



## Oxadiazole-functionalized pyrene derivatives: Effects of alkyl-1,3,4-oxadiazole substituents on photophysical, electrochemical, and liquid crystalline properties

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Multifunctional materials are widely used in optoelectronic devices. 1,3,4-oxadiazole and pyrene core have such as good chemical and thermal stability and high fluorescence<sup>[1,2]</sup> Furthermore, 1,3,4-oxadiazole has electron-accepting properties, while pyrene is a  $\pi$ -electron-rich group with rigid nucleus<sup>[3]</sup> with great potential for columnar liquid crystals. Combining the properties mentioned above in the same material results in a good candidate for use in OLED devices. In this work, the synthesis of three new alkyl oxadiazoles from pyrene 1,3,6,8-tetracarboxylic acid<sup>[4,5]</sup> and the effects of alkyl-1,3,4-oxadiazole substituents on photophysical, electrochemical, and mesomorphic behavior were investigated, in order to obtain a discotic liquid crystal with high fluorescence to use in the construction of OLEDs. It was found that the 1,3,4-oxadiazole heterocycle is an excellent polar group for inducing columnar packing and, in addition, resulting in emitters with strong luminescence and promising for use in optoelectronic devices.

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