

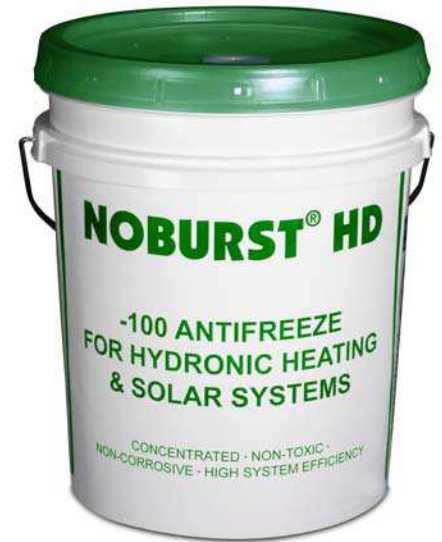


NOBURST® HD

Antifreeze & Heat Transfer Fluid

Product Description

NOBURST HD is a non-toxic* antifreeze and heat transfer fluid. The product is to be used in place of water and other water-like fluids in systems where freezing may either cause damage or interfere with the functioning of systems or equipment and/or toxicity to humans or animals is a concern. NOBURST HD is safe for use when there is a possibility of contact with potable water.



Applications:

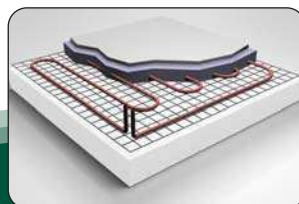
- Hydronic heating systems
- Solar heating
- Ground water and earth coupled heat pumps
- “Air hydronic” heat pumps and furnaces
- Water-based heat extraction systems
- Cooling systems and chillers
- Refrigerating systems
- Pipe tracing
- Cooling towers
- Industrial heat transfer
- Plumbing winterization
- Ice making machines
- Snow melt systems
- Fire hydrant winterization
- Cooling coil defrosting
- Immersion freezing
- In-floor heating

System Protection:

Protection Description

Freeze is the temperature where the first ice crystal forms in the fluid. Flow is the temperature where the fluid will contain ice crystals but still flow. Burst is the temperature where the fluid is solid, expanding and bursting the vessel.

NOBURST HD	Freeze Point	Flow Point	Burst Point
100%	-60°F	-70°F	-100°F
75%	-60°F	-60°F	-100°F
50%	-30°F	-40°F	-75°F
40%	-7°F	-15°F	-60°F
35%	0°F	-10°F	-60°F



Sizes:

- NOBURST HD is available in:
- 1-gallon plastic bottles (6/case)
 - 5-gallon plastic pails
 - 30-gallon plastic drums
 - 55-gallon plastic drums
 - 275-gallon plastic totes
 - 5000-gallon tank trucks

Installation:

No matter what type of system or equipment NOBURST HD is to be used in, several key steps are the same.

1. Clean the system. Minerals, scale, rust and sediment can shorten the life of your system, reduce NOBURST's effectiveness and reduce heat transfer efficiency.

Drain the system completely. Flush with clean fresh water, add NOBURST Pre-Cleaner. Add 1 pint for every 50 gallons of system capacity. Then run the system up to operating temperature. Allow Pre-Cleaner to circulate for 24 hours to 1 week. Drain and flush with clean water.

Check the system for leaks and repair any that are found. NOBURST may leak through some mechanical connections that do not leak with water. This is because of the of the viscosity of propylene glycol and water.

2. Measure total capacity of the system including the piping, tanks, boiler, collector plates, etc. The most accurate method of measuring fluid capacity is to fill the system and then completely drain it, volumetrically measuring the fluid drained.

Piping fluid capacity may be estimated using the pipe capacity chart on our website. Boiler and tank capacity must be obtained from the manufacturer of the equipment. Be sure all piping, collectors and thermal expansion is accounted for in your estimates.

3. Determine the low temperature protection needed and the corresponding NOBURST concentration to use. Calculate the number of gallons of NOBURST to add to the system. **ALLOW FOR ESTIMATE ERRORS WHEN DETERMINING THE AMOUNT OF NOBURST TO USE.**

4. Make sure the system is empty, that the burner and pump are shut off and that all zone and other valves are open so that no part of the system is isolated. Add NOBURST and then deionized or distilled water or pre-mix the NOBURST with water before adding the mixture to the system.

5. Remove all air from the system. Oxygen is required for corrosion to occur, so the less oxygen present, the better the corrosion resistance. Air can also reduce circulation, waste energy and cause noise.

Air is entrapped in water and other fluids and only is extracted over time, so several ventings or purgings may be necessary to have an airless system. Be certain to purge all air vents in the system.

6. Test the fluid after installation and thorough mixing to insure the proper amount of freeze protection is present. Test the fluid for pH, reserve alkalinity and freeze protection using either a NOBURST test kit, a pH test kit for pH and a NOBURST test kit or a propylene glycol refractometer for freeze protection.

System Requirements, Limitations & Cautions:

- NOBURST HD should not be used in systems where temperatures regularly exceed 325°F or in systems that are permanently open to the atmosphere.
- NOBURST HD will remove zinc from galvanized materials, therefore, contact with galvanized materials should be minimized. Systems constructed of aluminum will also experience corrosion with NOBURST HD, particularly at temperatures above 125°F. Use NOBURST AL.
- Should not be used in steam heat systems.
- Is not to be used as a coolant for internal combustion engines.
- Although existing systems require no modification, in new systems being designed for use with NOBURST the following modifications are recommended:
 - The expansion tank should be sized to allow about 4% greater expansion than for plain water in the same temperature range.
 - The pump head should be increased by 10% over the minimum requirements for those with plain water.
 - A strainer should be installed in the return line ahead of the pump.
- NOBURST should not be used with other chemicals.
- NOBURST HD is not recommended for use with CPVC in concentrations greater than 20%.

*FDA Reference:

- Propylene Glycol: 21 CFR 182.1666
- Dipotassium Phosphate: 21 CFR 182.6285

Both qualify as "Generally Recognized as Safe for use as Direct Food Additives".

*Toxicological, Environmental, & Health Information:

- Gosselin Toxicity Index (Propylene Glycol): 1 "essentially non-toxic"
- Mean Single Lethal (Oral) Dosage: greater than one liter