

cryo-tek™

Spec Sheet #S00041
February 2007

ANTI-FREEZE for heating and cooling systems



DESCRIPTION

A blend of virgin (not recycled) propylene glycol and high purity Triple Protection additives, formulated for use in closed loop hydronic heating and cooling systems. **Cryo-tek** can also be used in radiant tube heating systems, most solar heating systems and geothermal loops. Hercules' exclusive Triple Protection formula stabilizes pH to prevent acid corrosion, chelates hard water minerals and inhibits the formation of scale and sediment. These components work together to keep the system clean and operating efficiently by eliminating system deposits, improving heat transfer and minimizing wear to moving parts and seals.

Cryo-tek is compatible with PEX and elastomeric radiant tubing, commonly used materials for seals and bushings and provides corrosion protection for cast iron, steel, copper, brass and solder. **Cryo-tek** has not been tested for use in systems containing CPVC plastic. Standard **cryo-tek** products should not be used in systems containing aluminum and operating above 160°F/71°C. **Cryo-tek -100/AL** is available for aluminum systems. **Cryo-tek** should not be used in systems with galvanized piping as the zinc coating will be dissolved. **Cryo-tek** is a 94-98% efficient heat transfer solution in most application dilutions. It has a lower freeze point and higher boiling point than water and is non-flammable, odorless, non-toxic, non-irritating and compatible with Hercules boiler stop leaks and heating system cleaner products.

Cryo-tek is available in 3 formulations:

Cryo-tek Original

Contains virgin (not recycled) propylene glycol with Triple Protection corrosion inhibitor, pre-mixed ready to use formulation. Can be added directly into system undiluted or diluted as required. Certified Performance: Freeze Protection Down to -22°F / -30°C, Pumpable Down to -27°F / -33°C, and Burst Protection Down to -80°F / -62°C. **Cryo-tek Original** can be further diluted with water for less severe conditions. (see Table II, page 3)

Cryo-tek -100

Contains virgin (not recycled) propylene glycol with Triple Protection corrosion inhibitor, pre-mixed ready to use formulation. Certified Performance: Freeze Protection Down to -70°F / -57°C, Pumpable Down to -80°F / -62°C, and Burst Protection Down to -100°F / -73°C. **Cryo-tek -100** can be diluted with water for less severe conditions. (see Table II, page 3)

Cryo-tek AG

A concentrated virgin (not recycled) propylene glycol with Triple Protection corrosion inhibitor, which can be diluted with water to desired protection levels. (see Table II, page 3)

Test Kits and Accessories

Freeze protection levels and corrosion protection levels should be checked annually. Use **Hercules Refractometer** (35290) and **pH Meter** (35272) or, **cryo-tek Test Kit** (35271). Add additional **cryo-tek** product if freeze protection is inadequate. Add **cryo-tek Inhibitor** (35276) if pH is below 8.5. (see Maintenance, page 4)

*Please check with equipment manufacturer of system to determine compatibility with this product.

**Minimum flow protection levels are estimated and are dependent on system and equipment.



HERCULES®

specifications

cryo-tek™

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ANTI-FREEZE for heating and cooling systems

SIZES AND PACKING

STOCK NO.	SIZE	PACKING	WEIGHT/CASE	STOCK NO.	SIZE	PACKING	WEIGHT/CASE	STOCK NO.	SIZE	PACKING	WEIGHT/CASE
cryo-tek Original				cryo-tek AG				ALSO AVAILABLE			
35253	1 gal.	6	53.2 lbs.	35282	1 gal.	6	54.0 lbs.	35271 Test Kit	-	6-10 packs	0.3 lbs.
35260	5 gal.	1	46.5 lbs.	35285	5 gal.	1	46.9 lbs.	35290 Refractometer	-	1	0.25 lbs.
35267	55 gal.	1	518.0 lbs.	35288	30 gal.	1	286.0 lbs.	35272 pH Meter	-	1	0.3 lbs.
cryo-tek -100				35289	55 gal.	1	521.0 lbs.	35276 Inhibitor	8 oz.	24	17.8 lbs.
35281	1 gal.	6	54.0 lbs.					35279 Protection Tags	<i>Free/available upon request</i>		
35284	5 gal.	1	46.9 lbs.								
35286	30 gal.	1	286.0 lbs.								
35287	55 gal.	1	521.0 lbs.								

