

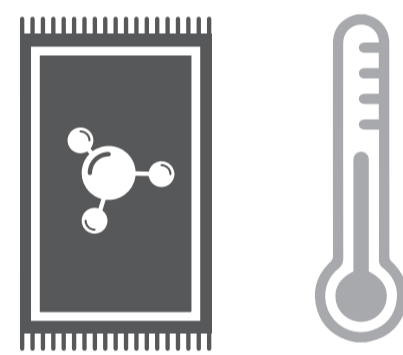
# MANAGES HUMIDITY

## THE PROBLEM



The ability of an interior textile to buffer or regulate heat and moisture ensures a temperature balanced, dry, comfortable and healthy interior environment.

## WHY DOES WOOL OUTPERFORM OTHER FIBERS?



### Moisture Absorption

Wool has the intrinsic ability to actively absorb moisture from the indoor environment – with its absorption properties being much greater than most synthetic fibers.

Wool is an incredibly technical fiber, one that synthetics have been trying to emulate for years. As such, wool owes its amazing moisture absorption properties to its chemical building blocks – amino acids, which are hydrophilic (water loving). This means they attract and absorb water molecules. Wool has the capacity to remove large amounts (up to 35% of its own weight) of moisture from inside a room, before the fiber even begins to feel wet.

What this means is that wool carpets are always seeking to maintain equilibrium with the environment around them – so if the surrounding air becomes more saturated with moisture, there will be a tendency for the carpet to absorb this moisture.

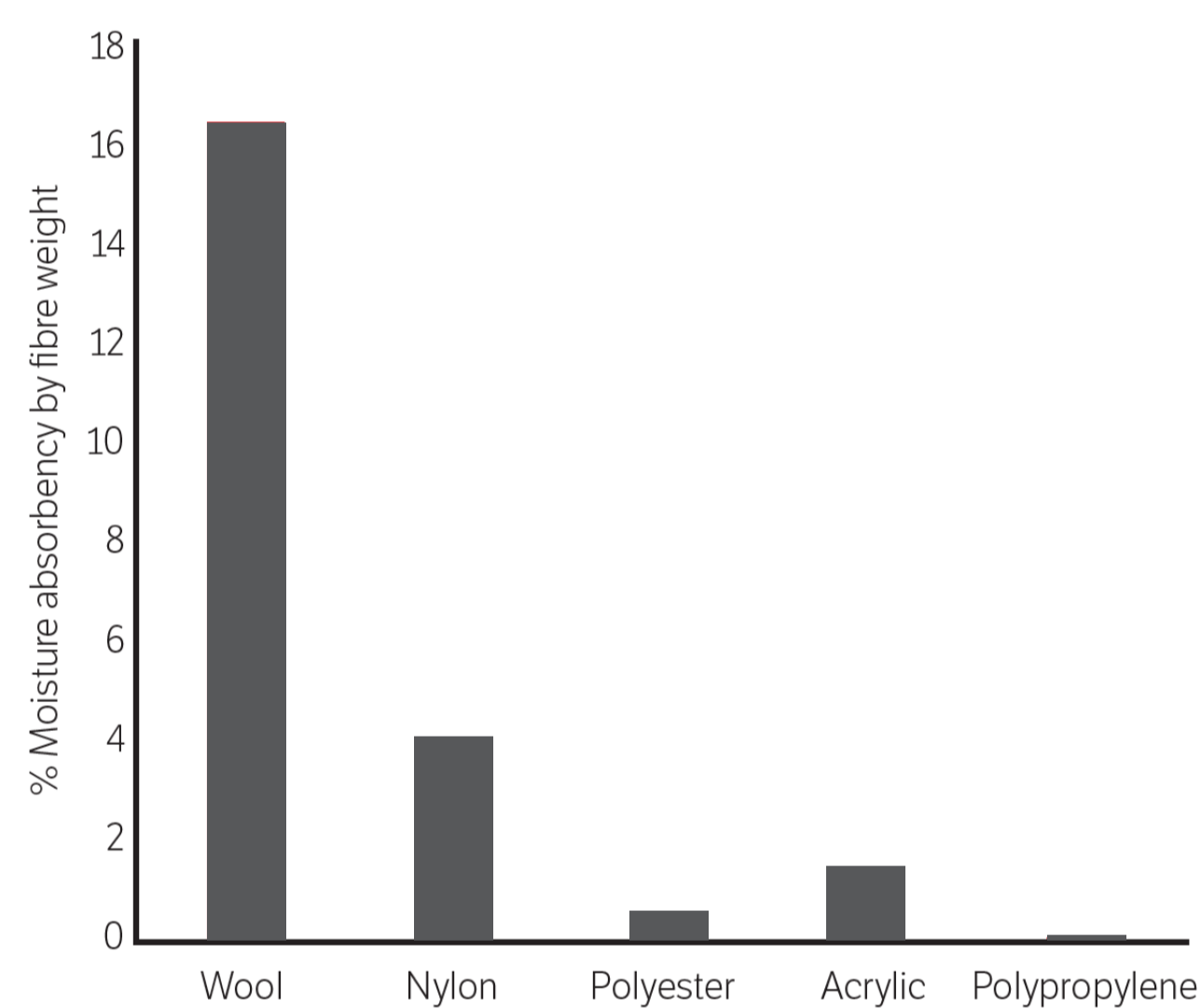
### Thermal Regulation

While insulation is primarily a function of the textile construction – particularly the thickness and thus the amount of air trapped, rather than fiber type, wool still has some distinct advantages over synthetics. Wool has a thermal conductivity of 193mW/(m.K) with values for competing fibers ranging between 117, 212, 238 and 461 mW/(m.K) for polypropylene, acrylic, nylon and cotton.

The natural crimp of wool fibers assists in this air entrapment, as does the height of the pile, and decreasing pile density.

## THE RESEARCH

### MOISTURE ABSORBANCE OF WOOL AND SYNTHETIC



### THERMAL PROPERTIES OF CARPETS AND CARPET FIBERS

Fiber Type	Thermal conductivity of fibers (W/mK)		Thermal resistance of carpets (m <sup>2</sup> K/W per 1000g/m <sup>2</sup> )
Wool	18,5	19,3	0,301
Nylon	23,8	-	0,217
Acrylic	21,2	-	0,261
Viscose	29,2	28,9	0,223
Cotton	29,2	46,1	-
Polypropylene	-	-	0,213

## WHAT THIS MEANS

How well heat and moisture are managed within a room or dwelling is an important determinant of overall comfort and occupant health - and use of wool carpeting can have significant benefits with respect to both of these. Achieving and maintaining optimal heat and moisture levels within a room is a key contributor to rating of housing satisfaction.



**WHY WOOL IS A GOOD CHOICE**

Wool carpets are a natural, safe and healthy fiber that can regulate the interior heat and moisture providing a warm and comfortable interior environment.

## KEY POINTS

- Due to its superior insulation characteristics, wool carpet provides a warmer, safer, more comfortable surface on which to stand/sit than hard flooring.
- Wool fiber has a hydrophobic (water repelling) exterior and hydrophilic (water loving) interior that confer its unique moisture management properties – properties that are not shared by synthetic fibers such as nylon.
- Wool's chemical structure means that it has the ability to actively absorb and desorb moisture and to gain and release heat depending on the external and internal environment - thus buffering a room against environmental changes.
- A wool carpet's ability to absorb moisture may result in a reduced propensity for condensation within a room.