



TELCRA®

Insulation & anticondensation material for flexible hoses

TELCRA® is an innovative material engineered to provide exceptional insulation and anti-condensation properties for VENAIR silicone and fluoropolymer hoses. This material is characterized by its remarkably low thermal conductivity and ultra-low density.

Its unique attributes, including inherent hydrophobicity and flexibility, enable optimal performance in demanding conditions involving significant temperature gradients, complex geometries, and dynamic movements.

TELCRA® establishes chemical bonds with the silicone substrate, ensuring superior adhesion between layers and eliminating the risk of detachment.

PHYSICAL PROPERTIES

Range temperature (°C)	-60° / +180 °C (-76°/+356°F)
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

TELCRA® utilizes raw materials exhibiting the following key performance characteristics

- **Excellent thermal insulation:**

Low thermal conductivity ensures superior insulation efficiency.

- **Anti-condensation:**

High insulation levels effectively prevent condensation formation on the hose surface when transporting cold fluids.

- **Heat resistance:**

Maintains effective insulation performance at high operating temperatures.

- **Ultralight:**

With a density of 0.1 g/cm³, it is an exceptionally light material.

- **Easy installation & Bending:**

The flexible nature of the material and aramid reinforcement for fatigue stress allow it to easily conform to complex shapes.

- **Highly hydrophobic:**

The non-polar surface prevents water absorption (less than 1%).

- **Environmentally Safe:**

Odourless, tasteless and completely non-toxic.

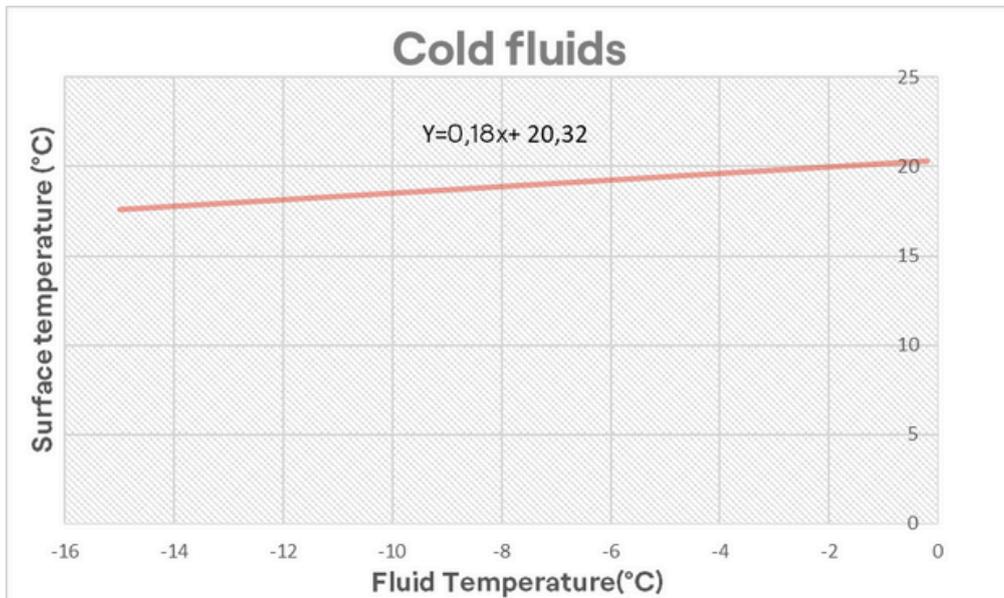
Thermal resistance

Thermal resistance quantifies a material's opposition to heat flow. It is determined by the material's conductivity and thickness. In multi-layer constructions, the total thermal resistance is the sum of the resistances of each individual layer. The addition of TELCRA® insulation significantly improves thermal resistance from 0.02 m²·K/W to 0.37 m²·K/W



