

INTISARI

Uji Termal Sampel *Main-Chain Liquid Crystal Elastomer* (MC-LCE) Menggunakan Metode Kalorimetri pada Berbagai Konsentrasi *Crosslinker*

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Metode kalorimetri merupakan salah satu metode uji yang dapat digunakan untuk mengetahui sifat fisis material. Pada penelitian ini, dilakukan pengujian kalorimetri menggunakan alat uji berupa *Differential Scanning Calorimetry* (DSC). Sampel *Main-Chain Liquid Crystal Elastomer* (MC-LCE) yang diuji memiliki konsentrasi *crosslinker* sebanyak 8%, 12%, 14% dan 16%. Semua sampel diuji menggunakan DSC melalui proses pemanasan dan pendinginan yang sama. Termogram hasil pengujian sampel kemudian dianalisis sehingga diperoleh informasi mengenai entalpi dan titik transisi fase dari proses pemanasan dan pendinginan. Entalpi yang diperoleh cenderung turun terhadap kenaikan konsentrasi *crosslinker*, sedangkan titik transisi fasenya cenderung naik terhadap kenaikan konsentrasi *crosslinker*.

Kata Kunci: *Main-Chain Liquid Crystal Elastomer* (MC-LCE), *Differential Scanning Calorimetry* (DSC), proses pemanasan dan pendinginan, entalpi, titik transisi fase.

ABSTRACT

Main-Chain Liquid Crystal Elastomer (MC-LCE) Thermal Analysis Using Calorimetry Method as Function of Crosslinker Concentration

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Calorimetry method is a method that can be used to characterize physical properties of material. This experiment used Differential Scanning Calorimetry (DSC) to characterize sampel calorimetrically. Four samples of Main-Chain Liquid Crystal Elastomer (MC-LCE) with different crosslinker concentration, namely 8%, 12%, 14% and 16% were tested. All samples were analyzed using DSC with same heating and cooling process. The thermogram from analyzed samples then calculated to obtain information about enthalpy and phase transition point from heating and cooling process. The result showed that the enthalpies tend to decrease with increasing crosslinker concentration, whereas the phase transition temperatures tend to decrease with increasing crosslinker concentration.

Keywords: Main-Chain Liquid Crystal Elastomer (MC-LCE), Differential Scanning Calorimetry (DSC), heating and cooling process, enthalpy, phase transition temperature.