Effects of Surface Driving Force and Plasma Treatment on the Morphology Control of OH-1 Crystal

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The organic nonionic molecular crystal, 2-(3-(4-hydroxylstyryl)-5,5-dimethylcyclohex-2enylidene)malononitrile (OH-1) has attracted great interest because of its electro-optics and terahertz wave applications. In this study, we investigated the effects of surface driving force and Atmospheric Plasma Treatment on the growth and morphology of the OH-1 material. The OH-1 is highly soluble in methanol and forms a metastable zone. Different morphologies of OH-1 crystal were observed when the OH-1 containing methanol solution was added drop-wise to n-decane, which acted as a surface drive force. The crystal growth and morphological changes were observed only in the n-decane rich phase (0-10% methanol mole fraction). In addition, the applied atmospheric plasma treatment had no effect on crystal morphology, but it only crystallization time.