"Selecting the Proper Freeze Protection Fluid and Maintaining Hydronic System Performance"

Noble Company has produced Hydronic antifreeze solutions for over 20 years. Since we have a great deal of expertise in fluids, we field questions on a broad range of issues from the suitability of various fluids to the care and maintenance of systems. A very capable technical service group is available to answer inquiries.

Choosing the proper fluid for your system:
In order to provide your customers with the level of service needed, you should choose a high quality fluid for your customer's system, determine the proper dilution, and maintain the fluids used to protect the system.

For Freeze Protection most systems use a mixture of propylene glycol (PG) with proper inhibitors and water for optimum freeze and corrosion protection.

System Cleaning:
A new or older system should be cleaned prior to introduction of the final fluid. The new system-cleaning agent should be able to remove pipe dope, cutting oils and solder flux. An older system should use a cleaner to remove the build-up of scale. A ¼ inch of scale will increase the cost of fuel by up to 40% over a clean system.

Water Quality:
Water from municipal sources and wells varies greatly in terms of chloride content and hardness. Chloride is corrosive and water should not be used if it contains more than 100 PPM of chloride. Hardness in water produces sediment deposits, scale sludge, depletes inhibitors, and reduces heat transfer efficiency. The use of deionized or distilled water eliminates most of those problems. As a producer of antifreeze fluids, we formulate with deionized water to insure that our fluids last as expected and meet customers'needs.

Corrosion:
Metals oxidize and corrode when exposed to water and oxygen. Pitting, crevice and galvanic corrosion is a problem for antifreeze fluids consisting of only PG and water. This is why an appropriate corrosion inhibitor is included in a high quality antifreeze formulation.

Testing Fluid:
Antifreeze solutions should be tested at least one a year. Since leaks, pressure surges, heat, and other disruptions can produce changes in the fluid's life, testing system capabilities is essential.

pH:
Testing provides a measure of the system's health. Generally, pH values for antifreeze range from 0 to 11 in non-aluminum fluid. pH below 7 indicates that the fluid is acidic and above indicates that it is alkaline. For non-Aluminum systems both pH and reserve alkalinity should be sufficient to extend the life of the fluid. The inhibitor should have the ability to buffer the acid created by the aging of the PGand create a stabile pH.

Aluminum systems require different inhibitors. Specially formulated PG should be used for aluminum systems to prevent catastrophic failures. Beware, PG based antifreeze made for automobiles contains silicates that gel and clog the aluminum boilers.

Testing of pH can be done using a digital pH test meter, which provides an accurate numerical level of pH in moments. Litmus strips can also be used. Test strip results are compared to a chart, which indicates an approximate pH level.

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Freeze Point:
A refractometer (re-frac-tom-eter) should be used to determine the accurate level of freeze protection of the fluid. Refractometers determine the concentration of fluids by measuring their refractive index. A series of prisms and lenses are used to measure small changes in the angle that light travels through the fluid. These changes can be related to concentration/freeze point. Testing is quite simple: place a few drops of fluid in the unit and the reading is displayed.

Conclusion:
Having state of the art testing instruments may reduce your exposure to risk. A digital pH meter and a high quality refractometer give you accurate information in the shortest possible time and may be a prudent investment. Purchasing high quality products from reputable suppliers should enable you to deliver better service in less time.

About Noble Company:
Noble Company has produced quality products and services for the construction industry for almost 60 years. They produce a variety of antifreeze products including NOBURST® and NOBURST AL for Aluminum systems. Fluids are available pre mixed or as concentrates in 5-gallon pails, 55-gallon drums, totes, and tanker trucks. The finest raw materials (including deionized water) contribute to quality. The company also markets refractometers, test strips, inhibitor boost, and other accessories to help ensure system performance. Use Noble Company's quality products and services to minimize costly problems.

For more information, contact Noble Company or one of our representatives.