Biggest Slaughterhouse in North of Europe

150 000L of Temper-20

HK SCAN has good experience of secondary cooling with Temper in Sweden's largest slaughterhouse,

Efficient cooling with Temper-20

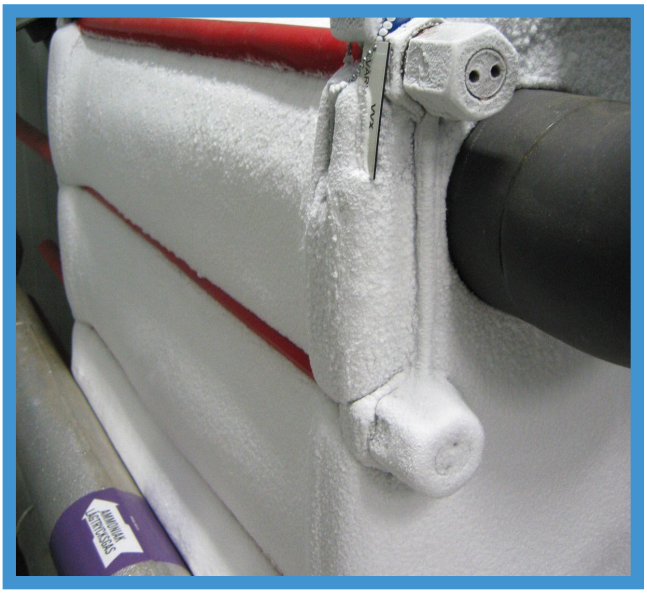
In 1997, HK Scan in Skara decided to exchange their heat transfer fluid from calcium chloride and propylene glycol to Temper–20. The main reasons were to decrease the corrosion problems and increase the heat transfer. It was not just the pump effects that were lower (7-10%). It was also possible to choose fan air coolers that were 1-2 sizes smaller (around -10%) compared with glycol! This means huge investment savings.

Heat recovery

The flow rate of the heat transfer fluid is 58 m^3/h. The heat recovery effect is a total of 1 800 kW, 400 kW of which comes from the compressors' oil coolers, with warm brine being produced for defrosting. No electricity or hot water is used for this purpose. Fuel oil consumption, thanks to heat recovery, has fallen by 60%, from 2 600 m^3 to 1 000 m^3 per year! Two of the liquid coolers act as heat pumps to produce warm water for heating and cleaning. A high-temperature system +70°C, 1 100 kW of heat. A low-temperature system +45°C, 2 200 kW of heat. Maximum warm water consumption is 40 m^3/h.

Biggest slaughterhouse in North of Europe

- 1350 employees
- Continuous expansion
- The company is owned by 45,000 Swedish farmers
- 14 slaughterhouses in Sweden



Installation facts

Refrigeration Power:	14,5 MW, 2 MW DX
Installed:	1997
Primary Refrigerant:	Ammonia
Heat Transfer Fluid:	Temper-20, 150,000L
Operation Temperature:	-8°C
Heat Recovery:	1 800 kW
Brine Defrost:	Temper-20

Temper®

the ideal Heat Transfer Fluid

Temper, the ideal choice of a HTF

Temper is a top of the line environmentally friendly heat transfer fluid used in a wide range of refrigeration applications. The ready-mixed and non-toxic organic salt solution is combined with an effective corrosion inhibitor package making Temper readily biodegradable. The remarkable thermal properties make Temper an excellent choice for a wide range of refrigeration applications, especially in industrial- and in food refrigeration industry.

Temper is suitable for medium- as well as low temperature refrigeration systems and is efficiently used at temperatures between as low as -60°C up to 180°C in pressurized systems. The product is available in seven different versions from -10°C down to -60°C.

Areas of Use

- Food industry
- Logistic centre
- Defrost of CO_2
- Sports Installations
- Supermarkets
- Climate test centre
- Fuel cell hydrogen filling station

Advantages with Temper

- Low viscosity
- High thermal conductivity
- Reduced energy cost
- Readily biodegradable
- Adapted for the food industry
- Advanced inhibitor technology
- Personalized technical support

General Properties

Appearance	Colourless to pale yellowish
Boiling point	Approx. 109°C
pH	8-9

Thermophysical Properties

	Unit	T-10	T-15	T-20	T-30	T-40	T-55	T-60
Freezing point	°C	-10	-15	-20	-30	-40	-55	-60
Density	kg/m³	1089	1114	1142	1177	1207	1240	1260
Specific heat	KJ/kg • K	3,577	3,446	3,315	3,124	3,008	2,817	2,820
Thermal conductivity	W/m • K	0,544	0,526	0,508	0,486	0,465	0,441	0,440
Dynamic viscosity	mPa • s	1,45	1,63	1,80	2,10	2,71	4,06	4,28
Kinematic viscosity	mm²/s	1,33	1,46	1,58	1,78	2,25	3,27	3,40

Measurements are performed @ +20 °C

About Temper Technology

Since 1996 the Swedish company Temper Technology manufactures the non-toxic and energy efficient Heat Transfer Fluid; Temper. Temper is mainly used in larger food industry applications and logistic centres. To ensure the high quality Temper is always delivered ready-to-use and can be used down to -60°C.

temper technology

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Visit our website
www.temper.se