22
	14.2 Installation Procedure - Tank Heater Band	22
	14.3 Warming Equipment	22
	14.4 Glas-Col Power Control Description and Operation	23
Section 15	Arctic Pak Hose Replacement Set	23
	15.1 General Information	23
	15.2 Preparing and Installing the Arctic Pak	23
	15.3 Spare Parts and Maintenance	24
Section 16	Warranty	25

FROTH-PAK™ ULTRA Premium Foam Insulation Air Delivery System (ADS)

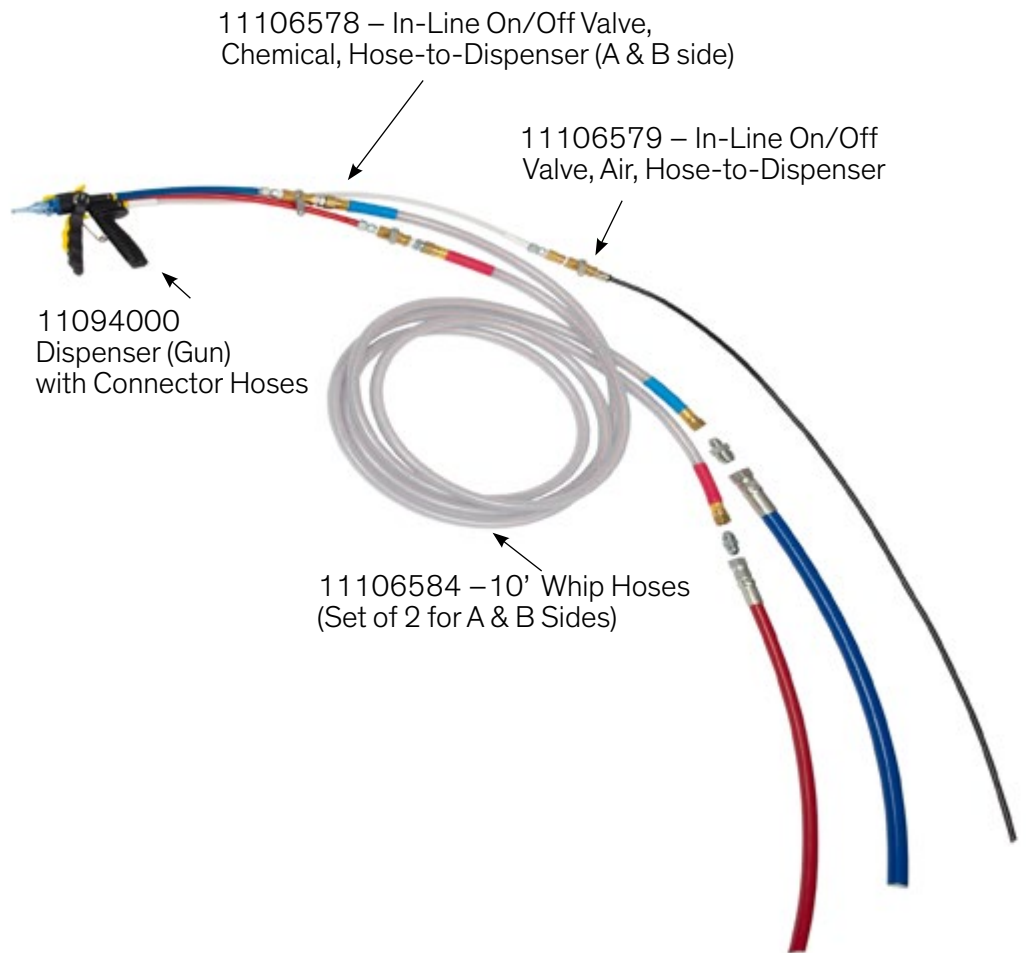
DO NOT breathe vapor or spray. Proper Personal Protective Equipment (PPE) and ventilation are required. See product (Material) Safety Data Sheet ((M)SDS) and Section 2 of this manual for further information. Follow all precautions for product.

DO NOT expose container to temperatures above 120°F (49°C)

DO NOT incinerate, cut, puncture, or weld on or near container.

NEVER use oil or petroleum based grease on regulator, inlet connection, or cylinder valve. An explosion or fire could result. The lubricant used on this regulator adjusting screw is Dow Corning No. 44 silicone grease which is a non-petroleum based grease.

DO NOT use WD-40 or DC-44 on any FROTH-PAK™ ULTRA dispenser parts.





← 11106581 – Regulator Panel

Protective Plug:
Remove and save
for return shipment
of empty tanks.

← 00158420 – 7.5'
Single Hose
(use for air)

← 00158420 – 7.5'
Single Hose
(use for air)

11094001
Replacement
Tank Filter (3/4")

11106576
On/Off Valves,
Chemical,
Tank-
To-Hose, B-side

11094001
Replacement Tank
Filter (3/4")

"A" Tank

"B" Tank

11106575
On/Off Valves, Chemical,
Tank-To-Hose,
A-side



FROTH-PAK™ ULTRA Premium Foam Insulation Nitrogen Delivery System (NDS)

PRECAUTIONS:

DO NOT breathe vapor or spray. Proper Personal Protective Equipment (PPE) and ventilation are required. See product (Material) Safety Data Sheet ((M)SDS) and Section 2 of this manual for further information. Follow all precautions for product.

DO NOT expose container to temperatures above 120°F (49°C)

DO NOT incinerate, cut, puncture, or weld on or near container.

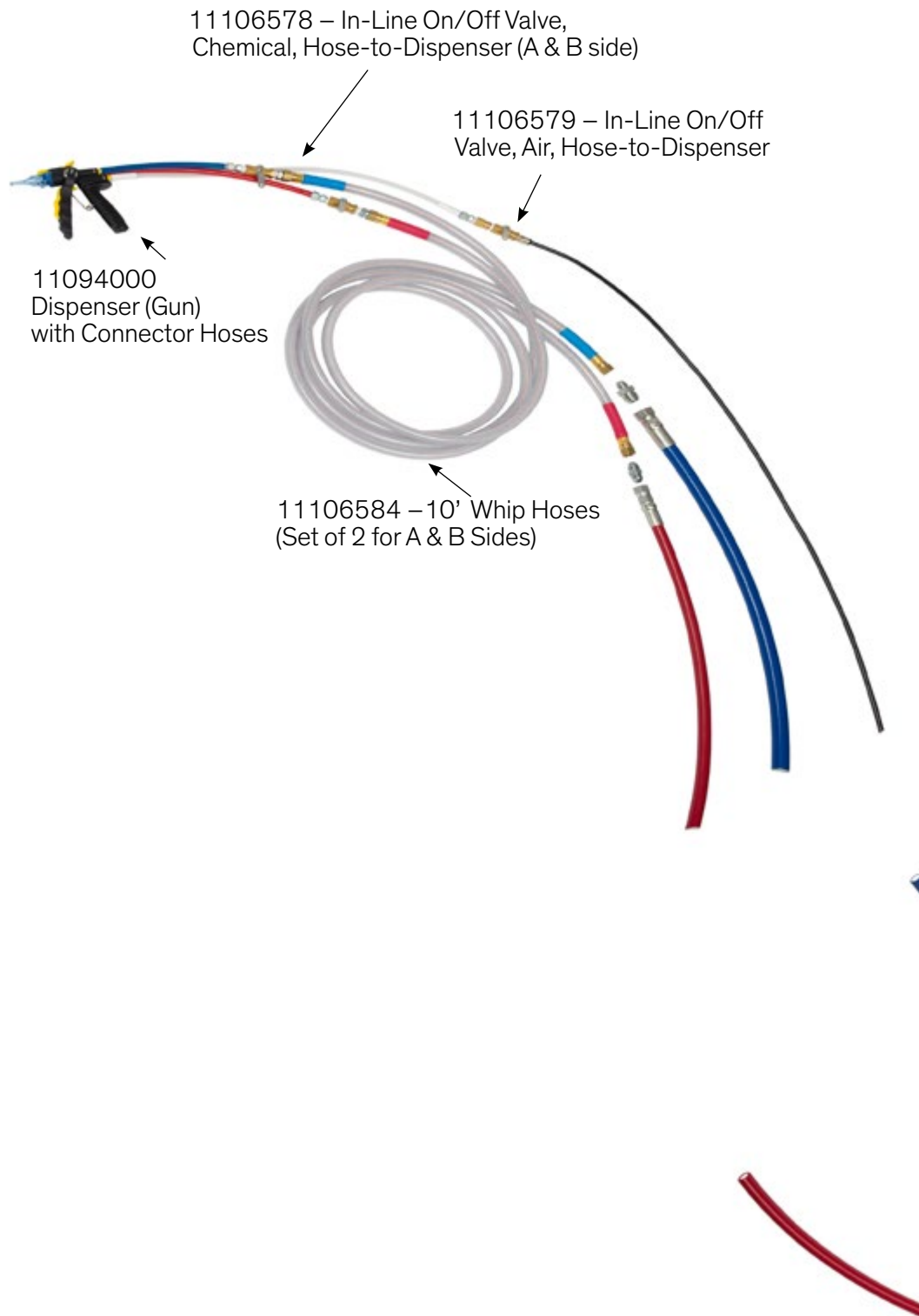
WARNINGS:

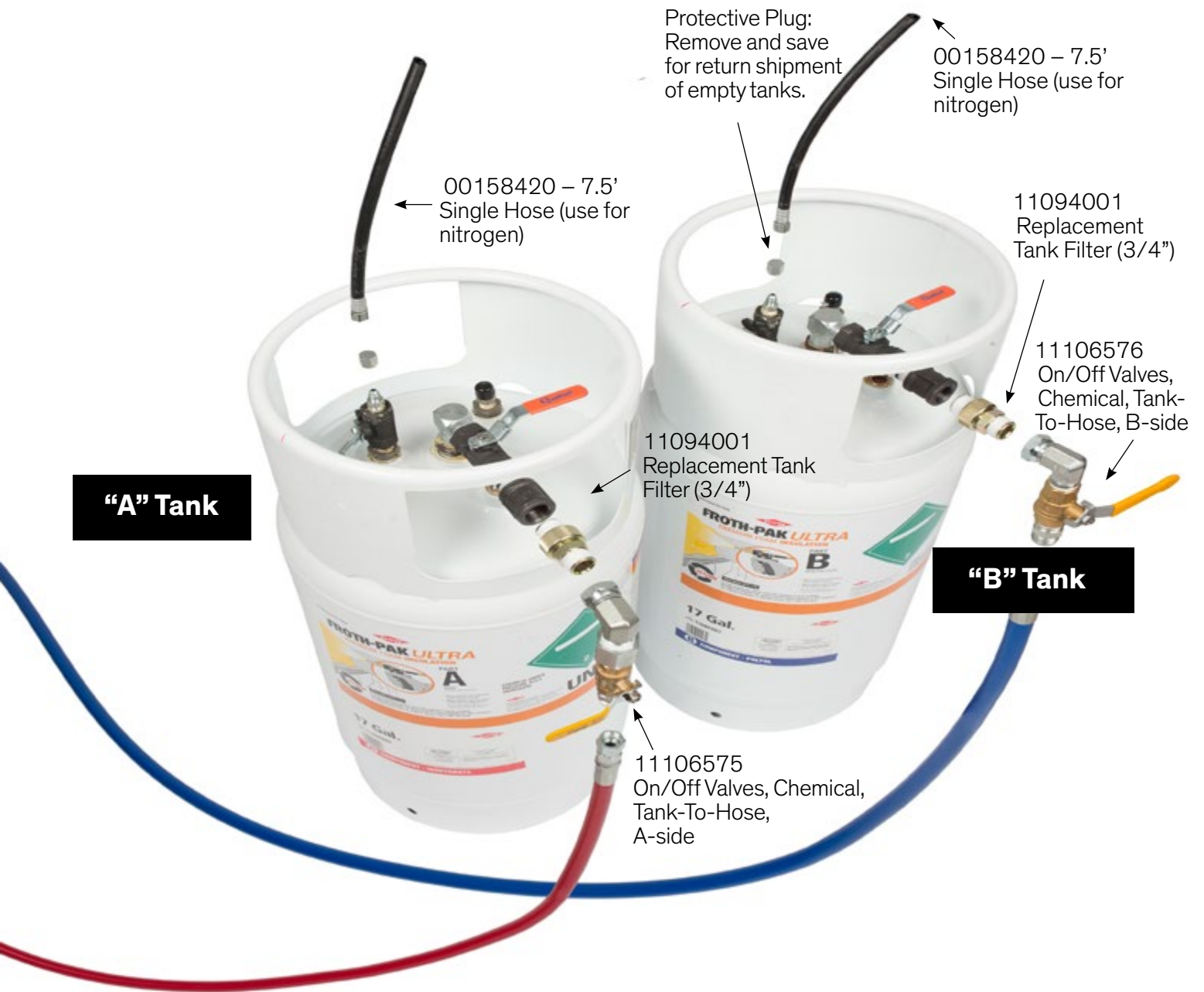
NEVER use oxygen regulators on the FROTH-PAK™ ULTRA Premium Foam Insulation System.