APPROVALS AND LISTINGS

The virgin propylene glycol used in **cryo-tek** is "GRAS" (Generally Recognized As Safe) for incidental contact with food.

SPECIFIC USES

Use any **cryo-tek** Anti-Freeze in hydronic closed loop heating and cooling systems, solar heating systems, and general plumbing systems that require freeze protection.

SPECIFIC APPLICATIONS†

Add any **cryo-tek** product to protect pipes from freezing and bursting. Also prevents freeze-ups in chiller systems, recreational vehicles, seasonal homes, mobile homes, trailers, boats, sprinkler systems, and industrial use.

PHYSICAL PROPERTIES

	cryo-tek Original	cryo-tek -100	cryo-tek AG
pH	8.5 - 9.0	9.0 - 9.5	9.5 - 10.0
Density lb/gal. 60°F - 65°F	8.7 lb./ gallon	8.78 lb./ gallon	8.78 lb./ gallon
Specific Gravity 60°F - 65°F	1.04	1.054	1.054
Specific Heat BTU/lb°F @ 160° F	.908	.843	.681
Boiling Point:	220°F / 104°C	230°F / 110°C	370°F / 188°C
Appearance and color:	Blue liquid. Odorless.	Red liquid. Odorless.	Blue liquid. Odorless.

WARNINGS OR CAUTIONS

- Read all cautions and directions carefully before using this product.
- Not for use in steam systems.
- Not for use with CPVC pipe and fittings.
- Use **Hercules boiler liquid** or **base hit™ II** to stop leaks on system containing **cryo-tek** products.
- Use **Hercules boiler & heating system cleaner** or **sizzle®** to clean system prior to using **cryo-tek** (see installations instructions).
- Do not use in internal combustion engines as a coolant.
- Do not use in water softeners. Disconnect all water softeners from system or provide back flow protection to prevent contamination of brine or resin bed.
- **Cryo-tek** Products are not recommended: **1.** For use in systems containing galvanized components. **2.** For open solar systems and systems where operating stagnation temperatures are regularly over 300°F / 150°C. **3.** For systems with concentrating solar collectors or evacuated tube solar collectors. **4.** In systems containing aluminum and operating temperatures over 160°F / 71°C. (Please check with equipment manufacturer of system to determine compatibility with this product).

CAUTION REGARDING COMPETITIVE PRODUCTS:

Hercules cryo-tek products are formulated using virgin propylene glycol and high purity Triple Protection Additives for assurance of materials compatibility and non-toxicity characteristics. Dilution or mixing of **cryo-tek** products with other manufacturers' products may compromise these critical requirements and is not recommended.

INSTALLATION INSTRUCTIONS

1. CLEAN THE SYSTEM - It is recommended that any system, whether new or existing, be thoroughly cleaned prior to being charged with **cryo-tek** products. Any system contaminated with dirt and other materials reduces efficiency and wears the system prematurely. New systems need to be free of flux, solder residue, grease and any foreign particles. Most boiler manufacturers recommend cleaning new systems with a solution of Tri-Sodium Phosphate (TSP), or **Hercules boiler and heating system cleaner** (Follow instructions on container). Existing systems need to be flushed and cleaned to eliminate any build-up of rust, scale, lime and other non-organic matter. These systems should be cleaned with an inhibited hydrochloric acid such as **Hercules sizzle (except aluminum systems, check with boiler manufacturer)**. All systems should be checked for leaks prior to installation of any **cryo-tek** product.