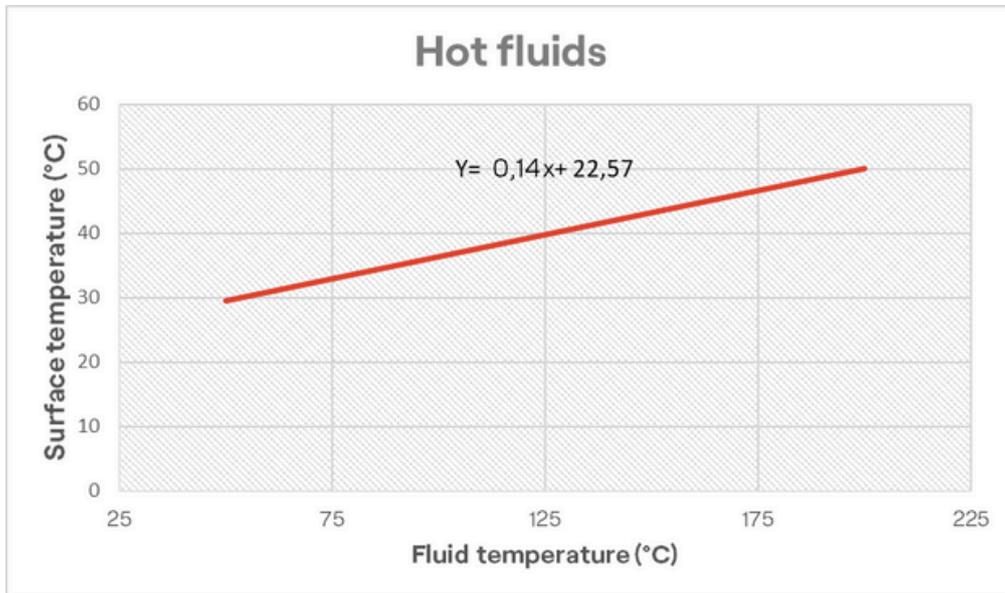
Insulating performance

Assuming an ambient temperature of 20°C - 22°C (68°F - 72°F) and a constant relative humidity of 50%, the graph below illustrates TELCRA®'s insulating performance with low-temperature fluids.



©

TELCRA® maintains performance at high temperatures, providing insulation that results in surface temperatures suitable for safe skin contact, thereby mitigating burn risks.



Maintenance and cleaning

- TELCRA® permits cleaning via water immersion due to its hydrophobic properties
- Resistant to external wipe cleaning
- The TELCRA® cover will withstand internal Sterilization-in-Place (SIP) and Cleaning-in-Place (CIP) cycles as long as the inner hose is rated for them. Please refer to the inner hose's TDS for specific conditions.
- Cannot be autoclaved

Certifications

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

Use Precautions

- Ensure compliance with the specified parameters for flexibility, temperature, pressure, and cleaning conditions applicable to both the inner hose and the TELCRA® cover.
- Verify the chemical compatibility of the fluid with the hose material.
- Inspect the hose condition before each use. The hose cover should be free from cuts, tears, kinking, crushing, or bubbles. There should be no hard or weak areas, signs of detachment, powder, or collapse

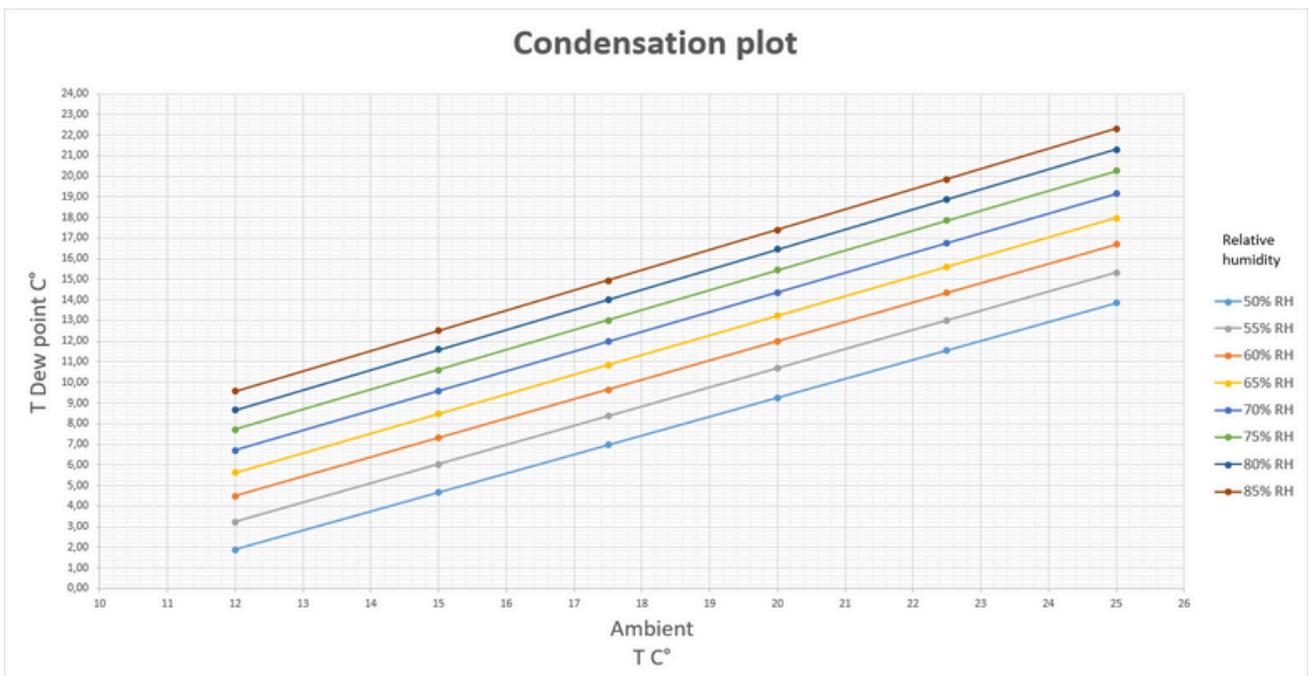
ANNEX 1

- **Dew point**

Water vapour present in the environment condenses on cold surfaces when there is a significant temperature gradient. This phenomenon is directly influenced by the ambient temperature and relative humidity. TELCRA® operates as a thermal insulator, minimising the temperature differential between the surface and the environment, thereby reducing the risk of condensation