NEVER use oil or petroleum based grease on regulator, inlet connection, or cylinder valve. An explosion or fire could result. The lubricant used on this regulator adjusting screw is Dow Corning No. 44 silicone grease which is a non-petroleum based grease.

NEVER stand in front of or behind a regulator while opening the nitrogen cylinder valve.

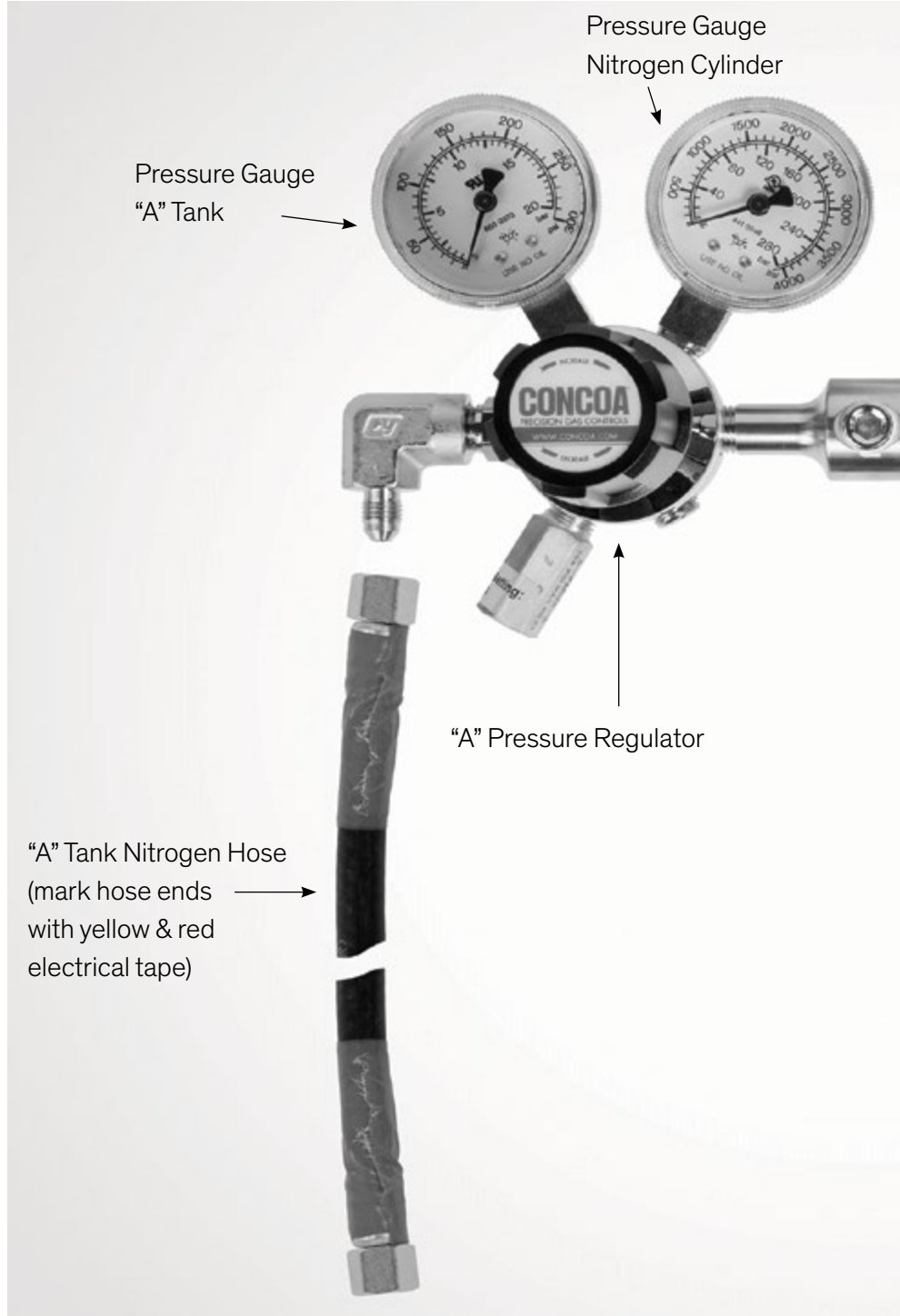
DO NOT use WD-40 or DC-44 on any FROTH-PAK™ ULTRA dispenser parts.

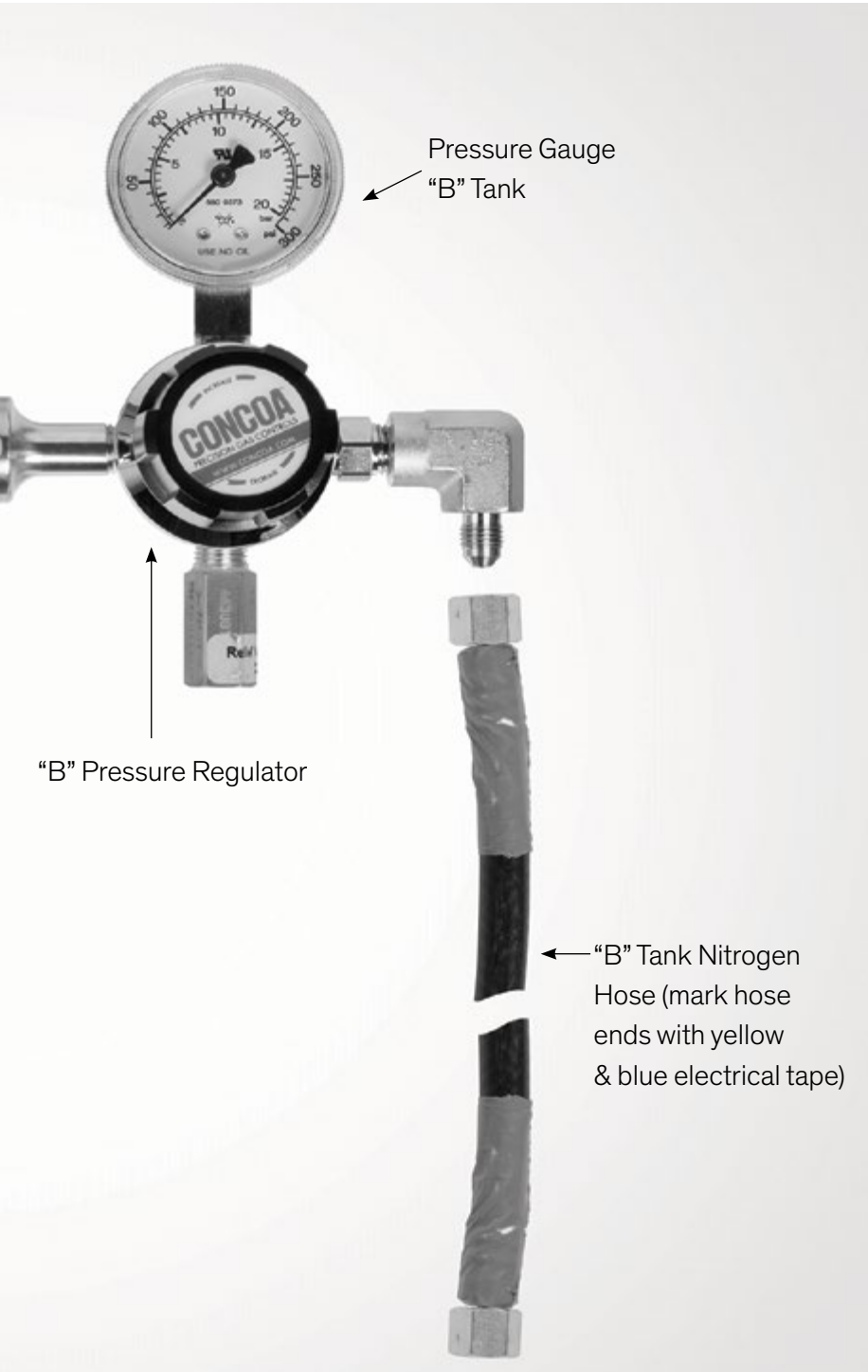




Nitrogen Regulator Assembly

(00158420 – 7.5 ft. nitrogen lines sold separately. Two lines required for system operation)





WARNINGS:

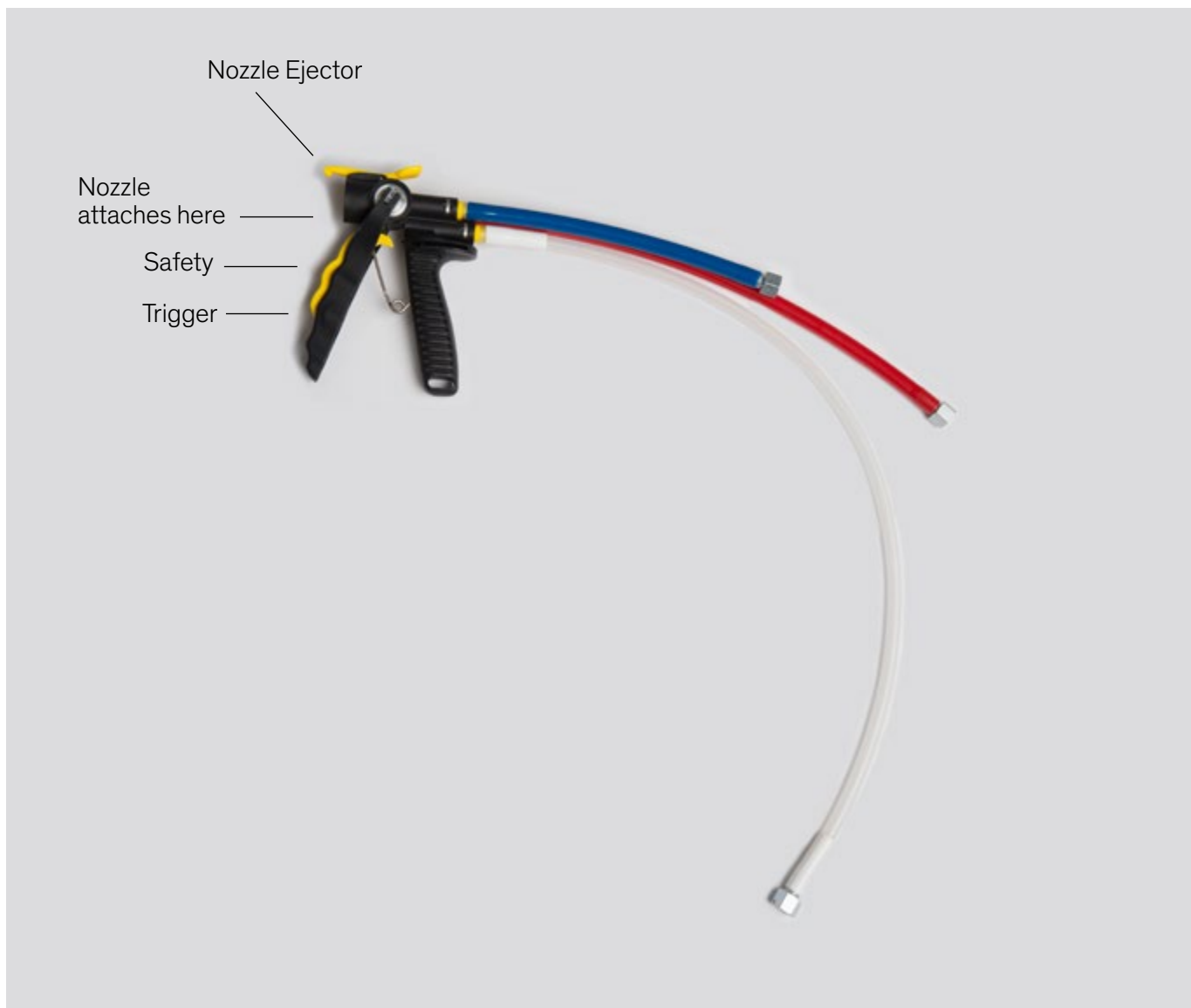
NEVER use oxygen regulators with the FROTH-PAK™ ULTRA Premium Foam Insulation System.

NEVER use oil or petroleum based grease on regulator, inlet connection, or cylinder valve. An explosion or fire could result. The lubricant used on this regulator adjusting screw is Dow-Corning No. 44 silicone grease which is a non-petroleum based grease.

NEVER stand in front of, or behind a regulator while opening the nitrogen cylinder valve.



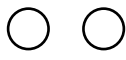



DO NOT use WD-40 or DC-44 on any FROTH-PAK™ ULTRA dispenser parts.

Dispensing Gun



Nozzles

(See page 3 for part numbers)

Cone Spray	Fan Spray	Calibration
		
Nozzle Opening	Nozzle Opening	Nozzle Opening
		
8-10 lb/min Output	8-10 lb/min Output	

Introduction

FROTH-PAK™ ULTRA Premium Foam Insulation is a two-component, quick-cure polyurethane foam designed to fill cavities, penetrations, cracks, and expansion joints. It is the only low pressure foam that can be left uncovered up to 8” thick in rim joists and 10” thick in vented crawl spaces and uninhabitable attics. This low pressure foam enables one hour re-entry, as opposed to the 24 hour re-entry limitation imposed by high pressure drum foam use. The Class-A rating (flame spread of 25 or less) of FROTH-PAK™ ULTRA Premium Foam Insulation is approved for use in a wide range of interior and exterior industrial, commercial, institutional, and residential applications. Check with local building codes for compliance details prior to use. The system consists of:

- “A” and “B” chemical tanks
- Chemical filters
- Chemical dispensing hoses
- FROTH-PAK™ ULTRA Dispenser
- Air Delivery System (ADS) or Nitrogen Delivery System (NDS)
 - ADS uses an air compressor to pressurize chemical cylinders and provide air to the dispenser
 - NDS uses a nitrogen cylinder to pressurize chemical cylinders and an air compressor to provide air to the dispenser.

Required, but not supplied by Dow:

- ADS: Air compressor (compressor must be capable of supplying 5.7 scfm or more at 90 psig and a minimum 20 gallon surge tank. A maximum 25 ft. of 1/4” air hose from the compressor to the air panel is needed.
- NDS: Air compressor (compressor must be capable of supplying 4 scfm or more at 90 psig and a minimum 20 gal surge tank. The hose to the dispenser will connect directly to the compressor) and nitrogen cylinder.
- The system does NOT require dry nitrogen. However, there is an option to use nitrogen instead of the air control panel.

How to decide which system to choose:

ADS	NDS
Don't need to purchase nitrogen cylinders	Lower start up costs
Don't need to worry about running out of Nitrogen in the middle of a job	Air compressor flow requirement lower (more likely to already have compressor with enough flow)
DOT regulations for Nitrogen transport are not applicable	
Requires less space on the truck	Requires less space on the truck

FROTH-PAK™ ULTRA Premium Foam Insulation

Application guidelines as provided by Dow Building Solutions should be followed exactly in order to ensure compliance with building codes and worker safety regulations. Read all information bulletins, “(Material) Safety Data Sheet ((M)SDS)”, and “Product Information” sheets. The SDS is available at www.building.dow.com/na/en/literature/index.htm.

Application of this product is considered a “low pressure” process. It is recommended that workers obtain spray foam training. Workers must be respirator fit tested. Employers must have a documented respiratory and personal protective equipment (PPE) plan. See Section 2 for further PPE information.

FROTH-PAK™ ULTRA Premium Foam Insulation contains isocyanate, polyol, and hydrofluorocarbon blowing agents. Do not breathe vapor or spray. Use only with an organic vapor sorbent and a particle filter to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level for which an air purifying respirator is effective, use a positive-pressure air supplying respirator. The spray foam applicator, and anyone within 25 feet of the applicator, must use an approved full-faced air purifying respirator equipped with an organic vapor sorbent and a particle filter at a minimum. If there is ever a doubt as to the potential limits for worker exposure, Dow always recommends using the highest level of worker protection. Ensure the spray zone is separated from other areas with an air barrier. Additionally, use barrier tape to mark the working perimeter and install warning signs.

It is important to ensure that the spray area is well ventilated during application. Ventilation in Air Changes per Hour (ACH):

- During application a minimum of 10 ACH is required. Cross ventilation is recommended with negative pressure in the spray area and exhaust to a secured empty area. A commercial ventilation unit is recommended for increased ventilation rates.
- Continue to ventilate area for at least 1 hour after the job is completed at no less than 10 ACH.
- Re-entry into an application site within 1 hour post spray with proper ventilation requires the use of an approved air purifying respirator equipped with an organic vapor sorbent and a particle filter.
- Ensure ventilation output is in a safe and secure location that will not be accessible to individuals without proper PPE in a 25 foot radius and is not near an air intake for a structure.

Safe Use and Training videos are available at: <http://building.dow.com/na/en/tools/training/>

Section 1

System Information

1.1 Ordering Information

System	"A" Tank Part# (GMID)	"B" Tank Part# (GMID)
17 Gallon System	11086983 - FP ULTRA 17GAL HFC REF ISO	11086982 - FP ULTRA 17GAL HFC REF POLY
27 Gallon System	11086986 - FP ULTRA 27GAL HFC REF ISO	11086985 - FP ULTRA 27GAL HFC REF POLY
60 Gallon System	99018922 - FP ULTRA 60GAL HFC REF ISO	99018920 - FP ULTRA 60GAL REF POLY
120 Gallon System	99016175 - FP ULTRA 120GAL HFC REF ISO	99016706 - FP ULTRA 120GAL REF POLY

Includes a Bill of Lading for tank return and a chemical filter

1.2 Accessories

All kit components can be ordered independently.

QTY	Part# (GMID)	Description
1	11094000	FROTH-PAK™ ULTRA Dispenser with connector hoses
1	11110330	FROTH-PAK™ ULTRA Replacement Air Dryer (dessicant) beads for A side (bottle) – Single
1	11110372	FROTH-PAK™ ULTRA Replacement Air Dryer (dessicant) beads for A side (bottle) 6-PK
1	11110407	FROTH-PAK™ ULTRA Oil Coalescing Filter (non-cart system)
1	11110438	FROTH-PAK™ ULTRA Oil Coalescing Filter Replacement Cartridge (cart and non-cart system)
1	11110450	FROTH-PAK™ ULTRA Arctic Pak Wrap Heated Hose Wrap
1	11106583	FROTH-PAK™ ULTRA 30' Hose Set (30' A & B side hoses with couplings, 40' air hose with coupling)
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side hoses)
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose) A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose) B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (tank to hose)
1	11106578	FROTH-PAK™ ULTRA In-Line On/Off Valve - chemical (hose to dispenser)
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off Valve - Air (hose to dispenser)
1	00328509	FROTH-PAK™ ULTRA Arctic Pak Wrap Controller
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set (A&B side 150' hoses and 160' air hose)
1	11094001	FROTH-PAK™ ULTRA Replacement Tank Filter (3/4")
1	11106581	FROTH-PAK™ ULTRA Regulator Panel
1	00158420	FROTH-PAK™ ULTRA 7.5' Single Hose

FROTH-PAK™ ULTRA Arctic Wrap Heated Hose System – GMID 11106586 – Contents Include:

QTY	Part# (GMID)	Description
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set
1	11110450	FROTH-PAK™ ULTRA Arctic Pak Wrap Heated Hose Wrap
1	00328509	FROTH-PAK™ ULTRA Arctic Pak Wrap Controller

FROTH-PAK™ ULTRA Arctic Wrap Heated Hose Wrap and Controller (no hoses) GMID 11110446 – Contents Include:

QTY	Part# (GMID)	Description
1	11110450	FROTH-PAK™ ULTRA Arctic Pak Wrap Heated Hose Wrap
1	00328509	FROTH-PAK™ ULTRA Arctic Pak Wrap Controller

Nozzles

QTY	Part# (GMID)	Description	output/lbs. per min.
1	11094007	FROTH-PAK™ ULTRA Cone Spray Nozzle, 25/pack	8-10 lb./min.
1	11094006	FROTH-PAK™ ULTRA Fan Spray Nozzle, 25/pack	8-10 lb./min.
1	11094005	FROTH-PAK™ ULTRA Calibration Nozzle, 25/pack	

1.3 FROTH-PAK™ ULTRA Starter Kits

FROTH-PAK™ ULTRA 40' Hose Kit – GMID 11110455 – Contents Include:

QTY	Part# (GMID)	Description
1	11106583	FROTH-PAK™ ULTRA 30' Hose Set (30' A & B side hoses with couplings, 40' Air hose with coupling)
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side hoses)
1	11094000	FROTH-PAK™ ULTRA Dispenser (Gun) with connector hoses
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (tank to hose)
2	11106578	FROTH-PAK™ ULTRA In-Line On/Off valve – chemical (hose to dispenser)
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off valve – Air (hose to dispenser)

Starter Kit – Non-Arctic Pak – ADS – GMID 11110464 – Contents Include:

QTY	Part# (GMID)	Description
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set (A & B Side 150' Hoses and 160' air hose)
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side Hose)
1	11094000	FROTH-PAK™ ULTRA Dispenser (Gun) with connector hoses
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to Hose), A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to Hose), B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (tank to Hose)
2	11106578	FROTH-PAK™ ULTRA In-Line On/Off valve – chemical (hose to dispenser)
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off valve – Air (Hose to dispenser)
1	11106581	FROTH-PAK™ ULTRA Regulator Panel
2	00158420	FROTH-PAK™ ULTRA 7.5' Single Hose (use for air or nitrogen)
2	11094001	FROTH-PAK™ ULTRA Replacement Tank Filter (3/4")

Starter Kit – Arctic Pak – ADS – GMID 11110463 – Contents Include:

QTY	Part# (GMID)	Description
1	11094000	FROTH-PAK™ ULTRA Dispenser (Gun) with connector hoses
1	11106581	FROTH-PAK™ ULTRA Regulator Panel
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side hoses)
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set (A&B Side 150' hoses and 160' air hose)
1	11110450	FROTH-PAK™ ULTRA Arctic Pak Wrap Heated Hose Wrap
1	00328509	FROTH-PAK™ ULTRA Arctic Pak Wrap Controller
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (panel to hose)
2	00158420	FROTH-PAK™ ULTRA 7.5' Single Hose (use for air or nitrogen)
2	11106578	FROTH-PAK™ ULTRA In-Line On/Off Valve Chemical – (hose to dispenser); two in kit
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off Valve – air (hose to dispenser)
2	11094001	FROTH-PAK™ ULTRA Replacement Tank Filter (3/4")

Starter Kit – Non Arctic Pak – NDS – GMID 11110466 – Contents Include:

QTY	Part# (GMID)	Description
1	00238107	FROTH-PAK™ ULTRA Regulator Kit
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set (A & B Side 150' Hoses and 160' air hose)
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side Hoses)
1	11094000	FROTH-PAK™ ULTRA Dispenser (Gun) with connector hoses
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to Hose), A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to Hose), B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (tank to Hose)
2	11106578	FROTH-PAK™ ULTRA In-Line On/Off valve – chemical (hose to dispenser)
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off valve – Air (Hose to dispenser)
1	11110407	FROTH-PAK™ ULTRA Oil Coalescing Filter (non-cart system)
2	00158420	FROTH-PAK™ ULTRA 7.5' Single Hose (use for air or nitrogen)
2	11094001	FROTH-PAK™ ULTRA Replacement Tank Filter (3/4")

Starter Kit – Arctic Pak – NDS – GMID 11110468 – Contents Include:

QTY	Part# (GMID)	Description
1	00238107	FROTH-PAK™ ULTRA Regulator Kit
1	11094000	FROTH-PAK™ ULTRA Dispenser (Gun) with connector hoses
1	11110407	FROTH-PAK™ ULTRA Oil Coalescing Filter
1	11106584	FROTH-PAK™ ULTRA 10' Whip Hoses (one A & one B side hoses)
1	11106587	FROTH-PAK™ ULTRA Replacement Hose Set (A&B Side 150' hoses and 160' air hose)
1	11110450	FROTH-PAK™ ULTRA Arctic Pak Wrap Heated Hose Wrap
1	00328509	FROTH-PAK™ ULTRA Arctic Pak Wrap Controller
1	11106575	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), A-side
1	11106576	FROTH-PAK™ ULTRA On/Off Valve, Chemical (tank to hose), B-side
1	11106577	FROTH-PAK™ ULTRA On/Off Valve, Air (compressor to hose)
2	00158420	FROTH-PAK™ ULTRA 7.5' Single Hose (use for air or nitrogen)
2	11106578	FROTH-PAK™ ULTRA In-Line On/Off valve – Chemical (hose to dispenser)
1	11106579	FROTH-PAK™ ULTRA In-Line On/Off valve – Air (hose to dispenser)
2	11094001	FROTH-PAK™ ULTRA Replacement Tank Filter (3/4")

1.4 Shipping Weights

System		
17 Gallon System:	Chemical	150 lbs. Net Each
	Total Tank Weight	212 lbs. Each
	Total System Weight	424 lbs
27 Gallon System:	Chemical	252 lbs. Net Each
	Total Tank Weight	404.5 lbs. Gross Each
	Total System Weight	809 lbs
60 Gallon System:	Chemical	500 lbs. Net Each
	Total Tank Weight	740 lbs. Gross Each
	Total System Weight	1,480 lbs
120 Gallon System:	Chemical	1,125 lbs. Net Each
	Total Tank Weight	1,550 lbs. Gross Each
	Total System Weight	3,100 lbs

1.5 Tank Dimensions

Tank Size	Dimensions
17 Gallon:	15" Diameter x 34" Height
27 Gallon:	14.5" Diameter x 43.6" Height
60 Gallon:	24" Diameter x 57" Height
120 Gallon:	30" Diameter x 59" Height

1.6 Freight Classification for Tank Return

CAUTION:

The contents of the "B" tank is pressurized with Fluorinated Hydrocarbons (HFC's). The "A" tank contains polymeric isocyanates and the "B" tank contains polyols with amines.

Mark each bill of lading as follows:

Full Tanks

Compressed Gases, N.O.S. (Fluorinated Hydrocarbons), Class 2.2, UN3503
 Plastic Materials Other Than Expanded
 NMFC#: 156240
 ERG#: 126, Freight Class: 60

24-hour Emergency Contact Number: Chemtrec 800-424-9300

Empty Tanks

Residue Last Contained: Compressed Gases, N.O.S. (Fluorinated Hydrocarbons), Class 2.2, UN3503
 Cylinders: NMFC#: 41160 SUB 3
 ERG#: 126, Freight Class: 55

24-hour Emergency Contact Number: Chemtrec 800-424-9300

NOTE: Empty tanks should be marked "EMPTY". A non-flammable gas label (green diamond, Class 2) must be on each tank. Return bills of lading are provided on each tank. An 'X' must be marked in the HM (hazardous materials) column. All other appropriate information must be filled in as outlined above.

Section 2

Safety Precautions

WARNING:

The FROTH-PAK™ ULTRA cylinders contain isocyanate, hydrofluorocarbon blowing agent and polyols under pressure. Read and follow these instructions and the (Material) Safety Data Sheets ((M)SDS) carefully before use. The safety precautions and personal protective equipment indicated below are designed to protect the user and allow for the safe use and handling of the spray system. Follow all applicable federal, state, local and employer regulations.

IMPORTANT: Proper Personal Protective Equipment (PPE) consists of full-faced respirator, chemical resistant gloves and protective suit with hood/coveralls, which must be worn by all participants prior to the nitrogen and chemical valves being opened and during operation.

2.1 Respiratory Protection

Workers must be respirator fit tested. Employers must have a documented respiratory and personal protective equipment (PPE) plan.

DO NOT breathe vapors or spray. Use only in a well ventilated area with visible air movement away from the point of application. Depending on the area of spray, the amount of foam being sprayed, the amount of ventilation and the type of spray nozzle used, respiratory protection may be necessary to protect the applicator from exceeding established exposure limits of isocyanate and other components. Supplied air or an approved air purifying respirator equipped with an organic vapor sorbent cartridge and a P-100 particulate filter may be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level which a full-faced air-purifying respirator is effective, use a positive-pressure, air supplying respirator (air line or self-contained breathing apparatus). The spray foam applicator, and anyone within 25 feet of the applicator, must use approved respiratory protection. If there is ever a doubt as to the potential limits for worker exposure, Dow always recommends using the highest level of protection. Ensure the spray zone is separated from other areas with an air barrier. Use barrier tape and warning signs to mark the working perimeter for respiratory hazards until 1 hour post spray.

- During application, a minimum of 10 Air Changes per Hour (ACH) is required. Cross ventilation is recommended with negative pressure in the spray area and exhaust to a secured empty area. A commercial ventilation unit is recommended to achieve required ventilation rates.
- Continue to ventilate area, for at least 1 hour after the job is completed, at no less than 10 ACH.
- Re-entry into an application site occurring less than 1 hour post spray with proper ventilation requires the use of an approved air purifying respirator equipped with an organic vapor sorbent and a particle filter.
- Ensure ventilation hose output is in a safe and secure location that will not be accessible to individuals without proper PPE in a 25 foot radius and is not near an air intake for a structure.

2.2 Isocyanate-Induced Occupational Asthma

Inhalation of vapors or mist at concentrations in excess of permissible limits may result in an allergic respiration response and the development of sensitization. Skin contact with diisocyanates may play a role in respiratory sensitization. Anyone who has been sensitized in the past should not operate nor be in close proximity to the operation of these systems, as isocyanate concentrations below exposure guidelines may cause allergic respiratory reactions in individuals who are already sensitized. Asthma-like-symptoms may include coughing, difficulty breathing, and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. Follow all ventilation and PPE guidelines.

2.3 Safety Clothing

Personal Protection Equipment required when using FROTH-PAK™ ULTRA Premium Foam Insulation System includes chemical goggles and chemical resistant gloves preferably made from nitrile, neoprene, butyl or PVC. Long sleeves and pants or chemical resistant coveralls/protective suit with hood should be worn. Shoe covers may also be worn.

2.4 Skin Contact

Avoid ALL contact with skin. May cause irritation or sensitization. If skin contact occurs, remove contaminated clothing; carefully remove uncured material without spreading; wash skin with soap and water. If irritation occurs or persists, seek medical attention.

2.5 Eye Contact

Avoid ALL contact with eyes. Causes irritation. If contact with eyes occurs, flush with clean, low pressure water for 15 minutes while holding eyelids open. Seek medical attention.

2.6 Ingestion

If swallowed, give large amounts of liquids. **DO NOT** induce vomiting. Seek medical attention.

2.7 Removal of Cured Foam on Skin

Avoid ALL skin contact. FROTH-PAK™ ULTRA Premium Foam Insulation will adhere to most surfaces and skin. Wear gloves and protective clothing. Cured foam is difficult to remove. Cured foam must be mechanically removed or allowed to wear off in time.

2.8 Overfilling Restricted Spaces

Avoid overfilling restricted spaces. The reaction of these chemicals causes expansion and may exert enough force to cause an uncontrolled stream of foam, spraying the work area and possibly the operator.

2.9 Chemical Information

For more specific information about the chemical components "A" and "B", refer to the appropriate (Material) Safety Data Sheet (M)SDS. KEEP OUT OF REACH OF CHILDREN.

2.10 Chemical Spills

Consult SDS section 6 for Accidental Release Measures.

2.10.1 "A" Chemical

If "A" liquid spills from the tank, hose, or FROTH-PAK™ ULTRA Dispenser, provide proper ventilation, wear all PPE, and isolate the spill area. Keep unnecessary and unprotected personnel from entering the area.

