

DOWFROST™ Heat Transfer Fluid

Benefits of Using DOWFROST™ in Fermentation Cooling Applications

Introduction

DOWFROST™ inhibited propylene glycol-based fluids offer specific advantages for fermentation cooling applications such as low oral toxicity, non-flammable, non-corrosive, biodegradable, and effective freeze protection and heat transfer over a very wide temperature range. All of these advantages can translate into significant productivity and cost savings.

Fermentation Cooling

The ability to accurately control temperature plays a critical role in producing high quality beer or wine. Improper or unreliable temperature control can cause undesirable appearance or flavor characteristics. To provide necessary cooling, a 30 to 45 percent solution of DOWFROST™ fluid is chilled in a primary refrigeration unit and then circulated through coils which are submerged in, or wrapped around, tanks.

Regulatory Status

The propylene glycol and corrosion inhibitor used in DOWFROST™ fluids are both Generally Recognized As Safe (GRAS) by the U.S. Food & Drug Administration as food additives under Parts 182 and 184 of the Food Additive Regulations.

Benefits of DOWFROST™

The food grade status of propylene glycol and corrosion inhibitors make DOWFROST™ an attractive fluid in the event of accidental spills or leaks. Solutions of DOWFROST™ with water can provide effective heat transfer down to temperatures as low as 0°F (-18°C). The low temperature capabilities of DOWFROST™ fluids permit recovery of CO₂ generated during fermentation. This CO₂ can then be used later in the bottling process.

In addition, DOWFROST™ fluids provide long term corrosion protection that can extend system and equipment life – and reduce costly downtime – without compromising heat transfer performance. Uninhibited glycols oxidize in the presence of air at elevated temperatures, forming organic acids. These acids can lower the pH of the glycol solution, creating an environment for corrosion. But the inhibitors in DOWFROST™ fluids maintain a stable pH by reacting with any organic acids that may be formed. They provide substantial corrosion protection for steel, cast iron, copper, aluminum*, brass, and solder as demonstrated by ASTM D1384 corrosion testing.

Fluid Support Services

DOWFROST™ fluids are backed by comprehensive Dow support services. With extensive experience in supplying heat transfer fluids to the food industry, Dow technical service personnel can help you design, operate, and maintain your thermal fluids system for maximum productivity. For systems containing 500 gallons of fluid or more, Dow offers free fluid analysis. Typically performed on an annual basis, the analysis includes a determination of critical fluid parameters plus Dow's recommendations for maintaining proper corrosion protection and thermal performance capabilities.

*DOWFROST™ fluids should not be used with aluminum above 150°F (65°C)

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