

Zitrec® EC 40

Reduced electrical conductivity heat transfer fluid

Arteco's **Zitrec® EC 40** is an ethylene glycol-based heat transfer fluid designed for the cooling of servers and other electronic applications, specifically where reduced electrical conductivity next to freezing and boiling protection is required. Based on Organic Additive Technology (OAT), **Zitrec® EC 40** includes a corrosion inhibitor package of the highest quality.

As technologies such as AI¹ and ML² advance, there arises a demand for CPUs³ and GPUs⁴ with higher thermal design power and lower case temperatures. Liquid cooling eliminates the costs incurred for racks and power distribution units (PDU) and leads to a significant reduction in facility area. Furthermore, liquid cooling can remove server heat more effectively than air cooling.

Zitrec® EC 40 provides an all-in-one solution for datacenter cooling systems and other electronic applications, offering not only freezing and boiling protection but also an excellent corrosion inhibition and reduced electrical conductivity.



PRODUCT BENEFITS



Electrical safety

- Effects of short circuit paths are minimized due to the reduced electrical conductivity
- Electrical conductivity remains low and stable over time



Thermal properties

- Optimal heat capacity and thermal conductivity ensures an efficient and uniform heat transfer
- Low freezing point and high boiling point



Material protection

- All round long-lasting protection to metals, especially copper, stainless steel and brass
- Compatible with common elastomers and thermoplastics
- Excellent stability inhibiting formation of insoluble deposits
- Superior oxidation and pH stability at high temperatures



Environment and safety

- Carefully selected additives to minimise environmental impact
- Free from nitrites, borates and 2-EHA
- Contains a bitterant agent.

1 AI: Artificial Intelligence
2 ML: Machine Learning
3 CPU: Central Processing Unit
4 GPU: Graphical Processing Unit

Application

Zitrec® EC 40 is designed as a liquid heat transfer medium for a wide range of applications where next to freezing and boiling protection also a reduced electrical conductivity is required. Some examples where **Zitrec® EC 40** is suitable for: liquid cooled Direct-to-Chip applications, HPC (High Performance Compute), Overclocking and Edge servers.



Power Electronics



Edge Computing



Servers



High Performance Computing

Elastomer, plastic & metallic compatibility

Zitrec® EC 40 has an improved elastomer, plastic & metallic compatibility:

- EPDM, PTFE, PVDF, NBR, HDPE, AFLAS, PFA, PPS, PPO, PEEK, PFPE/PTFE, ...
- Copper, (Stainless) Steel, Brass, ...

Toxicity & safety

For toxicity information, safe handling and disposal of the product, we refer to the Safety Data Sheet. This product should not be used to protect the inside of drinking water systems.

This product contains denatonium benzoate as a bittering agent, which gives the product a bitter taste and creates a strong aversion to avoid accidental poisoning through ingestion.

Colours

Zitrec® EC 40 is available in the following colours:



Blue

Packaging

Arteco's **Zitrec® EC 40** is available as concentrate and as ready-mix **Zitrec® EC 41**, in the following packs:



IBC

Contact details

Should you have a questions on Arteco's **Zitrec® EC 40**, available packages or colours or 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.

Shelflife & Storage requirements

Arteco advises to test the fluid's electrical conductivity and pH before the product is added to the system as a standard practice, especially when the storage period has exceeded one year.

Zitrec® EC 40 can be stored for 24 months at max. 30°C in unopened recipients without any effect on the product quality or performance. It is strongly recommended to use new, non-translucent containers and where possible with a UV filter. Direct sunlight and high temperatures can degrade the quality of the product.

Zitrec® EC 40 should be stored above -20°C and below 30°C. Periods of exposure to temperatures above 35°C should be minimized.

Handling instructions

Zitrec® EC 41 can be obtained by diluting **Zitrec® EC 40** with the proper amount of demineralised water for optimal performance, controlled quality and optimal conductivity levels. Recommended use concentration is 50v%. Please consult our product information leaflet on water quality recommendations for more information.

Arteco advises to rinse the cooling system with **Zitrec® EC 41** or demineralised water with an electrical conductivity below 100 µS/cm prior to (re)fill. A full drain is required after rinsing.

To keep the electrical conductivity at a low level, **Zitrec® EC 40** should not be mixed with any other heat transfer fluids. Even minor additions will increase electrical conductivity and may affect safety and performance of **Zitrec® EC 40**.

As with any heat transfer fluid, the use of galvanised steel is not recommended for pipes or any other part of the storage/mixing installation and for packaging.

The information contained in this Product Information Leaflet is intended to provide the customer and/or end-user with an understanding of the properties of the product, it being understood that this information may not be construed as any express or implied warranty that the product is suitable for a specific use or application. All information contained in this Product Information Leaflet, including but not limited to text or graphic material, is the property of Arteco NV, is accurate to the best of our knowledge at the date of issue specified, supersedes all previous editions and information contained in them, and is subject to change without notice. Any textual or graphic material you copy, print, or download from this Product Information Leaflet is for your personal, non-commercial use only, and you not change or delete any copyright, trademark or other proprietary notices. Any other use, including but not limited to the reproduction, distribution, display or transmission of the content of this document is strictly prohibited, unless authorized by Arteco NV in writing.

Version: 202401-v01

Addendum - Technical information

Chemical and Physical Properties Zitrec® EC 40*

Property	Typical value	Unit	Specification
Appearance	Clear liquid		
Nitrite, borate, 2EHA	-		
Equilibrium boiling point	187	°C	ASTM D1120
Specific gravity (20°C)	1.112	kg/l	ASTM D5931
pH (20°C)	8.0		ASTM D1287
Electrical conductivity (25°C)	38	µS/cm	ASTM D1125
Refractive index	1.430		ASTM D1218
Kinematic viscosity (20°C)	17.3	mm ² /s	ASTM D445
Sulfate	< 5	mg/kg	

* Typical values

Chemical and Physical Properties of Zitrec® EC 41*

	50 v%	Unit	Specification
Appearance	Clear liquid		
Freezing point	-37	°C	ASTM D1177
Equilibrium boiling point	111	°C	ASTM D1120
Chloride	< 5	mg/kg	
Sulfate	< 5	mg/kg	
Electrical conductivity	96	µS/cm	ASTM D1125
pH (20°C)	8.2		ASTM D1287
Specific gravity (20°C)	1.067	kg/l	ASTM D5931
Kinematic viscosity (20°C)	0.42	W/mK	ASTM D7895
Specific heat (20°C)	3.31	kJ/kg.K	ASTM E1269

* Typical values