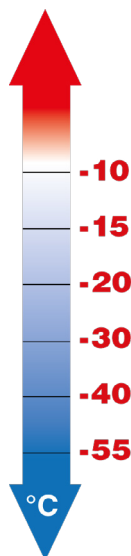


Temper S

Fire Protection & Antifreeze



General Properties

Appearance	Colourless to pale yellowish
Boiling point	Approx. 109 °C
Density	1081-1245
pH	8-9

Performance

Temper S significantly lowers the heat release rate, whereas other antifreeze fluids, like glycol, may do the opposite. Due to the salts in the fluid, Temper S suppresses the fire source more efficiently than other antifreeze fluids, including water. The effectiveness of Temper S enables the use of a lower amount of water, and therefore the potential water damage is reduced.

In the SP report 1999:08 different types of antifreeze, such as glycol and calcium-chloride products as well as Temper S, was tested for fire suppression efficiency – *"The other antifreeze solutions tested resulted in a significant increase in heat release rate of the fire source. In some cases the energy released under the ten-minute period of application was 1,5-2 times higher than that found when pure water was used."* The graphs below demonstrate the results from SP report P00 7275 of the heat release rate when suppressing a fire with Temper S and water.

Temper S – efficiency in fire suppression

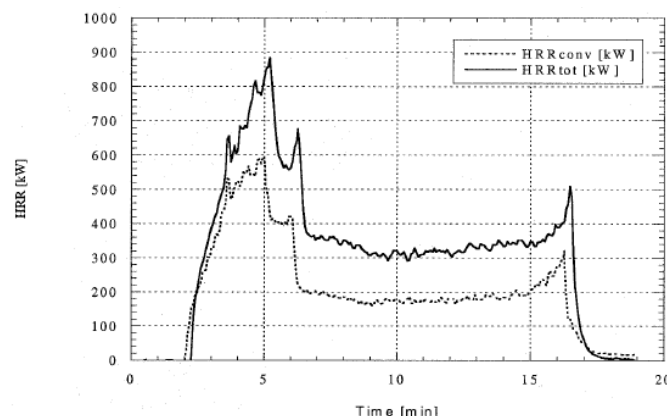
Temper S is a high quality and non-toxic antifreeze with excellent extinguishing properties. The product is specially adapted for fire protection and for areas subjected to frost, with a freeze protection down to -55 °C. Compared to other antifreeze solutions on the market, Temper S is completely glycol free and chemically stable with an optimized concentration of advanced corrosion protection.

To ensure the high quality of the product, Temper S is always supplied ready-to-use and is available in six different versions with freezing points from -10 °C to -55 °C.

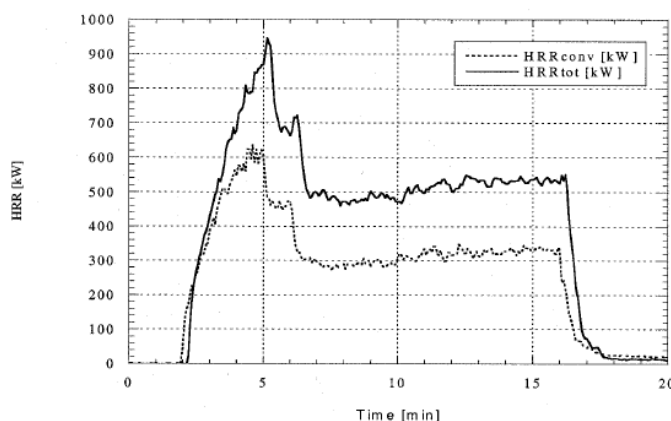
Advantages when using Temper S

- Immediate and effective suppression of fire
- Non-toxic
- Readily biodegradable
- Chemically stable
- Low freezing point
- Can be used for both low and high pressure systems

Graph 1. The total and convective heat release rate when using Temper S



Graph 2. The total and convective heat release rate when using water



Physical Properties

	Unit	S-10	S-15	S-20	S-30	S-40	S-55
Density	kg/m ³	1081	1112	1142	1182	1210	1245
Dynamic viscosity	mPa • s	1,50	1,73	2,16	2,40	2,90	3,80
Kinematic viscosity	mm ² /s	1,39	1,56	1,89	2,03	2,40	3,05

Temper S

Areas of Use

Temper S is the ideal choice when areas subjected to frost need to be protected, as it suppresses the fire source instantly. When using Temper S there is no need for costly heat tracing systems or dry pipe systems where high maintenance costs and time delays are big setbacks. Temper S can be used in both sprinkler and water mist systems and in application such as fire protection in:

- Cold & freeze storages
- Engine/machine rooms
- Trains
- Tunnels
- Car parks
- Heritage buildings
- Marine and offshore applications

Material Compatibility

Most of the common materials can be used such as copper, bronze, brass (dezincification resistant), steel, stainless steel, cast iron, as well as plastic pipes (ABS, PE). Plastic materials must be suitable for the system's minimum and maximum temperatures. Galvanized steel is not recommended to use together with Temper S.

Corrosion Protection

Temper S is a high quality product based on potassium salts with an optimal concentration of corrosion inhibitors. The optimal corrosion package creates, and only when necessary, a local temporary and very thin protective layer with a minimal (mono-molecular) thickness at the metal surface.

Analysis & Technical Support

It is recommended to regularly check the fluid in respect of parameters such as pH, freezing point (density), metal ions and corrosion inhibitor level. With a test kit you may easily check freezing point (density) and pH value. More advanced analysis can be performed, such as metal ions concentration and corrosion inhibitor level to secure the well functioning of the system. Along with the test result, a complete report with conclusion and recommended actions is always provided.



For technical support contact techsupport@temper.se

Environment – Health and ecotoxic information

Temper S is environmentally friendly, readily biodegradable, non-toxic and non-combustible antifreeze which passes great ecological requirements. 97 % of the Temper S fluid will after 7 days be biodegraded in comparison to glycol based antifreeze fluids where the biodegradability only is 70-85 % after 28 days.

Non-toxic to mammals
LD50 (oral, rat) > 5000 mg/kg

Non-toxic to aquatic animals
OECD TG 203: LC50/96 = 13 900mg/l

Microtox
Not acute toxic

Readily biodegradable
OECD 301A: 99 % after 28 days

Do not bio-accumulate

The freezing depression substances in Temper S contains mainly of potassium acetate which is used as food preservative.



Packaging

Temper S is supplied in the following packaging, as well as bulk deliveries:



25L blue canister made of PE with sealed cap, the canister's weight is 1,2 kg.



208L blue barrel made of PE, with a sealed cap, the barrel's weight is 9,0 kg.



1000L black IBC, the IBC weight is 70,0 kg. Outlet valve NW 50



Bulk deliveries for larger volumes

Storing, Handling & Transport

Store in tightly closed original containers not below its freezing point. Avoid contact with eyes and skin. When transporting Temper, there are no restriction since the product is not classified. Further information can be found in the safety data sheet.

Further Information and contact

Temper Technology is certified according to ISO 9001:2008 since 2012. For more information contact Temper Technology, visit our website or consult your local distributor.

ISO
Temper Technology is
Certified according to
9001:2008

tempertechnology

www.temper.se

info@temper.se