Crystal Structures of *trans*- and *cis*-octenes

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n-Alkanes and most of their α- and α,ω-substituted derivatives show a remarkable alternation in their melting points with increasing chain length [1,2]. The same phenomenon also occurs within series of substances with a constant number of C-atoms. One of these isomeric series are the octenes where the melting points of the 2- and 4-octenes are relatively higher than those of 1- and 3-octenes. This holds for the series of *cis*- as well as for the series of *trans*-isomers.

Single crystals of all *trans*-octenes have been grown *in situ* using a miniature zone melting procedure [3], and their X-ray analyses have been carried out. Crystal structures of *cis*-octenes have been determined by X-ray powder diffraction using lattice energies minimisations [4]. The structural similarities and differences between the *trans*- and *cis*-isomers of each serie could be analyzed based on the packing arrangements of hydrocarbon chains and the end groups. The melting point alternation in both isomeric series can be explained based on the calculations of lattice energies.

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