

The Chemistry of Acenaphthylene Pyrolysis

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The pyrolysis of acenaphthylene was studied under distinct experimental conditions (different pressure and heating-rates). The reaction products (volatile substances and the residue) were analyzed by several methods (thin-layer chromatography, UV- and IR-Spectroscopy) up to 500°C.

Decacyclene is found under all experimental conditions as a main part of the non-volatile residue at 500°C. This is in contract to former results of RULAND who concluded from X-ray studies that the formation of this five-membered ring system can only be an insignificant side-reaction in acenaphthylene pyrolysis. In addition, the graphitization behavior of acenaphthylene and decacyclene was studied using X-ray measurements of line-broadening. Data about interlayer distances, crystallite sizes and displacements are given.