

Using Pyrene Fluorescence to Probe the Behaviour of Semicrystalline Polyolefins in Solution

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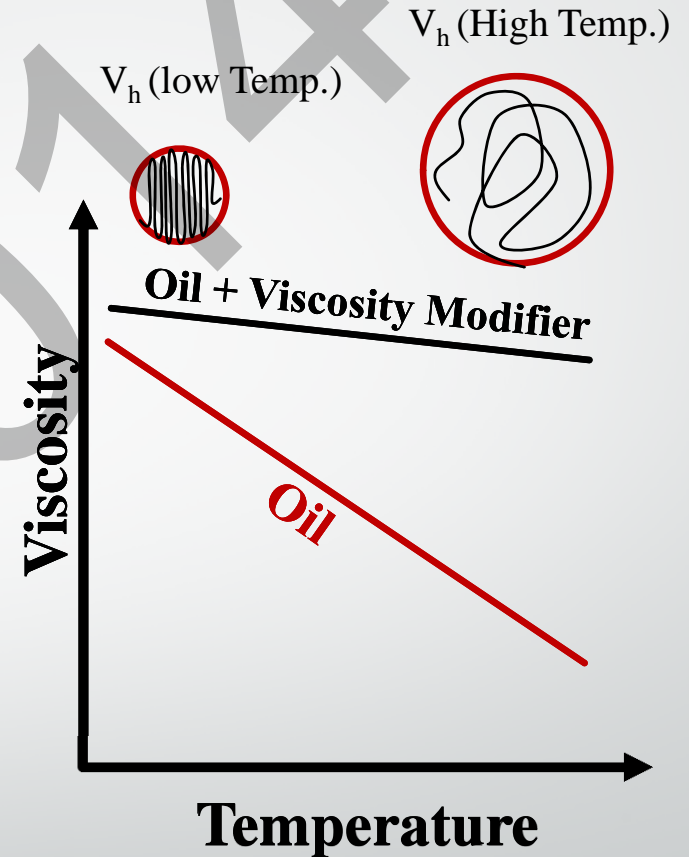
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Introduction

Engine oils are vital to all cars as they provide the lubrication needed between the moving parts of the engine.

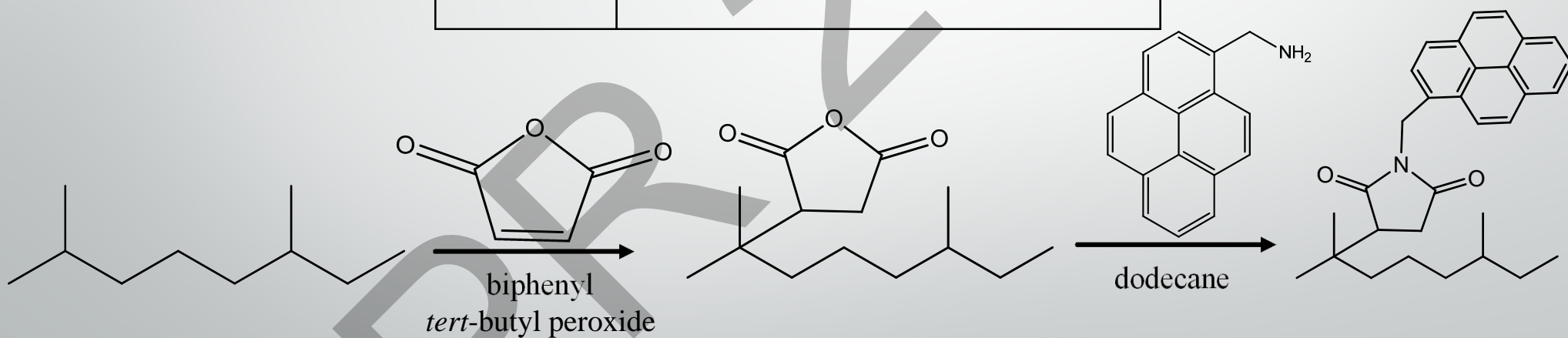
Problem: At high temperatures, liquids become thinner. On the other hand, at extremely low temperatures liquids become more viscous before they reach their freezing point.

Solution: This is where viscosity index improvers (VII) are introduced. VIIs are designed to reduce the change in a lubricant's viscosity when subjected to changes in temperature. Ethylene-propylene copolymers are commonly used as VIIs.

