TELCRA®

Insulation & anticondensation material for flexible hoses

TELCRA® is an innovative and unique material with excellent insulation and anticondensation properties that can be applied to any of our silicone or fluoropolymer hoses. This material has a very low thermal conductivity and an ultra-low density.
Its special characteristics, such as its hydrophobicity and flexibility, allow the product to optimally respond to adverse conditions with high temperature gradients and special geometries and movements.
TELCRA® forms chemical bonds with the silicone material, which causes perfect adhesion between layers, completely eliminating the risk of detachment.

venair
Fluid solutions. Solid performance.

PHYSICAL PROPERTIES

Range temperature (ºC)	-60º / +180 ºC (-76º/+356ºF)
Color	White cream*
Density	0,1 g/cm^3
Thickness	16±2 mm (0,63")
Thermal conductivity	0,05 (W·K^{-1}·m^{-1})
Thermal resistance**	0,37 (m^2·K·W^{-1})

*Available in other colors under request
**Considering 16mm (0,63") thickness

FEATURES

The raw material used presents the following mechanical properties.

- **Good thermal insulation:**

Low thermal conductivity for best insulation efficiency.

- **Anti-condensation:**

The high level of insulation prevents condensation problems on the hose's cold surface.

- **Heat resistance:**

TELCRA® also offers good insulation at high temperatures.

- **Ultralight:**

Ultra-light weight material with a density of 0,1 g/cm^3 .

- **Easy installation & Bending:**

Flexible material. Aramid reinforcement for fatigue stress. Conforms easily to complex shapes.

- **Highly hydrophobic:**

Non-polar surface that avoids water absorption (less than 1%).

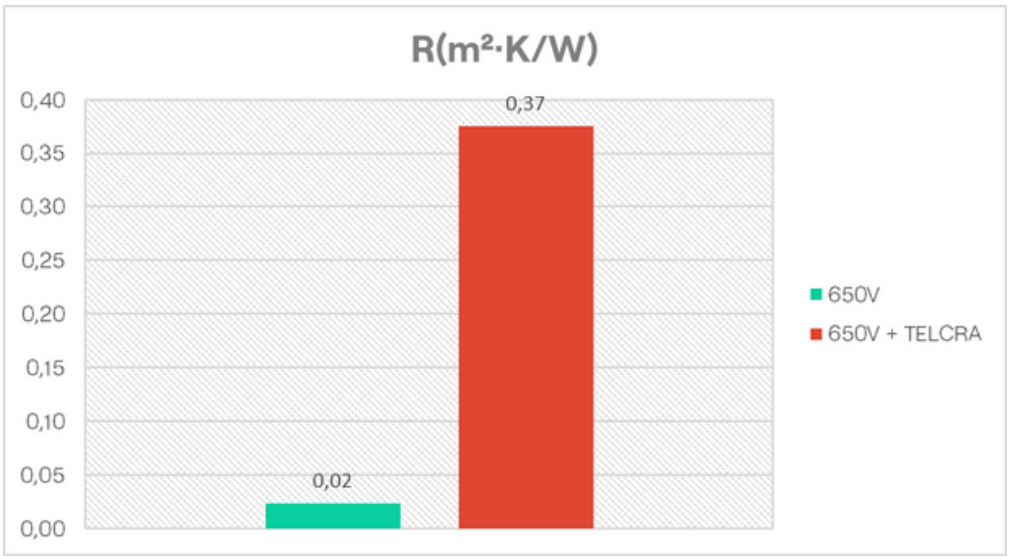
- **Environmentally Safe:**

Odourless, tasteless and completely non-toxic.