Dike the area and soak up the spill with an oil absorbent material (vermiculite, sawdust, etc.). Neutralize the spillage area with a solution of 90% water, 2% dishwashing detergent, and 8% ammonia. The amount of this solution should be in excess of the volume of the spill. Allow the mixture to react for at least 10 minutes. Collect in an open top waste container and treat with additional ammonia solution. Remove the container to a safe and secure location that will not be accessible to individuals without proper PPE, loosely cover, and allow it to stand at least 24 hours. Dispose of the waste container in accordance with federal, state, and local regulations.

2.10.2 "B" Chemical

If the "B" chemical spills from the tank, hose, or FROTH-PAK™ ULTRA Dispenser, wear all PPE, dike and isolate the spill area. Keep unnecessary and unprotected personnel from entering the area. Soak up the spillage with an oil absorbent material (vermiculite,

sawdust, etc.). Wash the residue from the surface with soap and water. Discard in accordance with federal, state, and local regulations.

2.11 Cautions

2.11.1 Storage and Transportation Temperature

Recommended storage temperature: 60°- 80°F (16°-27°C). Storage below 60°F (16°C) is not recommended. Do not store at temperatures above 120°F (49°C).

2.11.2 Building Codes

In many areas, building codes may restrict the use of cellular plastics or polyurethane foam in exposed, interior finishing material applications. Under certain application code, the use of these materials may be prohibited. The foam produced by this product is organic and may constitute a fire hazard if improperly applied. Consult local building codes.

2.11.3 Surface Temperature Restrictions

Polyurethane foam should not be used in direct contact with chimneys, heat vents, steam pipes, or other surface areas that exceed 240°F (116°C). The foam should not be left exposed or inadequately protected for both interior and exterior finishing materials. It is strongly recommended in all applications that the foam be protected by approved facings and coatings. Consult your local building code for more information on compliance.

2.11.4 Open Flame / Spark Source

Do not smoke or operate the system in close proximity to an open flame or spark source. Ensure pilot lights are off. Welding on or near cured polyurethane foam requires special precautions. Consult The Dow Chemical Company for instructions.

2.11.5 Excessive Foam Dispensing

Do not apply excessive thicknesses at one time as this may result in spontaneous combustion. For thickness greater than two inches of cured foam, dispense foam in multiple layers, allowing the heat from foaming to dissipate between sprayings.

2.12 Training

It is recommended that product users receive spray foam training. Safe use and training videos are available at <http://building.dow.com/na/en/tools/training/>. For hands on training information contact your Dow sales representative. Further information is available at <http://www.spraypolyurethane.org/>.

Section 3

System Installation

3.1 Tank Positioning/Hose Labeling

1. Position the "A" tank to the left and the "B" tank to the right.
This is the standard in the polyurethane industry.
2. Mark the ends of air/nitrogen hoses (Part 00158420 FROTH-PAK™ ULTRA 7.5' Single Hose, 2 required) with yellow electrical tape. Mark the ends of the A side air/nitrogen hose with red electrical tape. Mark the ends of the B side air/nitrogen hose with blue electrical tape.
3. The red chemical hose is for the A side (Isocyanate) and the blue chemical hose is for the B side (Polyol)

3.2 Cylinder pressurization set up

Option#1 air pressurized chemical tanks

Option#2 nitrogen pressurized chemical tanks (air compressor required to supply air to dispenser)



3.2.1 Air Delivery System (ADS) Setup (Option #1)

1. Unscrew "A" side air dryer collar and remove the desiccant cartridge.
2. Remove sight glass bubble and fill sight glass with desiccant. Re-install sight glass.
3. Add desiccant beads to the cartridge, filling it nearly to the top.
4. Re-install desiccant cartridge.

NOTE: The system pressure should be relieved prior to removing the desiccant canister. The desiccant should be replaced prior to loss of efficacy. The desiccant used in the FROTH-PAK™ ULTRA Replacement Air Dryer has a humidity indicator that shows the degree of desiccant water-saturation, indicated by a color change. When dry, the desiccant is blue. The desiccant changes to pink when no additional water moisture can bond, indicating the need to replace. Because the rate of desiccant water-saturation is influenced by the air humidity, replacement must be determined from practical experience. Looking through the cartridge sight glass, confirm the desiccant is sufficiently dry to complete a job before using the system.

5. Using a standard air hose with ¼" quick connections, connect compressor to ADS panel air inlet at the lower right hand portion of the panel.
6. Connect "A" side pressurization line (taped yellow and red) to the ADS panel outlet marked "A" and the other end to the "A" side tank intake valve.
7. Connect "B" side pressurization line (taped yellow and blue) to the ADS panel outlet marked "B" and the other end to the "B" side tank intake valve.
8. Connect the "push-to-connect" fitting (Part #11106577) to the black air hose.
9. Connect the air (black) hose to the ADS panel air outlet – central lower portion of the panel.

3.2.2 Nitrogen Delivery System (NDS) Setup (Option #2)



NOTE: (Optional) Dry nitrogen is used for pressurizing the FROTH-PAK™ ULTRA Premium Foam Insulation System and is not supplied. It may be obtained for a nominal rental charge from any local welding supplier. Order standard size (industrial grade) cylinder with CGA 580 nitrogen fitting. Refer to FROTH-PAK™ ULTRA Premium Foam Insulation System Installation drawing, page A2.

1. Remove the orifice protector on the nitrogen cylinder. Insert the nitrogen regulator assembly stem into the orifice and hand tighten. Snug firmly using an adjustable wrench. Be careful not to strip the brass fitting.
2. Verify that the regulator pressure adjustment knobs are freewheeling. This indicates that the regulator stems are backed out (turn counter clockwise until they won't turn any further).
3. Remove the thread protectors on the bottom of the nitrogen regulator.
4. Connect the yellow and red taped nitrogen line to the left fitting on the nitrogen regulator assembly. Snug firmly with an adjustable wrench.

5. Locate the intake valve on the "A" tank. Verify that the valve is closed. The handle should be perpendicular to the valve. Loosen and remove the nitrogen intake cap on the "A" tank.
6. Connect the other end of the yellow and red coded nitrogen line to the nitrogen intake valve of the "A" tank. Snug firmly with an adjustable wrench.
7. Connect the other yellow and blue taped nitrogen line to the right fitting on the nitrogen regulator assembly. Snug firmly with an adjustable wrench.
8. Locate the intake valve on the "B" tank. Verify that the valve is closed. The handle should be perpendicular to the valve. Loosen and remove the nitrogen intake cap on the "B" tank.
9. Connect the other end of the yellow and blue coded nitrogen line to the nitrogen intake valve of the "B" tank. Snug firmly with an adjustable wrench.
10. Connect the "push-to-connect" fitting to the black air hose.
11. Connect the black air hose to the air compressor. Make sure you install the FROTH-PAK™ ULTRA Oil Coalescing Filter between the dispenser air hose and the air compressor if the air compressor is an oiled unit. (GMID 1 1 1 10407; FROTH-PAK™ ULTRA Oil Coalescing Filter)

3.3 FROTH-PAK™ ULTRA Tank / Hose / Dispenser Setup

1. Verify that the chemical tank valves are closed. The handle should be perpendicular to the valve. Remove the chemical valve plugs from the "A" and "B" tanks and place the plugs on top of the tank.
2. Carefully remove all of the petroleum jelly in the "A" chemical tank valve.

3. Remove the chemical filters from the canvas bags on top of each tank. Visually verify that the filter is clean.
4. Connect a chemical filter to each tank valve. Tighten the filters with an adjustable wrench. Do not over torque.
5. Connect the on-off valve assembly with the ½" outlet to the "A" side tank filter. Tighten the connections with an adjustable wrench. Do not over torque.
6. Connect the on-of valve assembly with the ¾" outlet to the "B" side tank filter. Tighten the connections with an adjustable wrench. Do not over torque.
7. Uncoil the chemical lines. Tape them together, with the air hose, every few feet.
8. Connect the Red ISO hose to the "A" tank on-off valve. Tighten the connection with an adjustable wrench. Do not over torque.
9. Connect the Blue Polyol hose to the "B" tank on-off valve. Tighten the connection with an adjustable wrench. Do not over torque.
10. If using a series of 30' hoses, connect hoses together using the included couplings. Tighten each connection with two adjustable wrenches.
11. Connect the 10' whip hose to the end of the chemical hoses.
 - A: Red ("A" side) chemical hose to red end whip hose. Use ½" to ½" coupling to connect.
 - B: Blue ("B" side) chemical hose to blue end whip hose. Use ¾" to ½" coupling to connect.
 - C: Tighten each connection with two adjustable wrenches. Do not over torque.
12. Connect an in-line on-off valve to the other end of each whip hose. Tighten each connection with two adjustable wrenches. Do not over torque.
13. Connect the Dispenser/Hose Assembly to the in-line valve of each hose:
 - "A" side hose has red end
 - "B" side hose has blue end
 - Tighten each connection using two adjustable wrenches.
14. Connect Part # 11106579 - FPU in-line on/off valve for – air (hose to dispenser) by push-to-connect to the air line (white hose).
15. Connect the dispenser air hose to in-line On/Off valve.

Section 4

Start-up Procedure

DO NOT breathe vapor or spray. Proper Personal Protective Equipment and ventilation are required. See product SDS and Section 2 of this manual for further information. Follow all precautions for product.

4.1 System Pressurization

Option # 1

4.1.1 Air Delivery System (ADS) Start-up

1. Verify that the regulator pressure adjustment knobs are backed out and are freewheeling.
2. Air System – turn on air compressor and set regulator to 100 - 110 psi. Do not set compressor pressure regulator above 140 psi.

Maximum pressure	Minimum pressure
140 psi.	100 psi.

3. Adjust the regulator knob on the air pressure booster pump to 200 psi (not to exceed 210 psi)
4. Turn the left regulator pressure adjustment knob clockwise to the proper pressure setting of the "A" tank (170 psi to start). If a hissing sound occurs, further tighten the yellow-coded line connection to the regulator assembly and/or the intake valve connection on the "A" tank using an adjustable wrench. If the left gauge fails to indicate a pressure setting, contact your Dow Sales Representative.
5. Turn the right regulator pressure adjustment knob clockwise to the proper pressure setting of the "B" tank (150 psi to start). If a hissing sound occurs, further tighten the yellow-coded line connection to the regulator assembly and/or the intake valve connection on the "B" tank using an adjustable wrench. If the right gauge fails to indicate a pressure setting, contact your Dow Sales Representative.

6. Set air pressure on ADS panel outlet regulator to 60 psi.

a) If a finer spray pattern is desired, raise air pressure in 10 psi increments – maximum pressure is 70 psi.

b) If more volume of spray is desired, lower air pressure in 10 psi increments – minimum pressure is 40 psi.

NOTE: When increasing chemical cylinder pressures for the first time or by more than 20psi, ensure there is no air flowing to the dispenser.

7. Slowly open the inlet valve of each tank. The valve handles should be parallel with the gas lines.
8. Slowly turn on the chemical valve of each tank. The valve handles should be parallel to the chemical lines. Verify that the filter connection of each tank is tight and that no chemical leaks are present.
9. Slowly turn on the on-off valves. The handles should be parallel to the chemical lines. Verify that the connections of each valve are tight and that no chemical leaks are present.
10. Slowly turn on the in-line on-off valves. The handles should be parallel to the chemical lines. Verify that the connections of each valve are tight and that no chemical leaks are present.

