

# FREEZE-FIGHTER CONCENTRATE

## -100°F (-73°C) BURST PROTECTION

### FF-SPEC

#### PRODUCT DESCRIPTION

##### PRODUCT

**FREEZE-FIGHTER** Anti-Freeze Concentrate and Heat Transfer Fluid for HVAC, Potable Water, and Solar Systems.

##### DESCRIPTION

Nontoxic Propylene Glycol Anti-Freeze Solution with special anti-corrosion inhibitors, color indicators, and burst protection to -100°F (-73°C).

##### RECOMMENDED USES

**FREEZE-FIGHTER** Anti-Freeze Concentrate is ideal for water based systems requiring maximum freeze and corrosion protection without the risk of environmental contamination.

**FREEZE-FIGHTER** Anti-Freeze Concentrate works excellent in:

- Closed Loop Solar Systems.
- Hydronic HVAC Systems
- Potable Water Lines
- Sprinkler Systems
- Irrigation Lines
- Recreational Vehicles
- Pleasure Craft

**FREEZE-FIGHTER** Anti-Freeze Concentrate is a pure blend of Propylene Glycol and corrosion inhibitors that must be diluted with water for burst protection down to -100°F (-73°C). The dilution with water provides for an economical method for protecting the system from freezing or bursting. **FREEZE-FIGHTER** Anti-Freeze Concentrate can be diluted to offer higher freeze points and burst protection in warmer climates (see freeze and burst protection chart).

**FREEZE-FIGHTER** Anti-Freeze Concentrate lubricates pumps, valves and moving parts. **FREEZE-FIGHTER** Anti-Freeze Concentrate will not harm plastic or rubber seals, o-rings, or gaskets.

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#### RECOMMENDED USES (Continued)

**FREEZE-FIGHTER** Anti-Freeze Concentrate is suitable for use with continuous operating systems with temperatures up to 250°F (121°C), and will not degrade significantly from short term exposures to temperatures up to 350°F (177°C).

#### COLOR/CONSISTENCY

Aqua Blue liquid

#### ENVIRONMENTAL STATEMENT

**FREEZE-FIGHTER** Anti-Freeze Concentrate is nontoxic, Nonflammable, and non-corrosive. **FREEZE-FIGHTER** Anti-Freeze Concentrate eliminates the possibility of contaminating domestic and potable water systems. **FREEZE-FIGHTER** Anti-Freeze Concentrate will not support bacterial growth.

#### APPLICATION PRECAUTIONS

**FREEZE-FIGHTER** Anti-Freeze Solution has a greater tendency to leak past faulty joints than water, so all leaks must be properly corrected.

#### LIMITATIONS

**FREEZE-FIGHTER** Anti-Freeze Concentrate must be diluted to provide for proper freeze protection. Do not use in systems containing galvanized pipe or aluminum. Do not use in conjunction with boiler treatment chemicals without first consulting the manufacturer.

#### WEIGHT PER U.S. GALLON

8.57 lbs. (3.9 kg) ± 0.2

#### PACKAGING

##### U.S. Measure:

<u>Stock Code</u>	<u>Size</u>
<b>Plastic Jug w/ Spout</b>	
FF1	1 gal. (3.785 L)
<b>5 Gallon Plastic Pail w/ Handle</b>	
FF5	5 gal. (18.9 L)
<b>55 Gallon Drum</b>	
FF55	55 gal. (208 L)
<b>275 Gallon Tote</b>	
FF275	275 gal. (1040 L)

#### SHIPPING WEIGHT PER CASE

<u>Stock Code</u>	<u>Case Weight</u>	<u>#/Case</u>
FF1	57 lbs. (25.9 kg)	6
FF5	44 lbs. (20.0 kg)	1
FF55	515 lbs. (233.6 kg)	1
FF275	2575 lbs. (1168 kg)	1

#### DIRECTIONS FOR USE

1. Empty the entire system through faucets, petcocks, and other openings. Then close all openings.
2. Replace all water in the system with a mixture of 60% **FREEZE-FIGHTER** Anti-Freeze Concentrate and 40% water to obtain -100°F (-73°C) burst protection. When using **FREEZE-FIGHTER** Anti-Freeze Concentrate to make less concentrated mixtures, use the Freeze and Burst Protection Chart to determine the correct dilution ratio to obtain the desired burst and freeze protection. Do not make mixtures less concentrated than shown on the table.
3. Be sure to protect all drains by adding **FREEZE-FIGHTER** Anti-Freeze Concentrate to traps and toilets to prevent freezing. Open each faucet to be sure **FREEZE-FIGHTER** Anti-Freeze Concentrate has displaced any water pockets. Close faucets when the aqua color of **FREEZE-FIGHTER** Anti-Freeze Concentrate appears.
4. For circulating hot water heating systems and solar heating and cooling systems, **FREEZE-FIGHTER** Anti-Freeze Concentrate can remain in the system all year. Be sure to flush the system thoroughly of dirt, scale or oil prior to adding **FREEZE-FIGHTER** Anti-Freeze Concentrate.
5. Test the entire system for freeze protection and acid corrosion protection with **FREEZE-FIGHTER** Test Strips. Additional **FREEZE-FIGHTER** Anti-Freeze Concentrate may be required. Test the system annually.

(over)



The Industry Standard for Over 100 Years

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#### TECHNICAL CHARACTERISTICS

FREEZE-FIGHTER CONCENTRATE						
FREEZE AND BURST PROTECTION CHART						
Percent in Solution						
	75%	60%	50%	40%	30%	25%
<b>Burst Protection °F</b>	-110.0	-90.0	-75.0	-50.0	-20.0	-10.0
<b>Burst Protection °C</b>	-78.9	-67.8	-59.4	-45.6	-28.9	-23.3
<b>Freeze Point °F</b>	-70.0	-50.0	-21.0	-2.0	11.0	16.0
<b>Freeze Point °C</b>	-56.7	-45.6	-29.4	-18.9	-11.7	-8.9
<b>Parts by Volume - Water</b>	1	2	1	3	7	3
<b>Parts by Volume - Freeze-Fighter Solution</b>	3	3	1	2	3	1

#### HOW TO SIZE YOUR SYSTEM

The capacity of your boiler can be found on the boiler plate, in the boiler manual or contact the manufacturer. To determine the Total Capacity of the System use one of the following methods:

**Direct Method:** Fill system completely, making sure all components of system are full. Shut system down, let pressure drop to a safe level. Drain out fluid into suitable container and record the number of gallons removed. This is Total System Fluid Capacity.

**Estimated Method:** Determine system pipe sizes and amount of linear footage for each size. Use the following chart to help determine the number of gallons of solution required to fill the system. Add this number to the gallon capacity of the boiler or equipment in the system to determine the Total System Fluid Capacity.

VOLUME/PIPE SIZING									
PIPE DIAMETER	½"	¾"	1"	1½"	2"	2 ½"	3"	3 ½"	4"
<b>Number of Gallons Per 100' Standard Steel Pipe</b>	1.6	2.8	4.5	10.5	17.5	25.0	39.0	53.0	66.7
<b>Number of Gallons Per 100' Type "L" Copper Tubing</b>	1.2	2.5	4.3	9.3	16.1	24.8	35.4	47.8	62.0

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