- **Aramid reinforcement**

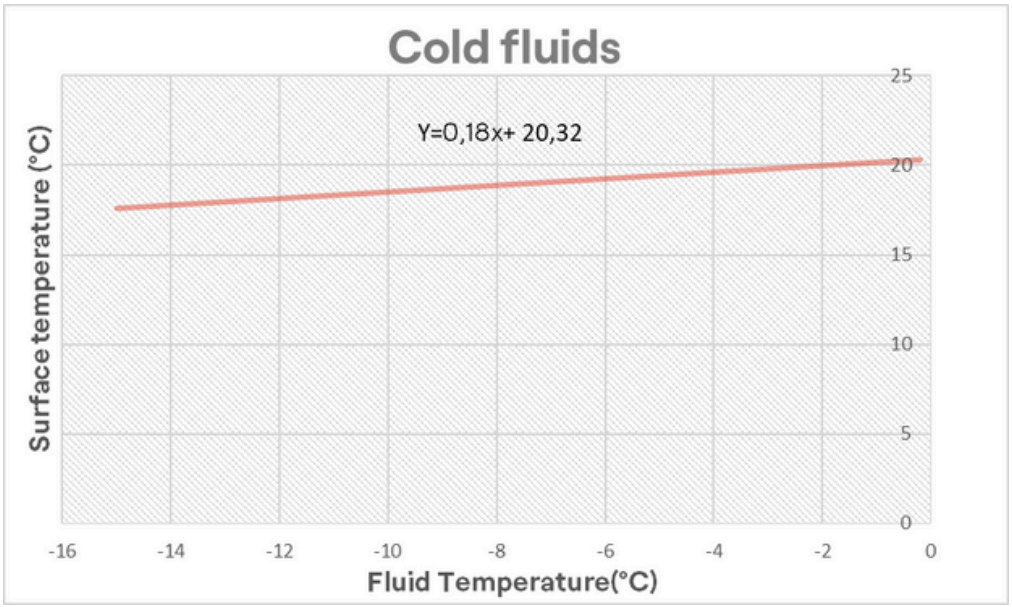
Thermal resistance

Thermal resistance is a measurement of a material's resistance to heat flow. It is a function of conductivity and thickness. In a construction made of different materials, it is the sum of the resistances of each material.

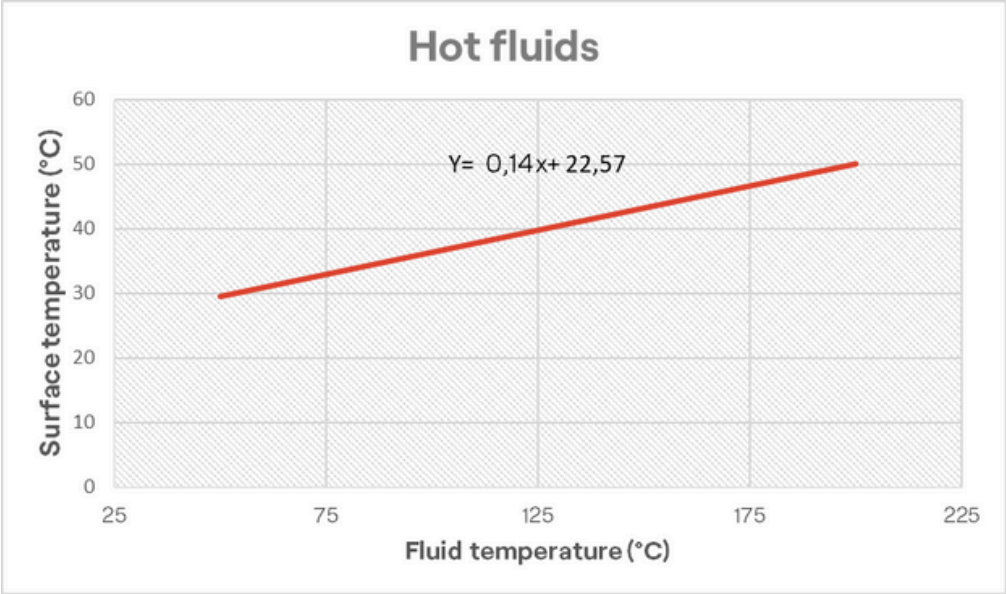


The addition of TELCRA® insulation improves the thermal resistance of the resulting construction from 0,02 to 0,37 m²·K/W.

Insulating performance



Assuming a room temperature of 20°-22°C (68°-72°F) and a constant relative humidity (50%), this graph shows the TELCRA® performance and its insulating properties for low temperature fluids.