Option # 2

4.1.2 Nitrogen Delivery System (NDS) Start-up

1. Verify that the regulator pressure adjustment knobs on the regulators are backed out and are freewheeling.
2. Nitrogen System - Open the nitrogen bottle valve by turning the knob on top of the cylinder counterclockwise. If a hissing sound occurs, further tighten the nitrogen regulator pressure adjustment knob with an adjustable wrench. Verify the nitrogen cylinder pressure using the center gauge of the nitrogen regulator assembly. The system WILL NOT operate efficiently if the pressure falls below 500 psi. If below 500 psi, replace the nitrogen cylinder.

3. Turn the left regulator stem clockwise to the proper pressure setting of the "A" tank (175 psi to start; see section 12). If a hissing sound occurs, further tighten the yellow-coded line connection to the regulator assembly and/or the intake valve connection on the "A" tank using an adjustable wrench. If the left gauge fails to indicate a pressure setting, contact your Dow Sales Representative.
4. Turn the right regulator stem clockwise to the proper pressure setting of the "B" tank (150 psi to start; see section 12). If a hissing sound occurs, further tighten the yellow-coded line connection to the regulator assembly and/or the intake valve connection on the "B" tank using an adjustable wrench. If the right gauge fails to indicate a pressure setting, contact your Dow Sales Representative.
5. Set the air pressure on the compressor outlet regulator to 60 psi.
 - a) If a finer spray pattern is desired, raise the air pressure in 10 psi increments (maximum pressure is 70 psi).
 - b) If more volume of spray is desired, lower the air pressure in 10 psi increments (minimum pressure is 40 psi).
6. Slowly open the inlet valve of each tank. The valve handles should be parallel with the gas lines.
7. Slowly turn on the chemical valve of each tank. The valve handles should be parallel to the chemical lines. Verify that the filter connection of each tank is tight and that no chemical leaks are present.
8. Slowly turn on the on-off valves after the filters. The handles should be parallel to the chemical lines. Verify that the connections of each valve are tight and that no chemical leaks are present.
9. Slowly turn on the in-line on-off valves at the dispenser. The handles should be parallel to the chemical lines. Verify that the connections of each valve are tight and that no chemical leaks are present.

4.2 Calibration Instructions

Equipment needed: PPE, scale capable of weighing in grams, paper bags (lunch bags) and calibration nozzles

1. Ensure chemical temperature in tanks and lines are 70°F (21°C) or higher. Maximum storage and use temperature is 120°F.
2. Set pressures at recommended settings.

A side	B side
175 psi	150 psi

3. Ensure chemical is flowing properly through dispenser without the nozzle in place by spraying into a disposable open container (e.g. paper bag or bucket).
4. Place calibration nozzle in the dispenser. Before dispensing material into bags, pull trigger to ensure material is flowing properly through both tubes.

NOTE: Calibration is done with the air to the dispenser in the off position.

5. Hold two bags together, place one calibration nozzle tube in each bag and pull trigger for six to eight seconds.
6. Weigh bags separately. The ratio is the "A" weight divided by the "B" weight. If the ratio is too high increase the pressure of the "B" tank, and if the ratio is too low increase the pressure of the "A" tank.
7. Acceptable FROTH-PAK™ ULTRA Premium Foam Insulation ratios are 0.95:1 to 1.05:1

8. Know the bag weight so the weights may be subtracted out of the total weight of the chemical, i.e.

	(A)	(B)
Weight	220gms	216gms
Bag Weight	-08gms	-08gms
	212gms	208gms
212 divided by 208 equals 1.02 ratio		

NOTE: A ratio of 1.0:1.0 during calibration is ideal. When the air is added to the dispenser during spraying, the ratio will change to ~1.05. This is normal and necessary as the addition of air through the mixer causes the ratio to be different than with the calibration nozzle.

NOTE: Should pressure need to be reduced in a tank, slowly bleed off pressure. NEVER bleed below 80 psi.

4.3 System Purging and Testing

1. DO NOT breathe vapor or spray. Proper Personal Protective Equipment and ventilation are required. See product SDS and Section 2 of this manual for further information. Follow all precautions for product.
2. Dispense chemicals in an appropriate container. This is to verify proper chemical flow.
3. Clean any chemical from the FROTH-PAK™ ULTRA Dispenser face using a rag.
4. Turn on the air valve to the dispenser.

VERY IMPORTANT NOTE: Whenever a spray nozzle is inserted into the dispenser, air needs to be flowing through the dispenser and nozzle. If air is not flowing, the “A” & “B” chemicals will back into the air line which will make the dispenser unusable.

5. Insert an unused nozzle with the key slot down. Push in firmly until the nozzle ejector is seated over the back rim of the nozzle.
6. Dispense foam to verify proper chemical mixing. If improper mixing or poor foam quality, refer to the Troubleshooting (Section 10) of this manual.

4.4 Nozzle Replacement

1. Every time spraying is stopped, the material begins to react and harden inside the nozzle so the life of a nozzle depends on the elapsed time between sprays and the chemical temperature.

Replace a previously used nozzle if the elapsed time between sprays is exceeded using the chart below as a guide.

Chemical Temperature	Elapsed Paused Spraying Time
70°F (21°C)	35 Seconds
75°F (24°C)	30 Seconds
80°F (27°C)	25 Seconds
85°F (29°C)	20 Seconds

This chart is for both cone and fan type nozzles.

2. To replace the used nozzle, push down the nozzle ejector. The used nozzle should eject.
3. Insert an unused nozzle with the key slot down. Push in firmly until the nozzle ejector is seated over the back rim of the nozzle. The FROTH-PAK™ ULTRA Premium Foam Insulation System is ready to operate.

Section 5

Spraying Foam

5.1 FROTH-PAK™ ULTRA Dispenser Operation

The FROTH-PAK™ ULTRA Dispenser provides greater flow control and minimizes waste when used properly.

The following operating instructions ensure maximum efficiency and performance of the FROTH-PAK™ ULTRA Dispenser.

1. DO NOT breathe vapor or spray. Proper Personal Protective Equipment and ventilation are required. See product SDS and Section 2 of this manual for further information. Follow all precautions for product.
2. To insert an unused nozzle, verify that the key slot on the nozzle is in the down position. Push in firmly until the nozzle ejector is seated over the back rim of the nozzle.
3. When spraying is completed, remove the used nozzle by pushing down on the nozzle ejector.
4. Turn off the air flowing to the dispenser.
5. Apply petroleum jelly to the face of the FROTH-PAK™ ULTRA Dispenser.
6. Reinsert the used nozzle. This provides an airtight seal during storage.
3. Hold the dispenser a consistent distance from the work and perpendicular to the work. Move in a steady side to side stroke. Avoid swinging the dispenser; it will result in variable thicknesses of foam. The speed of your movement and the distance from the work will determine the thickness of the foam.
4. Always fully engage the trigger of the dispenser. Partial engagement may result in off ratio foam.
5. Let the foam cure (1-2 minutes). Look for an even tan color foam. The foam should rise 3 or 4 times the original thickness. Make sure the foam has cured and is firm.
6. If the foam looks unusual, verify the calibration settings and that the tanks are 70 – 80 °F (minimum 60 – 65 °F). Then remove the nozzle and purge material into a waste container for 15 – 30 seconds. Clean the face of the dispenser, insert a new nozzle and perform a test spray again.
7. If problems persist call your Dow Sales Representative or Dow Technical Service.
8. While spraying, always watch for signs of unusual looking foam. Troubleshoot as outlined above.
9. Watch for any bubbles in the translucent hoses near the dispenser and listen for any sputtering. This may be a sign of an empty tank.

5.2 Spraying FROTH-PAK™ ULTRA Premium Foam Insulation

1. Once the calibration is complete, choose the nozzle with the pattern appropriate for the job. Attach the nozzle.
2. Practice on scrap material or plastic sheet to get the feel of spraying and to ensure good foam is being made.

Section 6

Shut-down Procedure

1. Remove the used nozzle by pushing down on the nozzle ejector.
2. Turn off the air flowing to the dispenser
3. Apply petroleum jelly to the face of the FROTH-PAK™ ULTRA Dispenser.
4. Reinsert the used nozzle. This provides an airtight seal during storage.
5. Turn off the in-line on-off valves. The valve handles should be perpendicular to the chemical lines.
6. Turn off the on-off valves located near the chemical filters. The valve handles should be perpendicular to the chemical lines.
7. Turn off the chemical tank valves of the "A" and "B" tanks. The handles should be perpendicular to the valves.
8. Turn off the inlet valves of the "A" and "B" tanks. The handles should be perpendicular to the valves.
9. Turn off the nitrogen main valve (NDS).
10. Turn off the air compressor (ADS and NDS).
11. Back out both regulator pressure adjustment knobs until they are freewheeling.
12. Coil the chemical lines to prevent possible tripping and damage.

Section 7

Storage

1. Store in a dry area.
2. Store between 60°-80°F (16°-27°C).
3. Short term storage between 45°-60°F (7°-16°C) is permitted.
4. DO NOT store at temperatures above 120°F (49°C).
5. DO NOT allow tanks to freeze.
6. DO NOT store near steam or hot water pipes.
7. DO NOT store near chimneys or heat vents.
8. If a partially used system remains inactive for a period of time, the system should be pressurized and purged every two weeks. This will prevent crystallization of the chemical in the hoses.

Section 8

Re-start Procedure

Refer to Sections 4.1-4.4

Section 9

Tank Change-over

1. **DO NOT** breathe vapor or spray. Proper Personal Protective Equipment and ventilation are required. See product SDS and Section 2 of this manual for further information. Follow all precautions for product.
 2. Remove the used nozzle by pushing down on the nozzle ejector.
 3. Turn off the chemical tank valves. The handles should be perpendicular to the valves.
 4. Depressurize the chemical lines by engaging the trigger, dispensing the chemical in an appropriate container.
 5. Clean any chemical on the FROTH-PAK™ ULTRA Dispenser face with a rag.
 6. Turn off the on-off valves located near the tank filter. The valve handles should be perpendicular to the chemical lines.
 7. Turn off the inlet valves of the "A" and "B" tanks. The handles should be perpendicular to the valves.
 8. Turn off the nitrogen cylinder by turning the valve in a clockwise direction (NDS only).
 9. Back out both regulator pressure adjustment knobs until they are freewheeling (ADS and NDS).
- 9.1 "A" Tank Change-over**
1. Position the new "A" tank next to the empty "A" tank.
 2. Verify that the inlet and chemical valves of the new "A" tank are closed. The handles should be perpendicular to the valves.
 3. Remove the cap on the inlet valve of the new "A" tank.
 4. Relieve the pressure by loosening and removing the yellow-coded air/nitrogen line from the inlet valve of the empty "A" tank using an adjustable wrench.
 5. Reconnect the "A" yellow-coded air/nitrogen line to the inlet valve of the new "A" tank. Tighten the connection with an adjustable wrench.
 6. Remove the chemical valve plug of the new "A" tank and place the plug on top of the new "A" tank.
 7. Carefully remove the petroleum jelly in the "A" chemical tank valve.
 8. Remove the fluid filter from the canvas bag on top of the new "A" tank. Visually verify that the filter is clear.
 9. Connect the filter to the new "A" tank chemical valve. Tighten the filter with an adjustable wrench.
- CAUTION:** When disconnecting chemical lines, always cover the connections with a rag to minimize chemical spray or spillage.
10. Disconnect the "A" on-off valve from the filter of the empty "A" tank, covering the connection with a rag.
 11. Reconnect the "A" on-off valve to the filter of the new "A" tank. Tighten with an adjustable wrench.
 12. Remove the used filter from the empty "A" tank and dispose of appropriately.
 13. Reconnect the used plug on the empty "A" tank to the chemical valve. Tighten with an adjustable wrench.
 14. Depressurize the empty "A" tank by slowly opening the gas inlet valve.
 15. When the tank has been depressurized, close the gas inlet valve of the empty "A" tank and reconnect the cap. Tighten with an adjustable wrench.

