# NOBURST®

## NOBURST Antifreeze & Heat Transfer Fluid

*Factory Pre-mixed Freeze Protection for Water-based Heating and Cooling Systems*

NOBURST non-toxic* antifreeze solutions are 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.[1]


Noble Company
Simple Solutions... Proven Performance

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FEDERAL PROCESS CORPORATION

AMERICAN COMPANY PRODUCTS

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# NOBURST ANTIFREEZE AND HEAT TRANSFER FLUID

NOBURST non-toxic antifreeze solutions are factory pre-mixed freeze protection for water-based heating and cooling systems 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 family of products consists of ALL-NEW **NOBURST RTU40 40% PG**, **RTU35 35% PG**, and **RTU30 30% PG**, plus **NOBURST -100**, **Super NOBURST**, **NOBURST HD**, and **NOBURST AL**.

## AVAILABLE SIZES

- 5-gallon pails
- 30-gallon drums
- 55-gallon drums
- 275 or 330-gallon totes
- 5,000-gallon tank truck

## AVAILABILITY

Noburst Ready to Use mixes are available throughout the U.S. through wholesale distributors. Please contact Noble Company for your local representative and wholesaler.

## CUSTOM BLENDS

Custom formulations are available for lower concentrations of glycerine.Please contact Noble Company for more information.

## INGREDIENTS

**Active:** Propylene Glycol and Dipotassium Phosphate

**Other:** Viscosity Reduction Agent, Food-Grade Dye, Deionized Water

# NEW! NOBURST READY TO USE

Water quality concerns are no longer limited to our drinking water. Whether it's well or municipal water with high total hardness, boiler equipment manufacturers are now more cautious than ever. When mixing propylene glycol on-site, poor water quality can lead to long-term damage to heating systems. Noble Company is addressing those concerns and is pleased to introduce a new line of ready-to-use antifreeze that eliminates these water quality concerns.

Designed to be introduced directly into systems with no on-site dilution, NOBURST RTU products are factory premixed with deionized water ensuring no mineral content or hardness levels and the elimination of chlorides, which are second only to oxygen as a leading cause of heating system corrosion. NOBURST RTU blends are available in 30, 35, and 40% propylene glycol concentrations with no minimum order quantity. **DO NOT DILUTE.**

## NOBURST® RTU40 40% PG

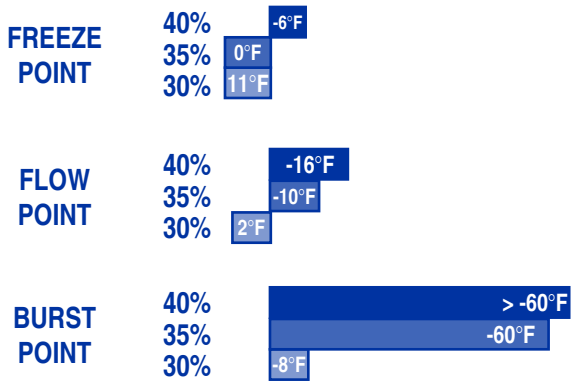
| | |
|---|---|
| **Boiling Point** | 103.9 |
| **Viscosity @ 160˚ F** | 1.04 |
| **Specific Gravity @ 72˚ F** | 1.027 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.24 |
| **Specific Heat Capacity @ 160˚ F** | 0.925 |

## NOBURST® RTU 35 35% PG

| | |
|---|---|
| **Boiling Point** | 102.8 |
| **Viscosity @ 160˚ F** | 0.93 |
| **Specific Gravity @ 72˚ F** | 1.024 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.255 |
| **Specific Heat Capacity @ 160˚ F** | 0.939 |

## NOBURST® RTU30 30% PG

| | |
|---|---|
| **Boiling Point** | 102.2 |
| **Viscosity @ 160˚ F** | 0.82 |
| **Specific Gravity @ 72˚ F** | 1.021 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.271 |
| **Specific Heat Capacity @ 160˚ F** | 0.953 |