TELCRA® performs at high temperatures, providing good insulation and ensuring surface temperatures suitable for skin contact, to help prevent burns.

Maintenance and cleaning

- TELCRA® allows water immersion cleaning due to its hydrophobicity
- Resistance to external wipe cleaning
- Withstands internal SIP and CIP cycles
- Cannot be autoclaved

Certifications

U.S. F.D.A. Regulation 21 CFR Part 177.2600

Use Precautions

- Please, respect the established values of flexibility, temperature, pressure and cleaning
- Mind the chemical compatibility of the fluid with the hose material
- Before every use, check the hose conditions. The hose cover should show no signs of cuts, tears, kinking, crushing or bubbles. There should be no hard or weak areas, signs of detachment, powder, or collapse

ANNEX 1

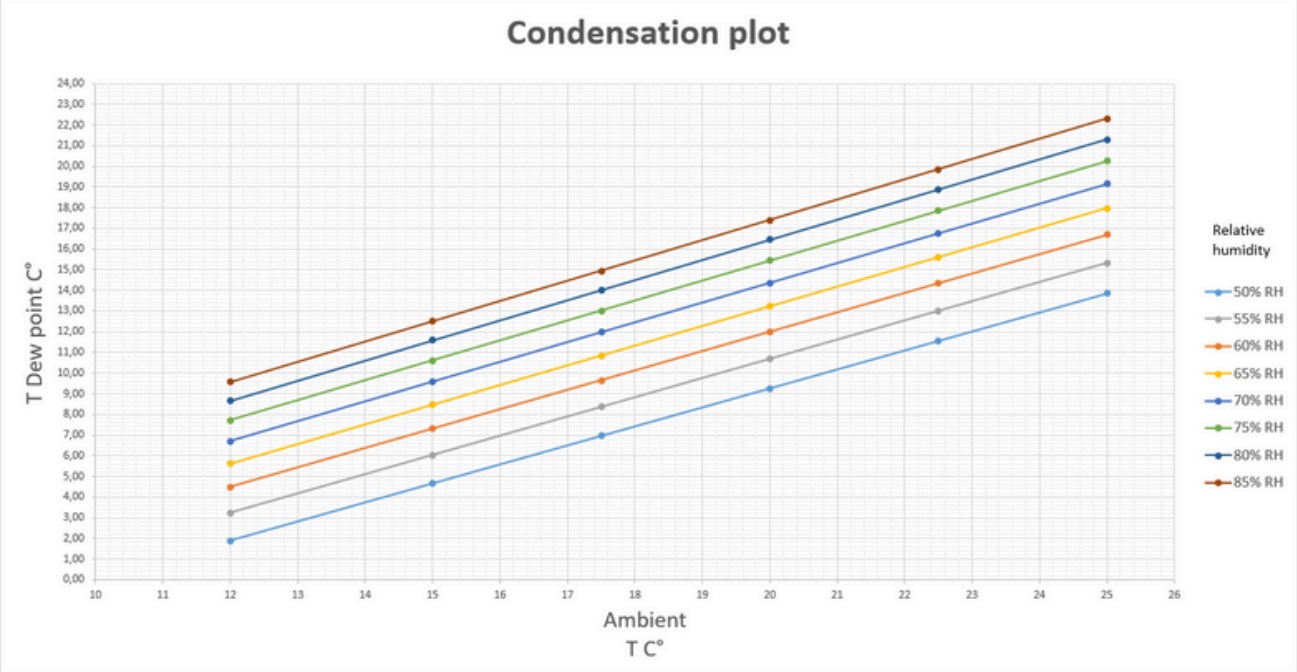
- **Dew point**

The water vapour in the environment turns to liquid on cold surfaces due to the large difference between the two temperatures. The ambient temperature and the relative humidity have a direct influence on this behavior. TELCRA® acts as an insulator, reducing the temperature differential to prevent condensation.

Concepts

- Dew Point: the temperature at which condensation begins to form on a surface at a given relative humidity and ambient temperature.
- Relative humidity: means the % of water in the air.
- External temperature: ambient temperature in the installation location.

