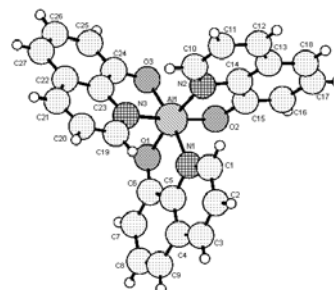


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Structure details of Polymorphism in Organic Light Emitting Diode, OLED, Material, Alq₃. Manju Rajeswaran, Thomas N. Blanton, Eastman Kodak Company, Research & Development Laboratories, Rochester, NY 14650-2106.

The interest in organic materials for use in organic light-emitting diodes (OLEDs) began with the pioneering report of efficient green electroluminescence from Alq₃, tris(8-hydroxyquinoline)aluminum by Tang and Van Slyke of Eastman Kodak Company, in 1987. After more than 15 years of intense research and development in OLEDs, Alq₃ continues to be the most widely used electroluminescent material in OLED chemistry. Alq₃ is used in electron transport and/or in electron injecting layers in multilayer device structures and also as an effective host material for various dyes. To date five different polymorphs of Alq₃ have been identified. A comparison of structures of these polymorphs and their interconversion conditions will be presented in detail.



An evaluation of the unit cells of group IIIb metal quinolate (Mq₃)-type structures reveals the existence of several isostructural phases. These phases can be categorized into different groups, based on similarities in lattice constants, crystal structures and isomerism in such structures. An overview of these isostructural phases will also be discussed.