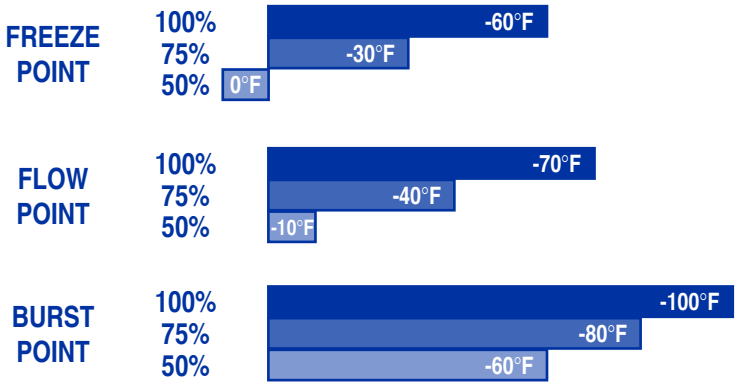
**SYSTEM PROTECTION**

Freeze Point is the temperature where the first ice crystal forms in the fluid. Burst point is the temperature where the fluid is solid, expanding, and bursting the vessel. *Specific gravity measured at 72°F. **Viscosity, specific heat capacity, and thermal conductivity are measured at 160°F.


## NOBURST -100

- Non-toxic
- Non-corrosive
- High efficiency
- Blended with deionized water

NOBURST -100 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. This product must NOT be used in automotive cooling systems or with galvanized metals containing zinc or aluminum.

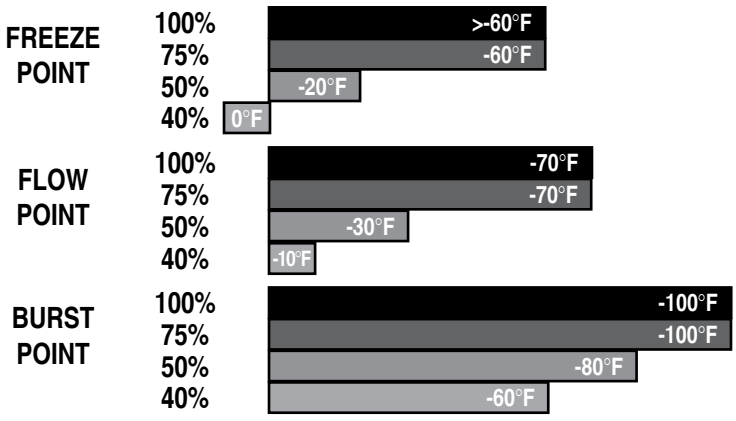



| | 100% | 75% | 50% |
|---|---|---|---|
| **Boiling Point** | 238 | 224 | 218 |
| **Viscosity @ 160˚ F** | 2.19 | 1.43 | 0.93 |
| **Specific Gravity @ 72˚ F** | 1.055 | 1.046 | 1.035 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.161 | 0.205 | 0.256 |
| **Specific Heat Capacity @ 160˚ F** | 0.806 | 0.890 | 0.939 |


## SUPER NOBURST

- Concentrated formula
- Non-toxic
- Non-corrosive
- High efficiency

SUPER NOBURST is for hydronic boilers and solar systems. With proper installation and annual inspection, it will protect systems from freeze damage and severe corrosion for 10 years. This product must NOT be used in automotive cooling systems or with galvanized metals containing zinc or aluminum.