16. Remove the empty "A" tank and position the new "A" tank in its place.
17. Write "EMPTY" on the empty "A" tank.

9.2 "B" Tank Change-over

1. Position the new "B" tank next to the empty "B" tank.
2. Verify that the inlet and chemical valves of the new "B" tank are closed. The handles should be perpendicular to the valves.
3. Remove the cap on the inlet valve of the new "B" tank.
4. Relieve the pressure by loosening and removing the yellow-coded air/nitrogen line from the inlet valve of the empty "B" tank using an adjustable wrench.
5. Reconnect the "B" yellow-coded air/nitrogen line to the inlet valve of the new "B" tank. Tighten the connection with an adjustable wrench.
6. Remove the chemical valve plug of the new "B" tank and place the plug on top of the new "B" tank.
7. Remove the fluid filter from the canvas bag on top of the new "B" tank. Visually verify that the filter is free of debris.
8. Connect the filter to the new "B" tank chemical valve. Tighten the filter with an adjustable wrench.

CAUTION: When disconnecting chemical lines, always cover the connections with a rag to minimize chemical spray or spillage.

9. Disconnect the "B" on-off valve from the filter of the empty "B" tank, covering the connection with a rag.
10. Reconnect the "B" on-off valve to the filter of the new "B" tank. Tighten with an adjustable wrench.
11. Remove the used filter from the empty "B" tank and dispose appropriately.

12. Reconnect the plug on the empty "B" tank to the chemical valve. Tighten with an adjustable wrench.
13. Depressurize the empty "B" tank by slowly opening the gas inlet valve.
14. When the tank has been depressurized, close the gas inlet valve of the empty "B" tank and reconnect the yellow-coded cap. Tighten with an adjustable wrench.
15. Remove the empty "B" tank and position the new "B" tank in its place.
16. Write "EMPTY" on the empty "B" tank.

9.3 Tank Return

Complete the bill of lading on the empty tanks as described in Section 1.6 of this manual.

9.4 New Cylinder Startup

Follow Sections 4.1–4.4

If not planning to spray immediately, follow steps 4.1 and 4.3 and insert a used nozzle into the dispenser.

Section 10

Troubleshooting

The FROTH-PAK™ ULTRA Premium Foam Insulation System is virtually maintenance-free and many problems can be corrected through simple troubleshooting techniques. When troubleshooting, confirm that the system is pressurized correctly, and that all air/nitrogen and chemical valves are in the open position. One closed valve can cause a system shut-down.

10.1 Temperature

Chemical temperature can affect foam quality. If the chemical temperature is below 65°F (18°C), poor quality foam may result. The ideal temperature range is 70°-90°F (21°-32°C).

10.2 Foam Color and Quality

Changes in foam quality indicate an off-ratio foam. If the foam is crusty after curing, the foam is "A" rich and a lack of "B" chemical flow exists. If the foam is soft, and remains soft after two minutes, the foam is "B" rich and a lack of "A" chemical flow exists. To identify and correct the problem, initiate the following procedure:

1. DO NOT breathe vapor or spray. Proper Personal Protective Equipment and ventilation are required. See product SDS and Section 2 of this manual for further information. Follow all precautions for product.
 2. Remove the used nozzle by pushing down the nozzle ejector. Use only in well ventilated areas. With insufficient ventilation, wear suitable respiratory protection.
 3. Dispense chemicals in an appropriate container and examine the chemical streams. If the streams appear equal, the problem existed in the nozzle. Continue with steps 4-7 below. If the problem is not corrected, the blockage exists in the system. Continue with CAUTION – below step 7.
 4. Clean any chemical from the FROTH-PAK™ ULTRA Dispenser face using a rag.
 5. Insert an unused nozzle.
 6. Dispense chemical in an appropriate container.
 7. Check the quality of the foam. If the foam is good, the system is ready to operate. If the problem is not corrected, the blockage exists in the system. (Continued from step 3)
- CAUTION:** When disconnecting chemical lines, always cover the connections with a rag to minimize chemical spray or spillage.
8. Turn off the "A" and "B" lines with the in-line on-off valves. The valve handles should be perpendicular to the chemical lines.
 9. Turn off the air to the dispenser.
 10. Depressurize the Dispenser/Hose Assembly by pulling the trigger, dispensing chemicals in an appropriate container.
 11. Disconnect the FROTH-PAK™ ULTRA Dispenser from the in-line on-off valve using two adjustable wrenches.
 12. While holding the chemical line over an appropriate container, carefully open the valve of the "A" hose and dispense chemical into the container. Check the flow. Repeat for the "B" hose.
 13. If the flow was adequate from both hoses, the problem was with the FROTH-PAK™ ULTRA Dispenser /Hose Assembly. Discard the old FROTH-PAK™ ULTRA Dispenser /Hose Assembly and replace with a new one according to steps 13-20. If a blockage persists, continue with step 21.
 14. Connect the new FROTH-PAK™ ULTRA Dispenser /Hose Assembly.
 15. Tighten all connections with two adjustable wrenches.
 16. Verify that all chemical line valves are on. The valve handles should be parallel to the chemical lines.
 17. Dispense chemicals in an appropriate container to verify proper chemical flow.
 18. Clean any chemical from the face of the FROTH-PAK™ ULTRA Dispenser with a rag.
 19. Insert an unused nozzle with the key slot down. Push in firmly until the nozzle ejector is seated over the back rim of the nozzle.
 20. Turn on the air to the dispenser.
 21. Dispense chemicals in an appropriate container.
 22. Check the quality of the foam. If the foam quality is good, the system is ready to operate. If problems persist, go back to step 2.
 23. Turn on the in-line on-off valve of the blocked line to depressurize the hose, allowing the chemical to dispense in an appropriate container.
 24. Close the in-line on-off valve when the hose has depressurized.

25. Disconnect the obstructed chemical hose from the on-off valve located next to the tank filter.
26. Slowly re-open the on-off valve located near the filter and allow the chemical to flow in an appropriate container. If the chemical flow is unobstructed, the blockage exists in the chemical hose which must be replaced.
27. If the blockage persists, examine the tank filter.
28. Close the on-off valve.
29. Close the chemical tank valve.
30. Open the on-off valve located near the filter to depressurize the filter.
31. Disconnect the on-off valve from the filter.
32. Disconnect the filter from the chemical tank valve.
33. Reconnect a new filter.
34. Reconnect the on-off valve with the swivel to the filter.
35. Tighten all connections with an adjustable wrench.
36. Verify that the on-off valve is closed. The handle should be perpendicular to the valve.
37. Open the chemical tank valve.
38. Open the on-off valve and allow the chemical to flow in an appropriate container. If the flow is full, reconnect the chemical hose and Dispenser/Hose Assembly and perform steps 16-23. If the flow is weak, the problem exists in the tank. Contact your Dow Sales Representative for assistance.

10.3 Low Air Flow to the Dispenser

1. Monitor the air flow through the nozzle whenever a new nozzle is connected.
2. If the air flow lessens and/or the spray quality degrades without changing the pressure settings, it is possible that there is a blockage in the dispenser.
3. First, check that the compressor is operating normally and that the air pressure to the dispenser is 40 psi or higher. Temporarily increase the air pressure to the dispenser to 110 psi in an attempt to blow out any blockage. If this removes the blockage and flow noticeably increases, then set the air pressure back to the normal level (max 70 psi) and continue spraying.
4. Turn off both chemical in-line on/off valves and the air in-line on/off valve.
5. Remove the nozzle from the dispenser.
6. Activate the dispenser trigger to depressurize the dispenser.
7. While the trigger is activated, use a metal pick to probe for any foam blockage in the center (air) hole in the dispenser face.
8. Open the air in-line valve. If the flow is back to normal, open the chemical in-line on/off valves, insert an unused nozzle and continue spraying. If not, continue to Step 9.
9. Close the air in-line valve.
10. Remove the metal clip at the back of the dispenser where the white air hose enters.
11. Using the metal pick, remove any foam blockage that exists in the back of the dispenser and in the end of the air hose.
12. Open the air in-line on/off valve. The flow of air out of the hose should be strong. Close the air valve.

13. Re-install the air hose to the dispenser and replace the clip.
14. Open the air in-line valve. If the flow is back to normal, open the chemical in-line valves, insert an unused nozzle and continue spraying. If not, the dispenser needs to be replaced. Continue to Step 15.
15. Replace the dispenser by removing the dispenser hoses from the chemical and air in-line on/off valves and reconnect a new dispenser.
16. Open the air in-line on/off valves and check for air flow. If normal, open the chemical in-line on/off valves, insert an unused nozzle and continue spraying.

Section 11

Yield Notes

Board foot yields are based on the free rise of the total weight of the chemicals in the tanks. Many factors affect the yield in field applications.

11.1 Operator Technique

For best results, apply multiple layers of foam. When spraying, apply one-quarter to one-half inch thickness of uncured foam. This will produce a one to one-and-one-half inch thickness of fully cured foam. The cured foam should be a maximum of 2" thick per pass.

11.2 Application

Avoid spraying over rising foam.

11.3 Temperature

To ensure proper chemical mix, reaction, cure, and optimum yields, chemicals should not be dispensed if the chemical temperature is below 65°F (18°C). Insufficient operating temperatures can cause improper mix, extend cure time, and adversely affect final physical properties and yields.

NOTE: As a best practice when using polyurethane foam, estimate 30% more foam than is required. This yield buffer is recommended so as to not run out of chemical on a job site.

Section 12

Pressure Settings

Use the following as a starting point. It is important to calibrate because chemical temperature will affect the ratio.

	Cylinder Pressure		Air pressure
	A	B	Dispenser (gun)
Wall Cavity	175	150	60
Rim Joist	140	120	70
All pressures in psi			

NOTE: Maximum air pressure to dispenser (gun) - 70 psi.

Section 13

Nitrogen Regulator (Optional)

13.1 Important - Safety Information

1. **NEVER** use oxygen regulators on the FROTH-PAK™ ULTRA Premium Foam Insulation System
2. **NEVER** use oil or petroleum base grease on regulator, inlet connection, or cylinder valve. An explosion or fire could result. The lubricant used on this regulator adjusting screw is Dow Corning No. 44 silicone grease which is a non-petroleum base grease.
3. **NEVER** stand in front of, or behind a regulator while opening the cylinder valve.

