

Thermal – Guard

HEAT TRANSFER FLUIDS

FOR

FREEZE PROTECTION

BURST PROTECTION

CORROSION PROTECTION-



Walter Louis

FLUID TECHNOLOGIES

Thermal Protection For Your HVAC System

**INDUSTRIAL CHEMICAL
DIVISION**

Walter Louis Fluid Technologies
530 So. 5th Street
Quincy IL 62301-4896

Phone: (217) 223-2017
Fax: (217) 223-7734
Toll Free: 1-800-747-2019
www.walterlouis.com

Coolant FAQ

What's the difference between Ethylene & Propylene glycol?

There are of course, chemical composition differences, but the primary distinction between the two is that propylene glycol is non-toxic (and is often found blended in food products), but ethylene glycol is moderately toxic. Most building loops use the less expensive ethylene glycol based inhibitors if there is no possibility of contact with food, potable water, or discharge other than to a sanitary sewer, or if regulations do not require the non-toxic inhibitor. It does take a slightly higher concentration of propylene glycol to have the same freeze protection as ethylene glycol.

Why can't I use plain glycol?

A solution of glycol, either ethylene or propylene, is more corrosive to a plumbing system than plain water alone. Adequate corrosion inhibitors are vital.

Why can't I use car antifreeze?

Automotive coolants are designed for operating temperatures in the 160^o to 210^o F range and contain high levels of silicates to protect aluminum engine parts from corrosion. When used in chilled water systems, these silicates precipitate out of solution and coat the inside of the pipes with a gelatin-like "goo". This significantly reduces efficiency by slowing heat transfer. The "goo" also settles in low flow areas such as valves, and eventually hardens like concrete restricting flow and control movement. These silica deposits are resistant to all but the strongest acid cleaners.

Corrosion Control



Corrosion in closed loop systems is caused by oxygen dissolved in water. The oxygen is continually replenished by leakage at valves, pipe joints, pump packings and expansion tanks. Typical closed systems are constructed of a variety of dissimilar metals resulting in galvanic corrosion. The addition of glycols for freeze protection can create additional problems. All glycols can degrade to produce organic acids which will cause severe corrosion and rapid system failure.

Thermal Guard Heat Transfer Fluids contain high performance corrosion inhibitors and acid neutralizing buffers to prevent attack by oxygen and organic acids. The use of Thermal Guard Re-inhibitors can extend the life of the glycols for up to 20 years.

Freeze & Burst Protection

How do I get the system clean before adding Thermal – Guard?

It is always good practice to clean a system when changing heat transfer fluids. New systems need to be cleansed of mill scale, weld slag, oils, and excess pipe sealant before filling for service. Older systems need to have dirt and corrosion products flushed away that have accumulated over the years. A *Precleaner* is a non-acid formula that performs this task very well in doses as low as a pint per 100 gallons. We also strongly encourage the use of a side stream filtration system to keep the fluid clean once it is filled and in service.

How much Thermal –Guard do I need?

First, determine the freeze/burst protection needed. Typical specifications require 25% glycol which would provide freeze protection to +10⁰ F, and burst protection to –10⁰ F. Freeze protection in the Midwest is usually specified at 44%, which is –20⁰ F and well below –60⁰ F for freeze and burst, respectively.

Second, the total volume of the system must be determined. Many newer systems with makeup water metering are able to provide accurate volume determinations. In the absence of a metering device, the common method is the addition of a tracer chemical to the system, all possible valves opened, and then circulated for several hours. “Pre” & “Post” tracer analysis is then used to calculate the capacity of the system.



What’s the difference between freeze protection and burst protection?

A system requires *freeze* protection if no ice formation can be tolerated at all. Examples would be winter conditions for an outside chiller unit or a fire sprinkler system, valved-off with no room for expansion. New high-efficiency chillers also may require freeze protection, as the tube surfaces can drop below the freezing point. *Burst* protection can be attained at much lower concentrations of glycol, typically for chillers and piping that are outside in winter but not tightly valved off. Ice crystals are allowed to form but remain in a fluidized slush that flows efficiently.

Concentrations of Thermal-Guard “Freeze & Burst Protection”

Temperature (degrees Fahrenheit)	Percent Volume Glycol Concentration Rq'd			
	for Freeze Protection		for Burst Protection	
	Thermal-Guard HT-1	Thermal-Guard HT-1P	Thermal-Guard HT-1	Thermal-Guard HT-1P
20	16%	17%	11%	11%
10	25	26	17	18
0	33	34	22	23
-10	39	41	26	28
-20	44	45	30	30
-30	48	49	30	33

PRODUCT SELECTION:

Thermal-Guard HT-1

- Ideal fluid for most heating and cooling applications.
- Provides efficient heat transfer over a wide temperature range.
- Contains special corrosion inhibitors to keep your pipes free from deposits and your fluid free-flowing.

Thermal-Guard HT-1-P

- Propylene based glycol for general use and heavy duty systems.

Thermal-Guard FG

- Propylene based “food grade” glycol heat transfer fluid.

Molytherm

- Heavy duty molybdate heat transfer fluid.

PROTECTION

The *Thermal-Guard* product line offers freeze/burst protection and superior corrosion resistance for closed recirculating water loops used for comfort heating & cooling, process temperature control, and diesel engine cooling water jackets.

CONVENIENCE

Thermal-Guard products are available pre-blended to the desired concentration with purified water for situations where available dilution water is of poor quality.

COMPATABILITY

Thermal-Guard is compatible with other brands of glycol-based inhibitors and can be safely blended in the same system when the previously used product is known.

RELIABILITY

Thermal-Guard is a durable product that is measured and maintained by periodic water analysis conducted by our field service staff.

INHIBITED GLYCOL FLUIDS	FEATURES					
	Wide Temp Range*	Corrosion Inhibitors	Low Toxicity	High Temp Range**	Ethylene Glycol	Propylene Glycol
THERMAL GUARD HT-1	X	X			X	
THERMAL GUARD FG (FOOD GRADE)		X	X			X
THERMAL GUARD HT-1P		X	X	X		X
MOLYTHERM	X	X		X	X	

* -40°F - +325°F ** up to 375°F

YOUR SUPPLIER:

Walter Louis Fluid Technologies, established in 1971, operates sales offices in Illinois and Missouri with manufacturing and warehousing facilities in Quincy, IL. In addition to the manufacture of custom designed unit operations (water softeners, dealkalizers, reverse osmosis systems), we supply the HVAC industry with a wide range of water treatment chemicals and chemical injection systems. We specialize in custom blended boiler, cooling tower, and closed loop inhibitors, along with biocides and wastewater chemicals. Our field service staff employs the latest in quality assurance technology, dedicated to ensuring maximum protection for your HVAC equipment. From system volume determination to disposal to recycling, Walter Louis Fluid Technologies has the capability to address all your hydronic requirements.

SERVICES AVAILABLE WITH THERMAL-GUARD:

- System Volume Determination
- Water/Glycol Onsite & Laboratory Analysis
- Re-Inhibitor Service