

# Sentinel R500C

## Concentrated heat-transfer fluid for Ground Source Heat Pumps

### Description and Use

Sentinel R500C is designed for dilution and subsequent use in Ground Source Heat Pump equipment to provide frost protection<sup>†</sup> and minimise corrosion and deposition.

Before filling the ground loop, Sentinel R500C should be pre-diluted with town mains water in a ratio of one part Sentinel R500C to a maximum of nine parts water. The extent of dilution depends upon the desired frost protection (see the Dilution Guide Table below). Sentinel R500C must not be mixed with other heat transfer fluids.

### Features and Benefits

- Provides effective corrosion and scale protection for system metals
- Effective frost protection
- May be diluted with mains water
- Chemically & thermally stable components
- Resistant to degradation
- Improved cost of operation of the Ground Source Heat Pump system
- Non-toxic and biodegradable

### Properties

Sentinel R500C is a clear dark blue liquid concentrate based on propylene glycol. It has been designed for on-site dilution to yield a highly efficient thermal transfer fluid for ground source heat pump ground loop circuits.

The inhibitors contained in Sentinel R500C provide superior protection against both corrosion and deposits and protect the metals commonly found in heat collector circuits. Sentinel R500C prevents fouling of the surfaces of heat exchangers and maintains thermal efficiency.

The efficient thermal transfer properties and superior stability of Sentinel R500C help towards reduced cost of system operation.

### Chemical Composition

- Appearance clear, blue liquid
- Density (20 °C) 1.037 g/cm<sup>3</sup>
- R.I. 1.338 (approx)
- pH value (33% in water) 8,5 (approx)

### Materials Compatibility

Sentinel R500C does not attack the sealant materials normally used in Ground Source Heat Pump systems.

### Packaging

Sentinel R500C is supplied in 20 and 1000 litre non-returnable containers.

### Safety Precautions

The information provided overleaf enables compliance with the Control of Substances Hazardous to Health Regulations. A Safety Data Sheet is available upon request.



## † Frost Protection

Please note that the frost protection figure refers to a 'setting point' at which propylene glycol concentration is sufficient to prevent bursting of pipework but not necessarily high enough to maintain the fluid in a pumpable state.

This figure is the 'Setting Point' as measured using the DIN 51583 method (replaced by ISO 3016). The 'Setting Point' is the temperature at which the fluid solidifies.

The temperature figure read from the refractometer corresponding to the percentage glycol figure is the onset of the freezing point as measured using the ASTM D1177 method.

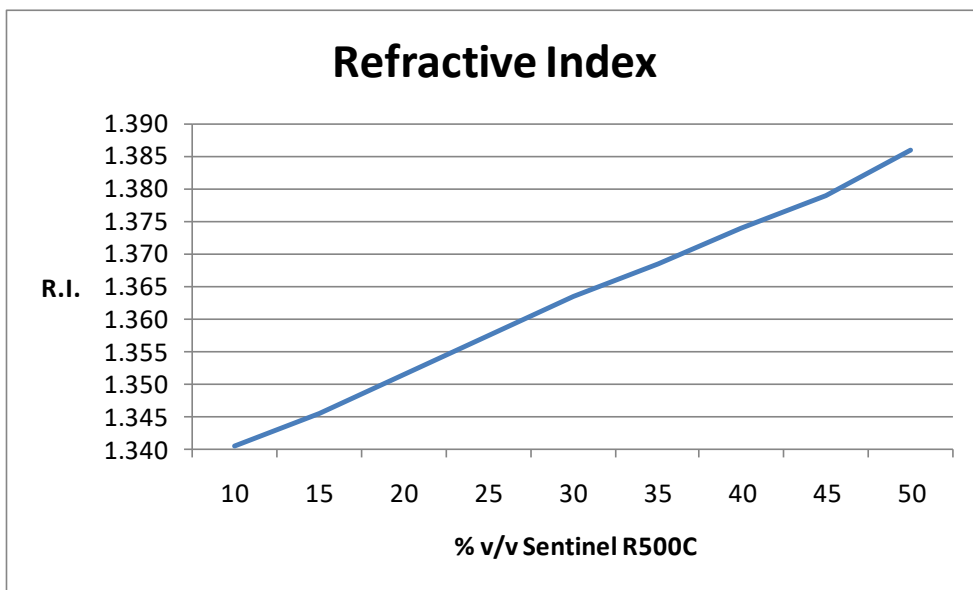
For a propylene glycol/water mixture, at temperatures between its 'Freezing Point' and its 'Setting Point', the mixture becomes progressively more difficult to pump. A comparison chart of 'Freezing Point' and 'Setting Point' for propylene glycol/water mixtures is shown below.

% Propylene Glycol (v/v)	0	5	10	15	20	25	30	35	40	45	50
Freezing Point (°C)	0	-2	-4	-6	-8	-11	-13	-17	-21	-27	-34
Setting Point (°C)	0	-2	-5	-8	-10	-14	-17	-22	-28	-37	-50

Sentinel R500C Dilution Guide Table

Setting Point (°C) (ISO3016)	-50	-37	-28	-22	-17	-14	-10	-8	-5
R500C (%volume)	50	45	40	35	30	25	20	15	10
Water (%volume)	50	55	60	65	70	75	80	85	90

Please Note: The temperature figure read from the refractometer, corresponding to the percentage of glycol found, is the onset of the freezing point as measured using the ASTM D1177 method.



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<b>Heat transfer fluid concentrate for Ground Source Heat Pump circuits</b>	Propylene glycol containing corrosion inhibitors.
<b>Health Hazards</b>	Not considered hazardous to health.
<b>Handling</b>	Avoid contact with skin and eyes. Keep out of reach of children and animals. Wash out empty container thoroughly with water before disposal.
<b>Storage</b>	Keep container tightly closed. Store in cool, well ventilated area.
<b>Spillage</b>	Flush spillage with plenty of water and wash to waste.
<b>Fire/Explosion Risks</b>	Non-flammable
<b>First Aid</b>	<b>Skin Exposure :</b> Wash immediately with plenty of water. If irritation develops, seek medical attention.  <b>Eye Exposure :</b> Flush immediately with plenty of running water. Keep eyelids apart. Seek medical advice.  <b>Ingestion :</b> Rinse mouth with water. Do NOT induce vomiting! Seek medical advice.

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Specifications may change without prior notice