13.1.1 Instructions

1. Before attaching the regulator to the cylinder valve outlet, open the valve for a few seconds, allowing the gas to force out any possible foreign matter.

2. Attach the regulator to the cylinder valve and tighten the inlet nut securely with an adjustable wrench.
3. Before opening the cylinder valve, turn the adjusting screws (regulator pressure adjustment knobs) to the left until no tension is felt.

NOTE: NEVER open cylinder valve until spring tension on the regulator pressure adjustment knobs has been released.

4. Open cylinder valve slowly. DO NOT stand in front of or behind regulator while opening the cylinder valve.
5. Turn regulator pressure adjustment knobs clockwise until the low pressure gauge registers the desired working pressure. Nitrogen Regulators are available through The Dow Chemical Company.

Refer to Nitrogen Regulator Assembly drawing, page A-3. The regulator is not pressure releasing - turning the regulator to a lower psi will not reduce pressure in the tank until the pressure is manually vented.

Section 14

Tank Heater Bands

14.1 Usage

In places where the FROTH-PAK™ ULTRA Premium Foam Insulation System is used where the ambient temperature is below 65°F (18°C), an external source to heat the chemical in the tanks may be required.

Heating bands are available for the 17, 27 and 60 gallon cylinders through:

McMaster-Carr
www.mcmaster.com
630-600-3600

The heater band McMaster model numbers are as follows:
17 and 27 gallon: 3545K42, and 60 gallon: 3545K44

Control boxes are available through:

Glas-Col Apparatus Company
711 Hulman Street, P.O. Box 2128
Terre Haute, IN 47802
812 - 235 - 6167

The model number for the control box is PL-312.

During the initial start-up, the controls for the heater bands can be set at 3 or 4 for two hours. However, for continuous operation, "LO" would be the desired setting, unless extremely low temperatures are experienced.

14.2 Installation Procedure - Tank Heater Band

1. Wrap and clamp heater band around tank prior to switching on.
2. Pull on spring, at the same time hold end of heater against the tank.
3. Place a loop of the spring over the hook.
4. The heater should not be clamped in dented areas of the tank.
5. The heater must be in full contact with the tank and below the level of the liquid while in operation.
6. **DO NOT** bend the heater sharply as this may cause internal damage to the heating element.
7. **DO NOT** use outside insulation.

NOTE: Heaters are available for other tank heating operations, refer to Electro-Flex Heat, Inc.

14.3 Warming Equipment

Warming equipment also keeps jobs on schedule during colder months, delivering a barrier of insulated heat to the spray foam. Powerblanket creates an optimal application environment. For more information, call Powerblanket Customer Service at 877-398-7407.

To order call 801-456-8013 and refer to the item numbers below:

- DOW-17 (17-gallon tank heater)
- DOW-27 (27-gallon tank heater)
- DOW-60 (60-gallon tank heater)
- DOW-GHT (Digital thermostatic controller)



14.4 Glas-Col Power Control Description and Operation

The Glas-Col Minitrol is a manually adjusted power control of percentage timer design. Minitrol is designed to proportion full output power 5.5% to 100% of time depending on the dial setting. The “Off” position positively breaks both sides of the line.

Dial Setting	Percent of time on
Off	0
Lo	5.5 (approx.)
4	35 (approx.)
6	52 (approx.)
Hi	100

The control can be used on any non-inductive fused resistance load up to 15 amps and 120 volts. Smaller fuses may be used for protection of very small loads. Simply plug device into a 3-wire outlet of the control and insert plug of Minitrol cord into a wall receptacle. The pilot light is connected across the output side of the control and indicates power to the load. Minitrol's operation and control is adjusted by the operator and does not utilize a sensing element. After a desired temperature has been determined on the initial run, a simple resetting of the dial offers control for repeat operations. This control effectively regulates heating mantles, tapes and cords. Minitrol may also be used for small furnaces or ovens, hot plates, dies or other applications requiring infinite control. The control should not be exposed to ambient temperatures above 125°F (52°C).

In addition to Minitrol, stock is maintained on variable transformers and automated controls. Write to the address below for more information:

Glas-Col Apparatus Company
711 Hulman Street
Terre Haute, Indiana 47802
812-235-6167

Section 15

Arctic Pak Hose Replacement Set

15.1 General Information

When ambient temperatures are below 65°F (18°C), use of Arctic Pak heated chemical hoses is often required for consistent, quality results. The Arctic Pak will keep the chemicals at an even, warm temperature to allow uniform processing.

This product is primarily intended to keep already warmed materials at temperature during flow from the cylinder to the FROTH-PAK™ ULTRA Dispenser. Chemical tanks should be stored in a warm location until use, and may require use of a tank heater band set (please see Section 14). The Arctic Pak is used in place of unheated chemical transport lines described throughout this manual.

DO NOT use Arctic Pak hoses in place of nitrogen lines or for conveying non-polyurethane chemicals of any type.

DO NOT use the Arctic Pak with any flammable materials.

Standard unheated chemical lines are available in 30 feet lengths, and are often connected in series to produce longer lengths as job needs require. The Arctic Pak standard length is 150 feet. Coil unneeded hose (if any) out of the traffic path to prevent a trip hazard. Never attempt to cut the Arctic Pak to a shorted length or to splice in additional hose.

The Arctic Pak is fully pressure checked at the factory prior to shipment.

15.2 Preparing and Installing the Arctic Pak

1. Unpack and examine your Arctic Pak for possible shipping damage. Do not use if damage has occurred.
2. Assemble Arctic Pak hose system as per Section 3.3.
3. The dispenser end is the end without the electrical cord entering it. Connect the in-line on-off valves to the dispenser end of the Arctic Pak hoses and tighten securely. Close the on-off valves if

not already closed.

4. The electrical cord servicing the heaters enters at the tank end of the jacket.
5. Connect the tank end of each hose to the appropriate chemical tank on-off valve. The hose with the red colored sleeve and blue body should connect to the isocyanate tank. The blue sleeved, black bodied hose should connect to the polyol tank. Close the on-off valves if not already closed.
6. Follow the remaining operating manual instructions for Chemical Hose Installation (Section 3.3). Also execute the instructions regarding System Pressurization (Section 4.1) and Calibration Instructions (Section 4.2) as they are the same for both heated and unheated hoses.
7. Once chemical is contained within the hoses, turn the controller to its lowest setting and plug the heater controller into a standard 110vAC outlet capable of continuously providing 15 amps of service. As with any electrical device, care should be taken to keep the system out of wet areas and to avoid mechanical damage to the controller, electrical lines, heated hose jacket, and other electrically charged parts.
8. Adjust the controller as needed to provide the heat desired. This temperature will depend on ambient conditions, type of application, and the chemical system being used. Let the process results be your final guide in deciding a set point temperature.
9. Shut-Down, Re-Start, Tank Change procedures, etc. are the same as outlined in this manual for standard unheated hose.
10. When changing the tanks or whenever leaving the system unmanned for long periods of time (overnight, for example), it is good practice to unplug the heater controller.
11. When storing the system, and between work sessions, it is best practice to leave chemical in the hoses, and to have all valves closed. Leaving a hose open, or having air within the hose will

cause crystallization of the isocyanate and hose blockage.

15.3 Spare Parts and Maintenance

Please refer to Section 1.2 Accessories for a list of replacement parts.

Replacement hose part 11106587 - FROTH-PAK™ ULTRA Arctic Pak Replacement Hose Set (A & B Side 150' Hoses and 160' air hose)

To replace the hose(s):

1. Close chemical tank valves, and the on-off valves located between the tanks and hoses.
2. Close air or nitrogen valves. Turn off air valve to the dispenser at the compressor or ADS panel
3. Carefully and completely depressurize the chemical from lines through the FROTH-PAK™ ULTRA Dispenser into separate appropriate waste containers by activating one hose at a time.
4. Lay the hose jacket reasonably straight with the hook-and-loop seam upwards, as this will greatly help the hose exchange. Unfasten the jacket from around the hoses by parting the hook-and-loop strips which hold the jacket in place. This is most easily accomplished with two or more people.
5. Verify there is no pressure remaining in the hoses and that the tank valves are closed. Close the in-line chemical valves at the dispenser. Lay the new hose along the old one in the open jacket. Cover the connections of the old hose with a rag and disconnect the hose from the tank end. Cap the old hose to reduce potential for spillage. Connect the new hose to the tank end.
6. Repeat the procedure, using a rag, for the dispenser end of the hose. Cap the old hose to reduce potential for spillage. Connect the new hose to the dispenser.
7. Remove the old hose from the jacket by clipping the cable ties

and lifting it away. Discard the old hose using an appropriate waste stream as you would for other polyurethane waste products.

8. Re-tie the new hoses about every ten feet to each other using cable ties. This helps in handling and coiling the hose later.
9. Re-close the hook-and-loop strips, bringing the heated jacket up evenly around the paired hoses.
10. Re-establish the system to the operational state using the installation, pressurization, calibration, and other procedures found in this manual.

Section 16

Warranty

The Dow Chemical Company warrants only that the product shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties and The Dow Chemical Company expressly disclaims any warranty of merchantability, or fitness for a particular purpose. The buyer assumes all risks as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the refund of the purchase price of the material. Failure to strictly adhere to any recommended procedures shall release The Dow Chemical Company of all liability with respect to the materials or the use thereof. The information herein is not intended for use by non-professional designers, applicators or other persons who do not purchase or utilize this product in the normal course of their business.

WARNING: Water reacts aggressively with isocyanate. Reactions within a confined space such as within a hose may present a safety concern. Even small amounts of water vapor may cause a blockage or an adverse reaction. Water carried within the polyol hose to the point where blending with isocyanate occurs must be avoided.



In the U.S.**The Dow Chemical Company**

Dow Building Solutions
1605 Joseph Drive, 200 Larkin Center
Midland, Michigan 48674

Technical Information:

1-866-583-BLUE (2583) (English)

Sales Information:

1-800-232-2436 (English)

dowbuildingsolutions.com

sprayfoamatdow.com

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Dow Polyurethane Foam Insulation and Sealants

CAUTION: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240°F (116°C). For more information, consult SDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada. When air sealing buildings, ensure that combustion appliances, such as furnaces, water heaters, wood burning stoves, gas stoves and gas dryers are properly vented to the outside. See website: <http://www.epa.gov/iaq/homes/hip-ventilation.html>.

FROTH-PAK™ ULTRA Premium Foam Insulation contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and (Material) Safety Data Sheets (M)SDS carefully before use. Wear protective clothing (including long sleeves), gloves, goggles or safety glasses, and proper full-faced respiratory protection.

Do not breathe the vapor or mist. Use only with adequate ventilation. It is recommended that applicators and those working in the spray area wear full-faced respiratory protection. Increased ventilation significantly reduces the potential for isocyanate exposure, however, supplied air or an approved full-faced air-purifying respirator equipped with an organic vapor sorbent and a particulate filter may still be required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure, full-faced air-supplying respirator (air line or self-contained breathing apparatus). Spraying large amounts of foam indoors may require the use of a positive pressure, air-supplying respirator. Contents under pressure.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

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