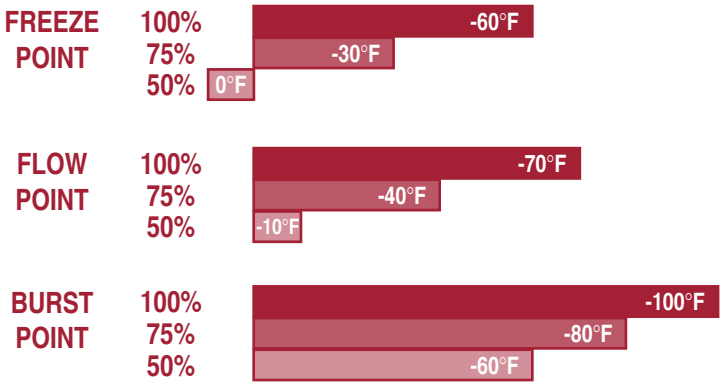



| | 100% | 75% | 50% | 40% |
|---|---|---|---|---|
| **Boiling Point** | 310 | 237 | 222 | 219 |
| **Viscosity @ 160˚ F** | 4.13 | 2.30 | 1.29 | 1.00 |
| **Specific Gravity @ 72˚ F** | 1.052 | 1.054 | 1.044 | 1.031 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.126 | 0.157 | 0.217 | 0.251 |
| **Specific Heat Capacity @ 160˚ F** | 0.696 | 0.797 | 0.898 | 0.929 |


## NOBURST AL

- Use with all metals
- Non-corrosive
- Special inhibitor package
- High efficiency
- Blended with deionized water

An antifreeze and heat transfer fluid for systems which contain aluminum components. NOBURST AL has inhibitor technology that is compatible with all metals commonly used in hydronic heating systems including brass, cast iron, steel, solder, copper, and aluminum. This product must NOT be used in automotive cooling systems or with galvanized metals containing zinc or aluminum. *[1]NOBURST AL is not to be used in contact with or potential contact with potable water.*

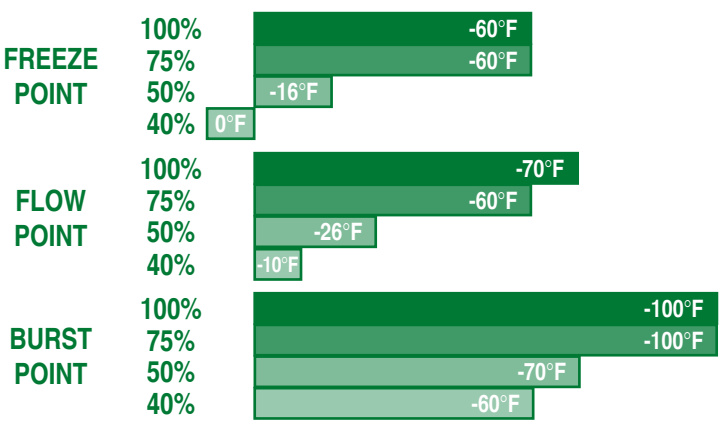



| | 100% | 75% | 50% |
|---|---|---|---|
| **Boiling Point** | 238 | 224 | 218 |
| **Viscosity @ 160˚ F** | 2.19 | 1.43 | 0.93 |
| **Specific Gravity @ 72˚ F** | 1.055 | 1.046 | 1.035 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.161 | 0.205 | 0.256 |
| **Specific Heat Capacity @ 160˚ F** | 0.806 | 0.890 | 0.939 |


## NOBURST HD

- Extended temperature range
- Non-toxic
- Non-corrosive
- High efficiency
- Blended with deionized water

NOBURST HD is a non-toxic* antifreeze and heat transfer fluid with a special inhibitor package allowing for use where system temperatures demand glycol stability. Safe for use up to 325° F. Does not contain silicone-based additives, which can harm systems at high temperatures. This product must NOT be used in automotive cooling systems or with galvanized metals containing zinc or aluminum.




| | 100% | 75% | 50% | 40% |
|---|---|---|---|---|
| **Boiling Point** | 310 | 237 | 222 | 219 |
| **Viscosity @ 160˚ F** | 4.13 | 2.21 | 1.26 | 0.99 |
| **Specific Gravity @ 72˚ F** | 1.052 | 1.054 | 1.044 | 1.037 |
| **Thermal Conductivity @ 160˚ F** (BTU/HR-Ft(2)/(F/ft) | 0.126 | 0.160 | 0.220 | 0.247 |
| **Specific Heat Capacity @ 160˚ F** | 0.696 | 0.803 | 0.901 | 0.932 |