The Dew point depends on the relative humidity and the temperature measured at the exact location where the hose is going to be installed.
The dew point can be calculated using online calculators or graphs. The following graph shows the different dew points according to the ambient temperature and the relative Humidity.

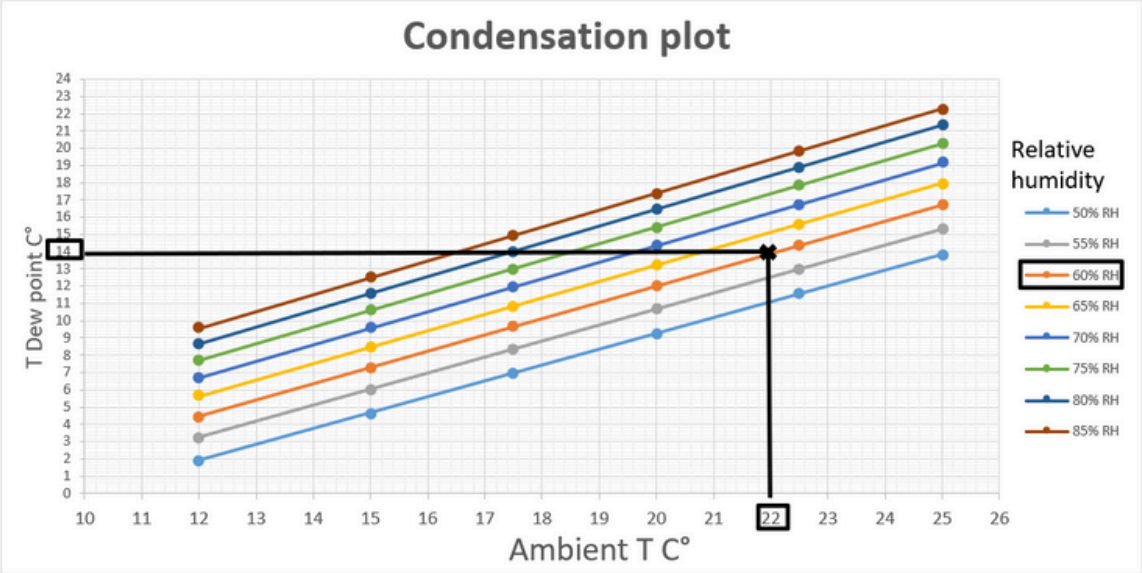


ANNEX 2

- **Case study**

An ice-cream factory has several hoses that transport product at -7°C (19°F). Consider that the relative humidity of the room is 60% and the ambient temperature is set at 22°C (72°F). What will be the dew point with the given data? Is TELCRA® a solution for avoiding the condensation?

- **Solution**



Knowing the ambient temperature, follow the '22 line' on the x-axis until it intersects with the 60% RH curve and you obtain the dew point on the y-axis. Dew Point = 14°C (57°F)

This means that condensation will begin to form on the surface of the hose at approximately 14°C (57°F). Ensuring a surface temperature above this temperature 14°C will prevent condensation.
Will TELCRA® insulation work? Looking at surface temperature graph, using the equation y = 0,18x + 20,32, it is obtained the surface temperature on TELCRA® cover, which is 19,05°C (66,29°F) >14°C (57°F). Therefore, in this case, TELCRA ®cover should avoid condensation.

CONTACT

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LIMITED WARRANTY: For a period of 6 months from the date of sale, VENAIR warrants this product to be free from defects in materials and workmanship. Our only obligation will be to replace any portion proving defective, or at our option, to refund the purchase price thereof. User assumes all other risk, if any, including the risk of injury, loss or damage, direct or consequential, arising out of the use, misuse, or inability to use, this product. This warranty is in lieu of the warranties of merchantability, fitness for particular purpose, and all other warranties, expressed implied. No deviation is authorized. VENAIR assumes no obligations or liability for any advice furnished by it, or for results obtained with respect to those products. All such advice is given and accepted at the buyer's risk.

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