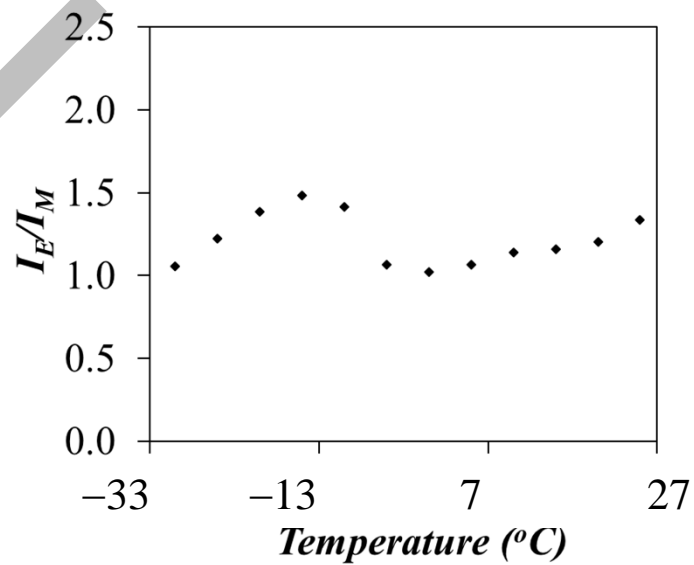
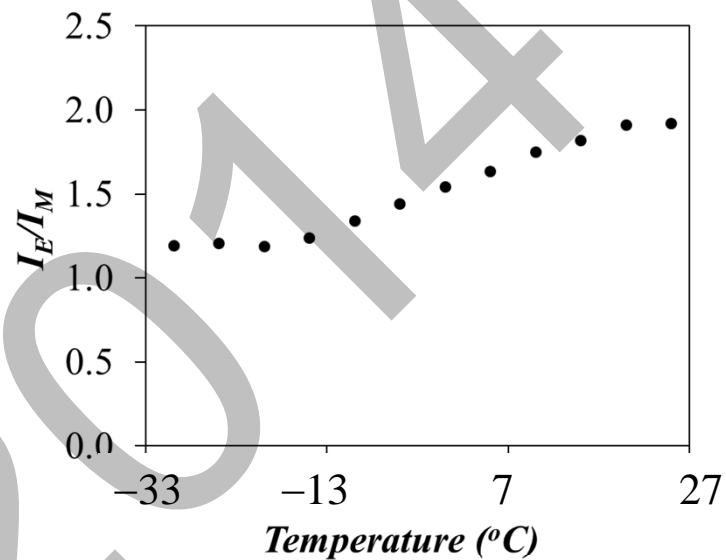
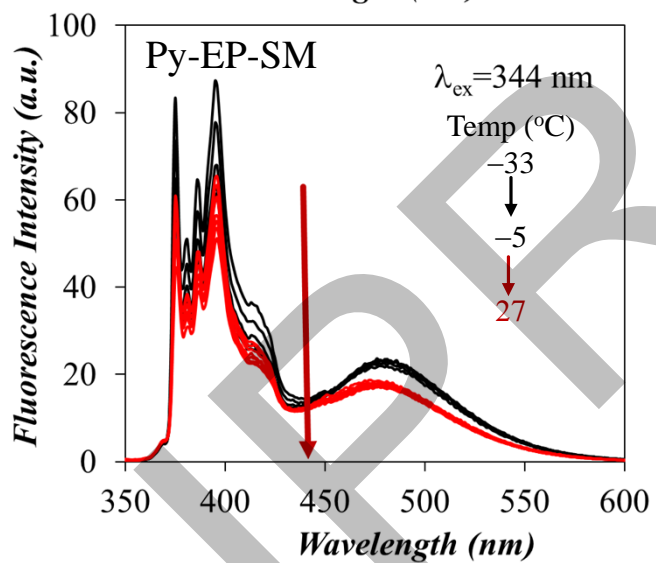
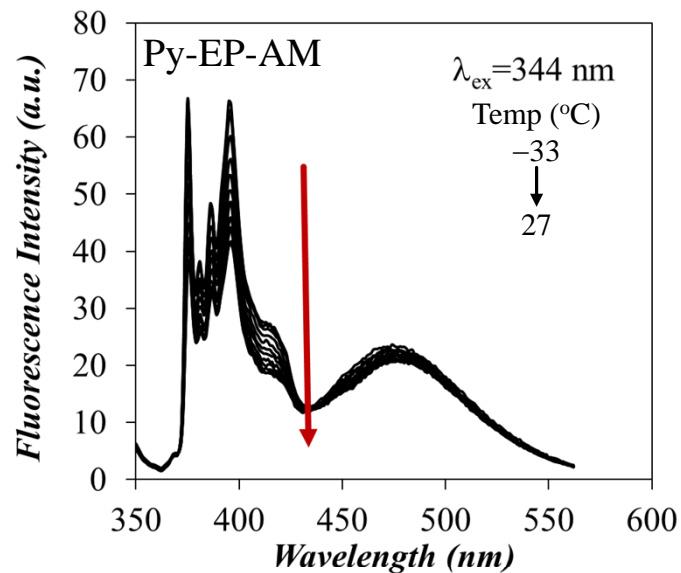


$$\eta = \eta_0 \left(1 + 2.5 \frac{V_h}{V} + 1.4 \left(\frac{V_h}{V} \right)^2 + \dots \right)$$

Sample	Type of EP-Copolymers
EP-AM	EP-Amorphous
EP-SM	EP-Semicrystalline



Steady-State Fluorescence Measurements



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- Afton

THANK YOU !

QUESTIONS ?

