Acknowledged is our ability to find the best agreement between experimental and calculated diffuse scattering effects for generated sequences of Se-substituting packages (Fig. 1c). Different types of selenium planar domains and ways of multi-plane packaging were also tested and verified.

Keywords: diffuse_scattering, disorder, selenate_hydrate

MS30.P22


Mesomorphic phase in oriented poly(pentamethylene 2,6-naphthalate)

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The thermotropic liquid crystalline (LC) behavior of polymers with rigid mesogenic units interconnected through flexible spacers has been extensively over the past two decades. In the main-chain LC polymer flexible spacers are constrained by the mesogenic units to which they are linked, thus to have some orientational order. Among these polymers poly(alkylene 4,4’-bibenzoate)s whose mesophase existence and transition behavior have been intensively studied. These BB-n polyesters invariably form smectic mesophase when n varies from 3 to 9. Polyester based on 2,6-naphthalene dicarboxylic acid, poly(m-methylene 2,6-naphthalate) is another example of LC polymer that possibly show mesophase. In this family, as was noted in BB-n family, the macroscopic thermal and mechanical properties exhibit odd-even fluctuations as the number of methylene group in PmN increases. However, the existence of mesophase in these polymers is relatively rare and has been reported only in PEN and PBN. In this report, we present the mesophase structure in poly(pentamethylene 2,6-naphthalate) (PPN).

Keywords: WAXS, polymer, orientation

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Crystal structures of high-entropy alloys of high melting temperature

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In the recent years importance is being given to high-entropy alloys (HEA) where the alloy consists of multiple elements in high proportion (5-35 atomic %) for their many interesting properties [1]. Higher number of constituent elements increases the configurational entropy of the system, which influences the short-range ordering and coloring-problem. A lot of studies have been done in the alloys with Al and other transition metal elements. The most common of the base system has been Al-Co-Cr-Fe-Ni with other few metals. In this study we have focused on system containing high melting temperature refractory metals like W, Mo, Nb, Ta and V. The refractory HEA has potential application in the aerospace industry were there is an ever increasing need for a functional material with sufficient strength at high