Abstract

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THERMOPLASTIC ELASTOMER BLENDS

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Thermoplastic elastomers are polymers that combine the flexibility and impact resistance of thermoset rubbers with the strength and convenient processibility of thermoplastics. This unique combination of properties is a result of the two-phase morphology of these materials. One means of preparing thermoplastic elastomers is to blend a thermoplastic with an elastomer. In this report SRI examines the technology of thermoplastic/elastomer blends, particularly blends derived from polypropylene, polyvinyl chloride, or thermoplastic polyurethane.

This report contains an evaluation of a process known as dynamic vulcanization, which is one method of preparing thermoplastic elastomers with a preferred two-phase morphology. We also compare the economics for preparing thermoplastic polyolefin elastomers (TPOs) using dynamic vulcanization with the economics for preparing TPOs by the new in-reactor polymerization process.

For those in the thermoplastic elastomers business, this report will be useful for its extensive review of recently published literature and the comparative economics. Users of thermoplastic elastomers will also find it useful for understanding the underlying principles of the product technology. We summarize and evaluate over 200 pertinent patents.

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