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Single clay sheets inside electrospun polymer nanofibers ZHAOHUI SUN, DARRELL RENEKER, Maurice Morton Institute of Polymer Science, the University of Akron, OH 44325 — Nanofibers were prepared from polymer solution with clay sheets by electrospinning. Plasma etching, as a well controlled process, was used to supply electrically excited gas molecules from a glow discharge. To reveal the structure and arrangement of clay layers in the polymer matrix, plasma etching was used to remove the polymer by controlled gasification to expose the clay sheets due to the difference in reactivity. The shape, flexibility, and orientation of clay sheets were studied by transmission and scanning electron microscopy. Additional quantitative information on size distribution and degree of exfoliation of clay sheets were obtained by analyzing electron micrograph of sample after plasma etching. Samples in various forms including fiber, film and bulk, were thinned by plasma etching. Morphology and dispersion of inorganic fillers were studied by electron microscopy.

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