

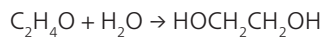
APPLICATION SHEET

Organics · Automotive
LFA 467 HyperFlash®

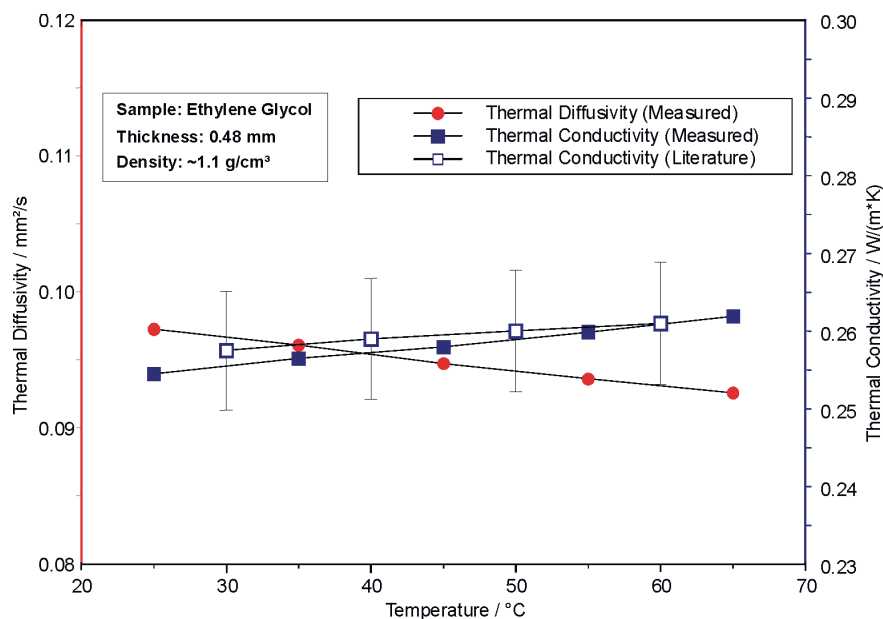
Ethylene Glycol

Introduction

Ethylene glycol is an alcohol with two -OH groups (a diol), a chemical compound widely used as an automotive anti-freeze. In its pure form, it is an odorless, colorless, syrupy liquid with a sweet taste. Ethylene glycol is toxic, and its accidental ingestion should be considered a medical emergency. Ethylene glycol is produced from ethylene via the intermediate ethylene oxide. Ethylene oxide reacts with water to produce ethylene glycol according to the chemical equation:



The major use of ethylene glycol is as an engine coolant and antifreeze. Due to its low freezing point, it has also been used as a deicing fluid for windshields and jet engines. Ethylene glycol has become increasingly important in the plastics industry for the manufacture of polyester fibers and resins, including polyethylene terephthalate, which is used to make plastic bottles for soft drinks.



Test Conditions

Temperature range:	25 ... 65°C
Sample holder:	for liquids
Sample thickness:	approx. 0.5 mm
Sample surface preparation:	-
Specific heat:	by DSC

Test Results

Presented in the plot are the results for the thermal diffusivity and thermal conductivity of the ethylene glycol sample. The results are intercompared with literature values for the thermal conductivity. The uncertainty of the literature values was assumed to be 3% and is depicted as error bars in the figure. It can be seen that the deviations between the literature values and measurement results are by far within the uncertainty of the test method (approximately 5%) and the accuracy of the literature values. An increasing thermal conductivity versus temperature was obtained.