



» TECHNICAL BULLETIN

Cesa™ Fiber Additives for Heat Preservation

Avient's new generation of heat-preservation additive formulations for fiber and textile applications are developed to help brands more easily meet demands for lightweight and comfortable winter clothing, sportswear and bedding.

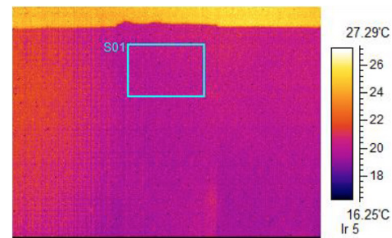
Fabrics made with Cesa™ Fiber Additives for heat preservation can absorb more heat than untreated textile when exposed to simulated sunlight with the wavelength from 320 to 1100nm. Meanwhile, the treated fabrics can achieve higher CLO values (degree of insulation provided by an article of clothing). Evaluation showed an increase in circulation and blood flow velocity after body contacts with warmed fabric.

Customized hangtag service can be provided upon customers' requirements.

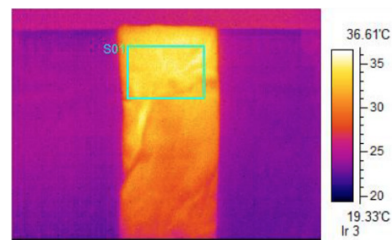


TEMPERATURE DISTRIBUTION DIAGRAM

- **Test Method:** FTTS-FA-010-2007 4.2
- **Equipment:** Thermovision
- **Heat Source:** 500W Halogen Lamp
- **Heat Distance:** 100 cm



Surface temperature before exposure: 20.22°C



Surface temperature after 10 min exposure: 33.85°C

Temperature change: +13.6°C

Added Cesa Fiber Additives for heat preservation

TEST METHOD	STANDARD REQUEST	TEST RESULT
GB/T30127 Far infrared radiation properties	Far infrared emissivity ≥ 0.88 (5-14um) (Test temperature: 34°C)	0.9
	Far infrared radiation temperature rise $\geq 1.4^{\circ}\text{C}$	9°C
GB/T 18319-2019 Thermal retention with accumulated by infrared ray	Maximum temperature rise $\geq 6^{\circ}\text{C}$	8.9°C
	Mean temperature rise $\geq 4.4^{\circ}\text{C}$ (20 minutes)	5.6°C
FTTS-FA-010 Infrared radiation properties & thermal retention temperature rise	Average emissivity ≥ 0.8 (2-22um) (Test temperature: 25°C)	0.8
	Specified heating $\Delta T \geq 0.5^{\circ}\text{C}$ (relative to the standard)	+5.34°C (ΔT)
GB/T 11048-2008 Method A Thermal transmittance Unit: clo	Naked body: 0 Underwear: 0.04 T-shirt: 0.09 Thick sweater: 0.35 Winter coat: 0.7 All the data above are the reference value	0.625
Human Physiological Experiment	Blood flow volume	+12.9%
	Blood flow velocity	+13.6%
	Blood oxygenation(%SpO ₂)	+1.7%

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