

## Data required to create material datasets for the WUFI database

Group			Group A	Group B	Group C	Group D	Group E	Group F
Character of material			Capillary active material	Non capillary active fiber insulation material	Non hygroscopic material	Capillary active interior insulation material	Membrane (constant $s_d$ -value)	Variable membrane (moisture dependent $s_d$ -value)
Example			Concrete, masonry, wooden materials, plaster	Mineral wool	Glass, metal, VIP, EPS, XPS, PU, UF	CaSi-board, woodfiber insulation board	PE-membrane, vapour barrier with constant $s_d$ -value	PA-membrane, vapour barrier with moisture dependent $s_d$ -value
Bulk density	kg/m <sup>3</sup>	lb/ft <sup>3</sup>	o	o	o	o	o	o
Porosity	m <sup>3</sup> /m <sup>3</sup>	ft <sup>3</sup> /ft <sup>3</sup>	o	o	o <sup>2)</sup>	o	o <sup>2)</sup>	o <sup>2)</sup>
Heat capacity, 10 °C, dry	J/kgK	Btu/lb°F	o <sup>2)</sup>	o <sup>2)</sup>	o <sup>2)</sup>	o <sup>2)</sup>	o <sup>2)</sup>	o <sup>2)</sup>
Thermal conductivity, 10 °C, dry <sup>1)</sup>	W/mK	Btu/hft°F	o	o	o	o	o <sup>2)</sup>	o <sup>2)</sup>
Water Vapour Diffusion Resistance Factor ( $\mu$ -value, dry-cup)	-	perm in	o	o	o	o	o	o
Moisture Storage Function	kg/m <sup>3</sup>	lb/ft <sup>3</sup>	o	o	-	o	-	-
Liquid Transport Coefficient, Suction	m <sup>2</sup> /s	ft <sup>2</sup> /s	o	-	-	o	-	-
Liquid Transport Coefficient, Redistribution	m <sup>2</sup> /s	ft <sup>2</sup> /s	o	-	-	o <sup>4)</sup>	-	-
$\mu$ -value, moisture dependent	-	perm in	# <sup>2)</sup>	-	-	# <sup>2)</sup>	-	o <sup>3)</sup>
Thermal Conductivity, moisture dependent	W/mK	Btu/hft°F	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>
Thermal Conductivity, temperature dependent	W/mK	Btu/hft°F	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>
Enthalpy, temperature dependent	J/kg	Btu/lb	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>	# <sup>2)</sup>

List of values: [ o : necessary, # : if property relevant, - : not necessary ]

<sup>1)</sup> For insulation materials the measured values are preferable (if available) instead of design values.

<sup>2)</sup> If property is missing, values from literature or estimated values may be used.

<sup>3)</sup> The measured moisture dependent  $\mu$ -values should be evaluated according to :

<https://wufi.de/de/wp-content/uploads/sites/9/2014/09/Auswertung-von-Cup-Messu> (Only in German yet)

<sup>4)</sup> Measurement using Kapi-Test:

[https://wufi.de/en/wp-content/uploads/sites/11/Kapillaraktivitat-von-Dammstoffen\\_en.pdf](https://wufi.de/en/wp-content/uploads/sites/11/Kapillaraktivitat-von-Dammstoffen_en.pdf)