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Non ambient crystallographic studies of dithienylethene optical molecular switches
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Dithienylethene compounds are of significant interest due to their photochromic properties. These compounds undergo electrocyclic ring closure and opening reactions when irradiated and are stable to thermal reversion and fatigue, making them ideal for applications within the area of the molecular memories and switches [1]. More recently interest has developed with regards to their solid state properties, demonstrating interesting and unique behaviour for photochromic compounds such as capacity for single crystal transformations between the open and closed form and the ability to exert mechanical force upon an object upon irradiation [2-3].

Therefore we report the structures of a series of new dithienylethene based systems and report on their solid state behaviour, demonstrating several reversible single crystal to single crystal transformations to high levels of conversion. We also report an investigation into the behaviour of four dithienylethenes under elevated pressure, ranging from 0 to 10 GPa in the single crystal and report interesting changes in conformation and intermolecular packing forces.


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