

Zitrec® TF-L

OAT technology

Zitrec® TF-L is part of Arteco's **ECO** product range

Zitrec® TF-L is produced with recycled monopropylene glycol via ISCC Plus certified mass balance approach. **Zitrec® TF-L** is a heat transfer fluid (HTF) with a robust, non-depleting inhibitor package, designed to excel in a wide range of industrial cooling applications. Experience exceptional thermal stability and reliable protection for your systems with **Zitrec® TF-L** - the ultimate solution for efficient and long-lasting cooling performance.

Zitrec® TF-L is designed to seamlessly replace **Zitrec® L** in all current installations.



PRODUCT BENEFITS



Excellent heat transfer properties

- Carefully selected additives improve the heat transfer efficiency of the systems;
- Proven performance in dynamic heat transfer test;
- **Zitrec® TF-L** has a higher specific heat transfer capacity in comparison to non-aqueous products.



Selective inhibitor technology

- Contains organic virtually non-depleting inhibitors, securing long-lasting protection and increased service life;
- Effective protection of different materials against corrosion, such as steel, copper, aluminium, brass and cast iron. This leads to major benefits for construction materials of pumps, valves, seals and heat exchangers.



Robustness

- Outstanding oxidation and pH stability;
- Minimal maintenance and adequate part protection.



Environment and safety

- Part of Arteco's **ECO** product range: the product is produced with recycled monopropylene glycol via ISCC Plus certified mass balance approach.
- Low toxicity thanks to the characteristics of the base fluid;
- Carefully selected additives to reduce environmental impact and toxicologic concerns (free of 2EHA, nitrite and borate).

Application

Arteco's **Zitrec® TF-L** can be used with confidence in systems as secondary refrigerant*, such as applications ranging from solar panels or heat pump systems, over cooling or heating of industrial processes and refrigerants in indirect cooling systems to artificial ski-tracks or ice rinks.

Zitrec® TF-L provides protection against boiling, freezing and corrosion. The dilution is determined by system requirements, mainly freezing requirements. However to ensure good corrosion protection it is recommended to use at least 35vol.% of **Zitrec® TF-L** in the heat transfer solution, which provides freeze protection to -16,5°C. Please check the freeze point versus dilution ratio in the table in chapter technical information.

Mixtures with more than 70vol.% of **Zitrec® TF-L** in water are not recommended since thermo-physical properties decline with higher concentrations.

The product is non-flammable and compatible with common engineering materials.

Zitrec® TF-L can be used as a full-replacement for **Zitrec® L** applications and its respective performance level requirements, for both professional and consumer use.

* Many applications in the industry require a fluid to transport heat or cold. Those applications range from solar panels or heat pump systems, over cooling or heating of industrial processes and refrigerants in indirect cooling systems to artificial ski-tracks or ice rinks. This transport medium is usually called secondary refrigerant or secondary coolant. The ideal secondary refrigerant must ensure a good thermal conductivity; have a high specific heat and low viscosity. It is also important that the secondary refrigerant is non-flammable and compatible with common engineering materials.

Toxicity, safety & sustainability

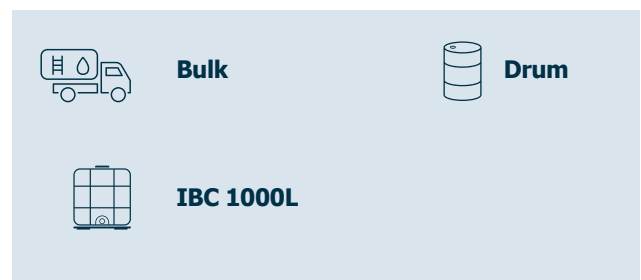
For Toxicity and Safety Data we refer to the Safety Data Sheet. The information and advice given should be observed and due attention should be given to the precautions necessary for handling chemicals. This product should not be used to protect the inside of drinking water systems against freezing.

KIWA certification pending.

Zitrec® TF-L is a product part of Arteco's **ECO** product range. **Zitrec® TF-L ECO** is produced using recycled monopropylene glycol via ISCC Plus certified mass balance approach.

Packaging

Arteco's **Zitrec® TF-L** is available in the following packs & colours:



Blue



Green

Contact details

Should you have questions with regards to Arteco's **Zitrec® TF-L**, related to available packages or colours or on one of the other Arteco solutions, please do not hesitate to contact your local Area Sales Manager or send your inquiry to info@artecco-coolants.com.

Addendum - Technical information

Chemical and Physical Properties

Property	Zitrec® TF-L	Unit	Method
Colour	coloured or uncoloured		
Propylene glycol	min. 91	% w/w	
Other glycols	max. 1	% w/w	
Inhibitor content	5 typ.	% w/w	
Ash content	max. 1.5	% w/w	ASTM D1119
Water content	< 5	% w/w	ASTM D1123
Nitrite, nitrate, borate, 2EHA	-		
Relative density (15,6°C)	1.054 typ.		ASTM D5931
Equilibrium boiling point	160 min.	°C	ASTM D1120
pH (20°C) 50 vol.%	8.8 typ.		ASTM D1287
Reserve Alkalinity (pH 5.5)	6.2 typ.	ml 0.1M HCl	ASTM D1121

Freeze point versus dilution ratio

Dilution vol/% Zitrec® TF-L	Freeze point °C
30	-13.0
33	-14.9
35	-16.4
40	-20.8
45	-26.1
50	-32.3
55	-39.5
60	-47.7

Shelflife & storage requirements

Zitrec® TF-L can be stored for 18 months in unopened containers without any effect on the product quality or performance. It is strongly recommended to use new, non-translucent containers and where possible packages with a UV-filter. Direct sunlight and high temperatures can degrade the quality of the product.

Zitrec® TF-L should be stored above -10°C and below 30°C. Periods of exposure to temperatures above 35°C should be minimised. **Zitrec® TF-L** is not compatible with galvanised steel.

Compatibility and mixability

Zitrec® TF-L is compatible with most other heat transfer fluids based on monopropylene glycol, especially **Zitrec® L**. Exclusive use of **Zitrec® TF-L** is however recommended for optimum performance. This heat transfer fluid is compatible with European hard tap waters, up to a water hardness of 30° dH (German hardness degrees equivalent to 535 mg/l CaCo₃). As for any heat transfer fluid, we recommend the use of deionised or distilled water to prepare the ready-to-use dilutions for optimal performance and controlled quality.

Zitrec® TF-L can be used as a full replacement for **Zitrec® L** applications and its respective performance level requirements, for industrial, professional and consumer use.

Zitrec® TF-L is compatible with widely and commonly used construction materials such as metals, alloys, rubbers and engineering (thermo)plastics. We refer to our Coolant Compatibility with Elastomer and Thermoplastic & Thermosetting Polymers for a more extensive list.

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