# APPLICATIONS

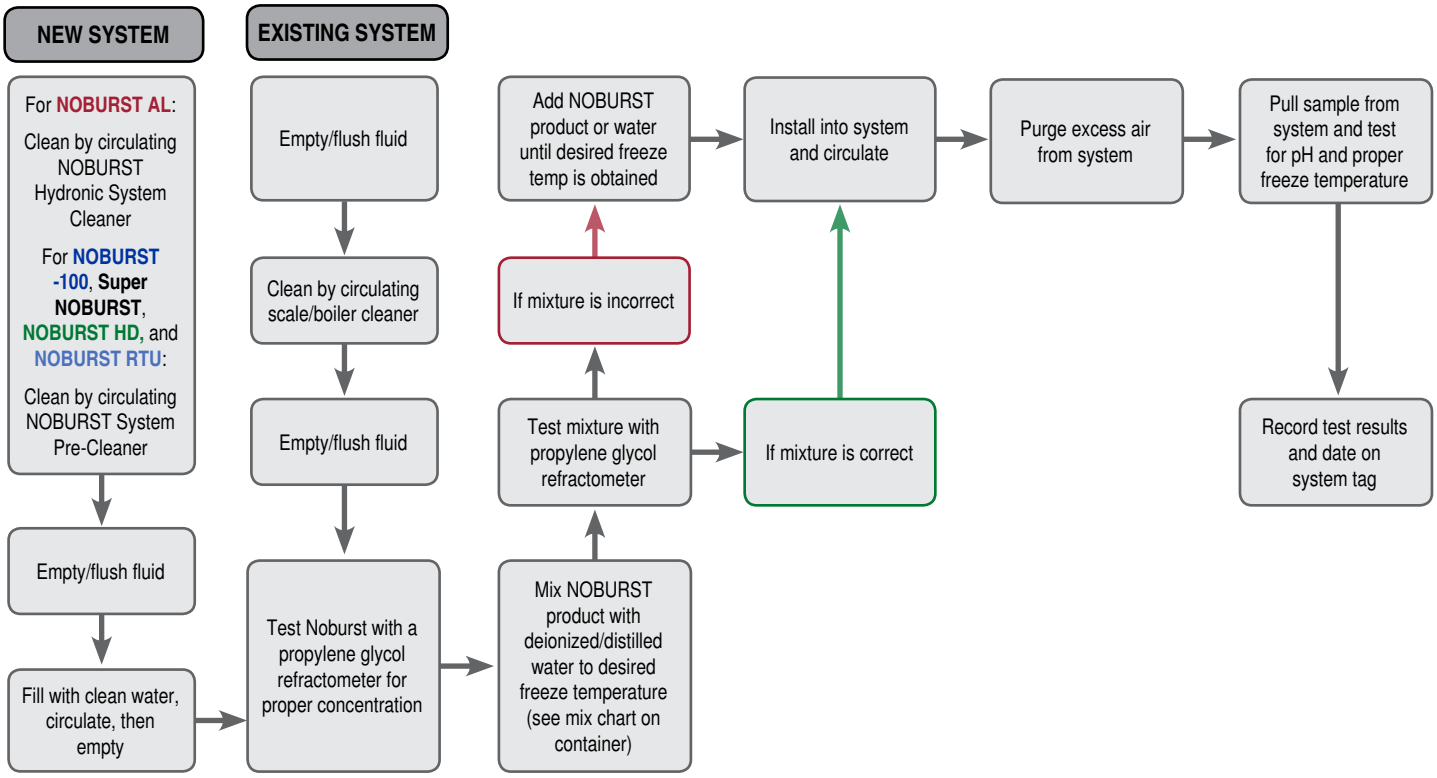
| SYSTEM TYPE | NOBURST -100 | NOBURST AL | Super NOBURST | NOBURST HD | NOBURST RTU |
|---|---|---|---|---|---|
| Hydronic heat systems | ● | ● | ● | ● | ● |
| Solar heating systems | | | | ● | |
| Geothermal systems | | | | ● | |
| "Air Hydronic" heat pumps | ● | | ● | | ● |
| "Air Hydronic" furnaces | ● | | ● | | ● |
| Water-based heat extraction systems | ● | ● | ● | ● | ● |
| Cooling systems & chillers | ● | ● | ● | ● | ● |
| Refrigerating systems | ● | ● | ● | ● | ● |
| Cooling towers | ● | ● | ● | ● | ● |
| Industrial heat transfer | ● | ● | ● | ● | ● |
| Plumbing winterization | ● | | ● | | ● |
| Snow melt systems | ● | ● | ● | | ● |
| In-floor heating | ● | ● | ● | ● | ● |