- **Dew Point:** The temperature at which condensation commences on a surface at a given relative humidity and ambient temperature.
- **Relative Humidity:** The percentage of water vapor present in the air.
- **External Temperature:** The ambient temperature at the installation location.

The dew point is dependent on the relative humidity and temperature at the specific installation site and can be determined using online calculators or psychrometric charts . The graph below illustrates dew points across various ambient temperatures and relative humidities.



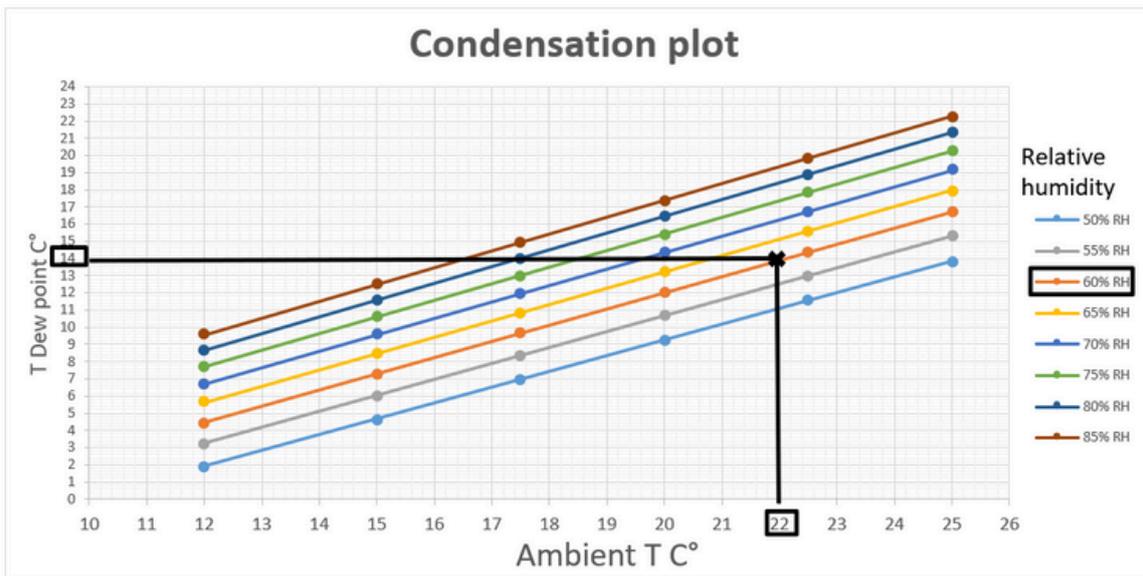
ANNEX 2

• **Case study**

An ice-cream production facility utilizes hoses to transport product at -7°C (19°F). The ambient room temperature is 22°C (72°F) with a relative humidity of 60%. The question is to determine the dew point under these conditions and whether TELCRA® is a viable solution for preventing condensation.

• **Solution**

Using the condensation plot (Annex 1) and locating the intersection of the 22°C ambient temperature line and the 60% relative humidity curve, the dew point is determined to be 14°C (57°F). This indicates that condensation will form on surfaces at or below this temperature.



To prevent condensation, the hose surface temperature must remain above 14°C. Analyzing the surface temperature graph for cold fluids (page 3), the equation $y = 0.18x + 20.32$ can be used to calculate the surface temperature of a TELCRA®-covered hose. For a fluid temperature (x) of -7°C, the surface temperature (y) is approximately 19.05°C (66.29°F). Since 19.05°C is greater than the 14°C dew point, the TELCRA® cover is effective in preventing condensation in this case

CONTACT



IMPORTANT: The Company reserves the right to change, amend, modify, suspend, continue or terminate all or any part of this Document at any time without notice. It is the user's responsibility to ensure the suitability and safety of the VENAIR products for all intended uses. All the tests must be conducted in accordance with applicable regulatory requirements in order to determine the safety and effectiveness for use of the hoses in any particular application.

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.

Vena, Venair and the Venair logo are trademarks of Venair Ibérica SAU

Copyright 2024|Venair Group|All Rights Reserved

www.venair.com