

【熱傳導分析儀】

TPS 1500 熱傳導係數儀，由瑞典 Hot disk 公司製造，採用暫態平面熱源法作為測試方法，能涵蓋大多數的材料需求，適用於量測各類均質材料之熱傳導係數。感測器會放置在兩個相同的樣本之間。電流會經過感測器使其產生熱量，同時感測器可以監控隨時間變化之溫度變化。由感測器記錄的溫度與時間的關係，可同步量測出材料的熱傳導值、熱擴散值、熱容。TPS 1500 為工業或材料研發中可靠的工具，能有效的分析混凝土、水泥複合物、木材、纖維材料以及絕熱材料。TPS 1500 系統所使用的軟體可以自動測量及對外部設備進行自動溫度控制。樣品規格需要兩塊相同的大小，量測之範圍為 $0.01 \text{ W/mK} \sim 40 \text{ W/mK}$ ，操作溫度範圍為 $-35^{\circ}\text{C} \sim 200^{\circ}\text{C}$ 。藉由軟體自動換算可直接得出熱傳導係數，無須樣品前處理。樣品要求簡易，其樣品量測規格要求為面積不可小於 5 cm^2 ，厚度不得小於 10 mm ，並可完全接觸貼合感測器為主。量測標準乃是依據 ISO 22007-2。

【Hot Disk Thermal Constants Analyser】

The thermal constants analyzer TPS-1500 is made by Hot Disk corporation in Sweden. This item is designed to use the transient plane source method to fit in numerous materials and homogeneous samples. The sensor is settled in the middle of the two same samples, then the current will pass through the sensor to generate the heat. Moreover, the sensor can record the relationship of the difference of temperature with the changing time. All of the monitored data can be calculated to give the thermal conductivity, thermal diffusivity, and heat capacity. TPS 1500 is a reliable tool for the industry and the material R&D, available to analyze the concrete, cement, wood, fabric, and insulate materials. The software of the TPS 1500 system can multiprogramming for automated detection and control of temperature. The requirement of the measurement sample needs the same two pieces of plates, which have a smooth surface to fit in the sensor. The range of detection is 0.01 W/mK to 40 W/mK , and the temperature is $-35^{\circ}\text{C} \sim 200^{\circ}\text{C}$. By the software, the thermal conductivity can be calculated directly. The requirement of the sample area needs large than 5 cm^2 , the thickness is high than 10 mm . The measurement standard reference can be confirmed by ISO 22007-2.



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