

TURNOUT GEAR BREATHABILITY CALCULATOR

It's extremely important to consider your gear's Ret value, because your body's ability to lose heat through conduction is eliminated in warmer or sunny conditions and it solely relies on evaporative cooling. Since THL includes a conduction element in its equation, it does not provide adequate information on how gear will perform in warmer environments which are common to firefighters.

Choose up to three combinations of Outer Shell, Moisture Barrier, and Thermal Barrier to compare their breathability.

COMBINATION #1

Gemini XT

COMBINATION #2

Kombat Flex

COMBINATION #3

Pioneer

OUTER SHELL

MOISTURE BARRIER

THERMAL BARRIER

GORE® CROSSTECH® Blai

GORE® CROSSTECH® Blai

GORE® CROSSTECH® Blai

Caldura Elite/Titanium w/Nim

Quantum 3D SL2

Glide Ice 2-Layer

RESET



Ret
24.0



Ret
27.0



Ret
27.0

THL

278.8

270.4

277.8

TPP

35.6

42.7

41.4

Ret

24.0

27.0

27.0

Ret

Using the Sweating Guarded Hot Plate, this test focuses strictly on wet heat loss or evaporation. The result is a value that indicates how much restriction your turnout gear layers create for evaporation (aka sweat vapor) to move through them, so a lower number or less restriction is better. The environment at which this test is run is 95°F with 40% relative humidity.

THL

Also using the Sweating Guarded Hot Plate, this test renders its results through a complex equation that calculates a combination of wet heat loss (evaporation) plus a dry heat loss (through conduction) achieved by your turnout gear layers, so a higher number is better. The environment at which this test is run is 77°F with 65% relative humidity.

TPP

The thermal protective performance test measures the rate at which convective and radiant heat can penetrate through the turnout gear layers to cause second-degree burns.