Product Bulletin

Classification: Heat Transfer Fluid Additive Package

ADDITIVES INC.

HTF Additive Packages

Additives Inc. specializes in the development and the production of additive packages used to make virgin, or recycled, propylene and ethylene glycol based heat transfer fluids. The use of Additives Inc. Add Paks and heat transfer fluid systems in your products and customers' systems will ensure: consistent product quality, economy, ease of blending corrosion prevention, long-life dependability, minimization of laboratory time and expense. Our chemists have developed a variety of stand-alone Add Paks for: glycol based heat transfer fluids, glycol based safety hydraulic fluids, and alkylate based high-temperature fluids. We can adjust formulations to meet your specific needs for performance-enhancing additives, in both light- and heavy-duty systems.

Industry Specifications

HDIS-1 meets or exceeds the requirements of:

- ASTM D 1384
  Corrosion in glassware of steel, cast iron, aluminum, copper, brass and solder.
- ASTM D 1881
  Foaming tendency test
- ASTM D 2809
- ASTM D 3306
  Water pump cavitation erosion/corrosion test
- ASTM D 4340
  Aluminum corrosion at heat transfer surfaces
- ASTM D 4985
- ASTM D 2570
  Simulated service metal coupon corrosion test
- ASTM D 6210
  Fully formulated pre-charged coolant standard
- ATA TMC RP 329
  Fully formulated, pre-charged coolant standard

Quality Control

To ensure quality control and assurance, all blending is controlled under ISO 9002 standards. Each individual batch of Add Pak is rigorously tested for conformance with product and industry specifications prior to storage, packaging, or shipment. The laboratory analysis is thoroughly conducted by Additives Inc. A Certificate of Analysis for each lot is produced and is available to customers.

HDIS-1

Heavy-Duty Industrial Service Heat Transfer Fluid Additive Package

Product Description and Applications

An industrial-strength, glycol-based inhibitor package, HDIS-1 inhibits corrosion, enhances performance and produces outstanding propylene glycol and ethylene glycol heat transfer fluids. Fluids made with HDIS-1 are versatile and long-lasting in even the most demanding applications. They can be used effectively in cooling systems for the large, stationary diesel engines used to drive natural gas compressors; in line heaters and bath heaters used to keep natural gas above its hydrate formation temperature; in engine generator sets for electrical power production; combustion air preheaters; and industrial diesel engines.

HDIS-1 contains no silicates, but has an outstanding non-silicate aluminum corrosion protection system. It contains no nitrates or amines. HDIS-1 protects against cavitation erosion/corrosion in wet-piston-sleeve diesel engines, and is available in a high-nitrite version (2400 ppm minimum NO_2 in heat transfer fluid concentrate) that meets ASTM D 6210 and ATA TMC RP 329.

Product Specifications

Visual	Somewhat cloudy straw-colored liquid
Odor	Slightly bitter, caustic odor
Specific Gravity	1.28-1.38
Boiling Point	255°F
pH	11.5-12.5

Use Instructions

For heavy-duty applications such as use in cooling systems for large stationary engines, use a rate of at least 4% by volume (based on the quantity of glycol being treated) is recommended. HDIS-1 in glycol (either ethylene or propylene) will provide inhibitor levels consistent with those given above as typical, and will provide outstanding coolant performance and equipment protection.

For less demanding uses, shorter term applications or situations in which glycol loses may be high (as in certain line heaters and dehydrators) use rates from 2.6% to 4.0% often provide more than adequate protection from glycol oxidation and metal corrosion.

Water Quality And Dilution: Propylene or ethylene glycol-containing HDIS-1 may be diluted to levels in the 30-50% glycol range with water containing up to 300 ppm (total) hardness (salts of magnesium calcium, etc.). Higher hardness levels may cause excessive inhibitor consumption, scale deposits and metal pitting.

Additives Inc. can provide fully-formulated HDIS-1 inhibited glycols, diluted with deionized water, if the availability of a suitably balanced source of water is a problem.

Fluid Maintenance:
Coolants made with HDIS-1 can be reinhibited to maintain the integrity and quality of the glycol base and minimize the build-up of corrosion and glycol degradation by-products.

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HDIS-1

Heavy-Duty Instrial Service Heat Transfer Fluid Additive Package

Product Specifications

Typical Properties for Heat Transfer Fluid made with HDIS-1

Characteristics	Propylene Glycol	Ethylene Glycol
Composition		
Inhibitor package & glycol	96% (volume) 4% (volume)	96% (volume) 4% (volume)
Color	clear or dye	clear or dye
pH		
50% solution	10.3	10.3
30% solution	10.1	10.1
Specific Gravity (60°F)		
96% solution	1.052	1.130
50% solution	1.045	1.075
Reserve Alkalinity (ml)		
Concentrate	15.0	15.0
50% solution	7.5	7.5
Flash Point		
96% solution	215°F	240°F
50% solution	none	none
Viscosity (Centipoise)		
96% solution	20	8.5
50% solution	3.5	2.5
Thermal Conductivity (BTU/hr-ft²)		
96% solution (100°F)	0.12	0.15
50% solution (100°F)	0.21	0.23
Specific Heat (BTU/lb-°F)		
96% solution (100°F)	0.60	0.57
50% solution (100°F)	0.85	0.81
Freezing Point		
96% solution	0°F	-5°F
50% solution	-30°F	-34°F
Boiling Point		
96% solution	315°F	320°F
50% solution	221°F	225°F

Typical Corrosion Test Results (milligrams per specimen weight loss)	**PG or EG**
Steel (mild)	1 loss
Cast iron	1 loss
Aluminum	1-3 loss
Copper	1 loss
Solder	2 loss
Brass	2 loss

Technical Support

Our laboratories will conduct a complete analysis of samples of our fluids from your systems quarterly. Simply send a one-pint sample to our laboratory and we will send you a written report including any recommendations on needed fluid maintenance actions. We will provide make-up inhibitor solutions as needed. We will also assist by testing samples to aid in problem solving efforts at any time.

Technical Contact Information

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