# HEAT TRANSFER PROPERTIES

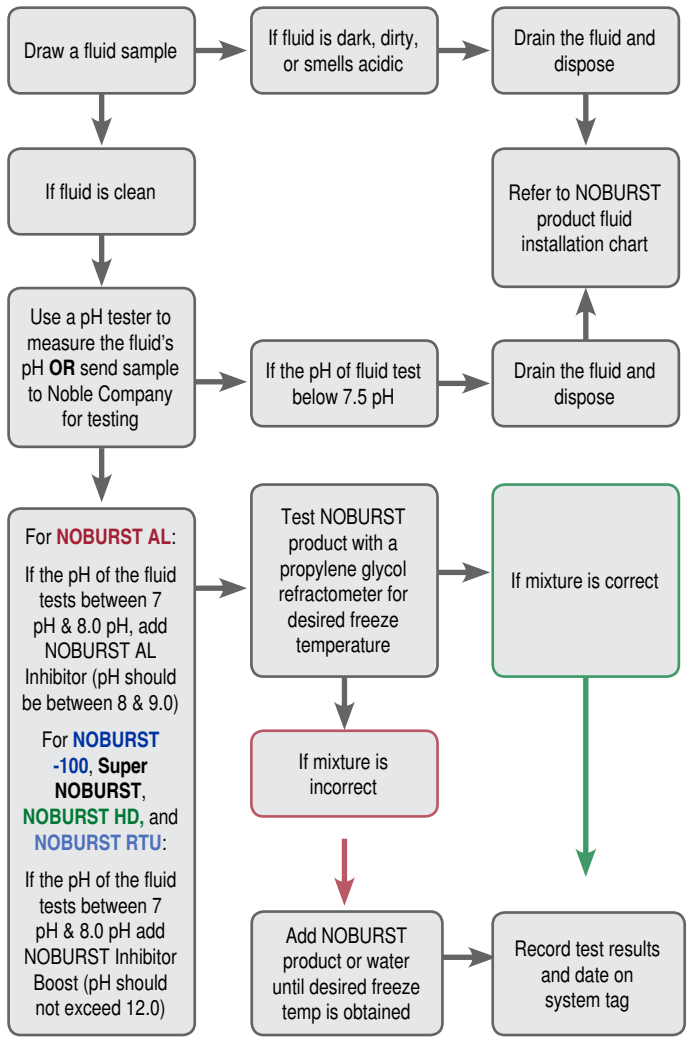
| | Relative System Efficency[2] | Thermal Conductivity BTU/HR/FT/°F | Viscosity (Centipoises) | Foam Character | Cold Protection Level (F °) |
|---|---|---|---|---|---|
| **Water** | 1.000 | 0.35 | 0.42 | None | +32° |
| **Noburst -100 (50%)** | 0.930 | 0.256 | 0.93 | None | -60° |
| **Noburst -100 (75%)** | 0.833 | 0.205 | 1.43 | None | -80° |
| **Noburst -100 (100%)** | 0.799 | 0.161 | 2.19 | None | -100° |
| **Ethylene Glycol[3] (50%)** | 0.896 | 0.237 | 1.40 | Slight | -34° |
| **Ethylene Glycol[3] (75%)** | 0.772 | 0.183 | 2.75 | Slight | -60° |
| **Ethylene Glycol[3] (100%)** | 0.693 | 0.151 | 5.00 | Slight | +5° |
| **Silicone SlyTherm 444[4]** | 0.351 | 0.082 | 9.86 | Slight | -121° |
| **SlyTherm800[4]** | 0.369 | 0.074 | 5.00 | Slight | -40° |
| **Synthetic Hydro-Carbon[3]** | 0.475 | 0.070 | 11.69 | High | -40° |
| **Therphenyl[6]** | 0.409 | 0.0677 | 9.86 | Very High | -20° |

