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**Transport behavior of small molecules out of various poly (vinylidene fluoride) copolymer morphologies** SURIYAKALA RAMALINGAM, GUOLIN WU, FENG YI, SHAW LING HSU, Polymer Science and Engineering Department, University of Massachusetts — Due to its biocompatibility, durability and existence of various crystalline states, poly (vinylidene fluoride) (PVdF) have been used in medical applications. In this study, the hydrophobic poly (VdF-hexafluoropropylene) polymeric matrix was used to develop a durable matrix system and to control the transport of small molecules by diffusion. Films of this family of copolymers have been prepared from various solutions and with different thermal history. Various morphological features in terms of degree of crystallinity, crystalline phase and segmental orientation can be obtained. These morphological features at different length scales have been characterized by AFM, X-ray and confocal Raman microscopy. The changes in morphology and microstructures are especially interesting when the films of this family of copolymers are prepared using the electrospray technique. The dispersion of small molecular weight component in the various films has been evaluated. Their transport behavior has also been characterized.

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