

Thermometer filling liquids

Technical data of thermometric fillings

Thermometric fillings are divided into two groups, **wetting and non-wetting** liquids.

The excellent thermometric properties of mercury (including the fact that there is no ageing and no wetting of the glass surface as well as good expansion linearity over a wide temperature range) make mercury essential as an indicator liquid for precision thermometers and define the outstanding serviceability through precision and durability.

The table below gives an overview of the main filling liquids used together with their operating limits and their most common abbreviations. The upper and lower limits are defined by physical properties such as melt point and boiling point.

Technical data of thermometer liquids

Filling liquid	abbreviation	Lower limit (° C)	Upper limit (° C)	Wetting
Mercury	Hg	-38.5	+800	no
Mercury-thallium alloy	Hg/Tl	-58	approx.+150	no
Gallium alloy	Ga	-0	approx. +1.200	no
Technical pentane	C ₅ H ₁₂	-200	approx. +35	yes
Ethanol	C ₂ H ₆ O	-110	approx. +100	yes
Pentanol	C ₅ H ₁₂ O	-115	approx. +135	yes
Toluene	C ₇ H ₈	-90	approx. +100	yes
Creosote	—	approx. -40	approx. +210	yes
Petroleum	P	approx. -45	approx. +160	yes
i-amyl benzoate	C ₁₂ H ₁₆ O ₂	approx. -40	approx. +220	yes