1. Table data obtained from Dow Chemical, Noble Company tests, and competitors' product literature. All comparisons (except cold protection level) are at fluid temperatures of +150°F.
2. System efficiency as a function of specific heat and fluid density with no change in fluid flow rate.
3. Data is for DowTherm brand Ethylene Glycol, Trademark and product of the Dow Chemical Company.
4. Slytherm is a Trademark and product of Dow-Corning Corporation.
5. Data is for H-30, a product of Mark Enterprises.
6. Data is for Therminal 66 Modified Terphenyl[6], a product of Monsanto Industrial Chemicals Company.

# FLUID INSTALLATION




# FLUID MAINTENANCE




**MAINTENANCE**

Systems with NOBURST installed should be tested at least annually for adequate NOBURST concentration and corrosion inhibitor protection level. If NOBURST concentration is low, add NOBURST according to this **FORMULA TO INCREASE NOBURST CONCENTRATION:**

Example:
- 400 Gallon Capacity
- 75% NOBURST Desired
- 50% NOBURST currently in system
- 100% NOBURST in a NOBURST container
- Step 1: 75 minus 50 = 25 (Desired – Current)
- Step 2: 100 minus 50 = 50 (100% NOBURST – Current)
- Step 3: 400 x 25 = 10,000 (Capacity x {Desired – Current})
- Step 4: 10,000 divided by 50 = 200

**Conclusion:** 200 gallons of NOBURST -100 must be added to the 200 gallons of 50% solution currently in the system to reach a 75% total solution.

Before adding additional NOBURST, drain adequate fluid from the system so that when the new NOBURST is added, the operating pressure will not be too high. If the corrosion inhibitor tests low, add one pint of NOBURST Inhibitor Boost for every 20 gallons of fluid capacity of the system. If the total system capacity is less than 20 gallons, use one pint. If after Inhibitor Boost addition and thorough system mixing the corrosion inhibitor still tests low, add another pint for every 20 gallons system capacity. If after this addition the inhibitor still tests low, the system has been contaminated with minerals or an acidic chemical. The system should be drained, cleaned, and recharged with fresh NOBURST.

## SYSTEM MAINTENANCE

### SYSTEM PRE-CLEANER


- Removes flux, oil, and grease from new systems, assuring maximum performance.
- Use one pint for every 50 gallons of system capacity.

For use with: **NOBURST -100, Super NOBURST, NOBURST HD, NOBURST RTU**

### INHIBITOR BOOST


- Regenerates corrosion inhibitors and extends the life of NOBURST in a system.
- Use one pint for every 20 gallons of system capacity.

For use with: **NOBURST -100, Super NOBURST, NOBURST HD, NOBURST RTU**

### E-3 DEFOAMING AGENT


- To aid in removing air from the system. Air can cause corrosion, reduce circulation, waste energy, and cause noise.
- Use one pint for every 25 gallons of system capacity.

For use with: **NOBURST -100, Super NOBURST, NOBURST RTU**

### ALL METALS INHIBITOR


- Reduces the rate of corrosion and helps prevent scale formation on heat exchanger surfaces.
- Safe on all metal systems (including aluminum).
- Can be used with water only systems.
- Suitable for use with Onix & Pex tubing used in hydronic installations.
- Use one gallon for every 50 gallons of system capacity.

For use with: **NOBURST AL**

### HYDRONIC SYSTEM CLEANER


- Penetrates and disperses a broad range of mineral and organic deposits.
- Helps recover efficiency in older, corroded systems.
- Cleans aluminum, iron, copper, brass, and stainless steel.
- Suitable for use with Onix & PEX tubing. Contains no TSP, acids, or heavy metals.
- Use one gallon for every 50 gallons of system capacity.

For use with: **NOBURST -100, Super NOBURST, NOBURST HD, NOBURST AL, NOBURST RTU**

## TESTING ACCESSORIES

### TEST KIT (10 TEST STRIPS)


- For testing the concentration and reserve alkalinity
- For determining the actual level of freeze and corrosion protection in a system

For use with: **NOBURST -100,** **Super NOBURST,** and **NOBURST HD,** **NOBURST RTU**

### ANALOG REFRACTOMETER

- For testing the freeze point
- Use for testing propylene glycol
- Can be used to test batteries

For use with: **NOBURST -100,** **Super NOBURST,** **NOBURST HD,** **NOBURST AL,** **NOBURST RTU**

### PALM ABBE DIGITAL REFRACTOMETER

- Instant results of freezing point (PG & GL) and % concentration by volume
- Use for testing propylene glycol and glycerine
- Auto calibration

For use with: **NOBURST -100,** **Super NOBURST,** **NOBURST HD,** **NOBURST AL,** **NOBURST RTU**

## TESTING

To test the freeze protection level of NOBURST, the correct instrument must be used.

**FLAMMABILITY:** Non-flammable.

NOBURST is not flammable since it has no measurable flashpoint (Pensky-Martens Closed Cup); however, if the product comes in extended contact with open flame, it is possible it will ignite. Material Safety Data Sheets available upon request.

**FUMES:** Non-hazardous.

**ENVIRONMENTAL HAZARD:** Low.

NOBURST is not toxic to animals or plants. Spills may generally be disposed of through city sanitary sewer; however, local sewer authorities should be contacted prior to disposal. Large spills, uncontrolled disposal, and waterway discharge should be avoided since NOBURST biodegrades rapidly, possibly depleting oxygen supply in bodies of water which can result in fish kill. All uncontrolled spills should be reported to local authorities. Water softeners should be disconnected from the boiler or provided with backflow protection to prevent contamination of the mineral bed.


## SYSTEM REQUIREMENTS, LIMITATIONS & CAUTIONS

NOBURST should not be used in systems where temperatures regularly exceed 275°F or in systems that are permanently open to the atmosphere.

Use NOBURST HD in systems where temperatures exceed 275°F, up to 325°F, such as solar hot water systems.

- Systems constructed of aluminum will also experience corrosion with NOBURST, particularly if high temperatures (125°F +) are expected. For systems with aluminum, use NOBURST AL. All other common metals are protected from corrosion with NOBURST -100, Super NOBURST, NOBURST HD, and NOBURST RTU.
- NOBURST products should not be used in systems containing galvanized metal. NOBURST is not recommended for use with CPVC or PVC.
- Should not be used in steam-type heating systems.
- Should not 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: (1) the expansion tank should be sized to allow about 4% greater expansion than for plain water in the same temperature range; (2) the pump head should be increased by 10% over the minimum requirements for those with plain water; and (3) a strainer should be installed in the return line ahead of the pump.
- A well-maintained hydronic system using NOBURST should not require other treatment chemicals. NOBURST should not be used with other water treatment chemicals. Noble Company cannot test all possible combinations of chemicals for compatibility and proper performance. Although NOBURST is compatible with the leading stop-leak chemicals, we do not recommend the use of these chemicals because of their possible detrimental influence on equipment.

## TECHNICAL SUPPORT

Noble offers technical services for the following:

- Specifications
- Field Services
- Installation Design
- Fluid Testing
- Installation Techniques and Unique Applications

Address inquiries ATTN: NOBURST Technical Support, Email: sales@noblecompany.com or phone at: 800-878-5788. Field services are available through factory representatives and Noble Company staff. Contact Noble Company for local representatives.

Additional product information and MSDS are available immediately through our website at www.noblecompany.com.

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### FDA REFERENCE

NOBURST -100, NOBURST HD, Super NOBURST, and NOBURST RTU are considered “Generally Recognized as Safe” by the Federal Food & Drug Administration. Non-Toxic is used to describe extremely low chronic and acute toxicity. No maximum safe intake for humans has been established.

### TOXICOLOGICAL, ENVIRONMENTAL, & HEALTH INFORMATION

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

Noble Company

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File #FF122017-14 | 03/18 | Supersedes NB012017-11