

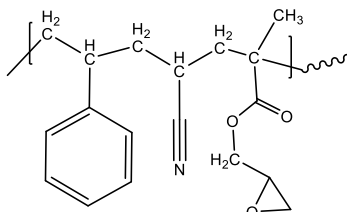
Product Profile

Identification

Product Name: Ter polymer based on Styrene, Acrylonitrile and Glycidyl Methacrylate

Product Lot Number: P80593-SACNGMAran

Product Chemical Architecture:



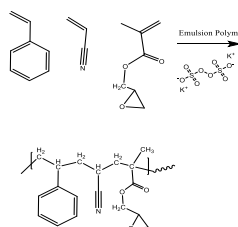
Composition:

| Mn x 10 ³ | Mw/Mn (PDI) |
|--|-------------|
| 50.0 | 2.25 |
| Composition of Polymer by ¹ H NMR S:ACN:GMA ratio 80:10:10 | |

Method of Synthesis

By emulsion polymerization using sodium dodecylbenzene sulfonate (surfactant) and sodium carbonate. Heat the emulsified solution to 60°C while stirring. To the reactor, add 37mL of styrene, 18mL of acrylonitrile, 3 mL of glycidyl methacrylate, and tert-dodecyl mercaptan (chain transfer agent), ensuring thorough mixing. Gradually add an initiator solution of potassium persulfate dissolved in deionized water, while watching for an exothermic reaction. After adding the initiator solution completely, allow the reaction to continue for 70 min at 78°C Coagulate the polymer by adding it to hot water with calcium chloride (coagulating agent) at 90°C. A milky solution form. Add to it large Excess of acetone and keep the solution in cold for 2h. Polymer separated out. Polymer dried at **room temperature** to avoid the ring opening polymerization of glycidyl ring.

Polymerization Scheme



Solubility in different solvents

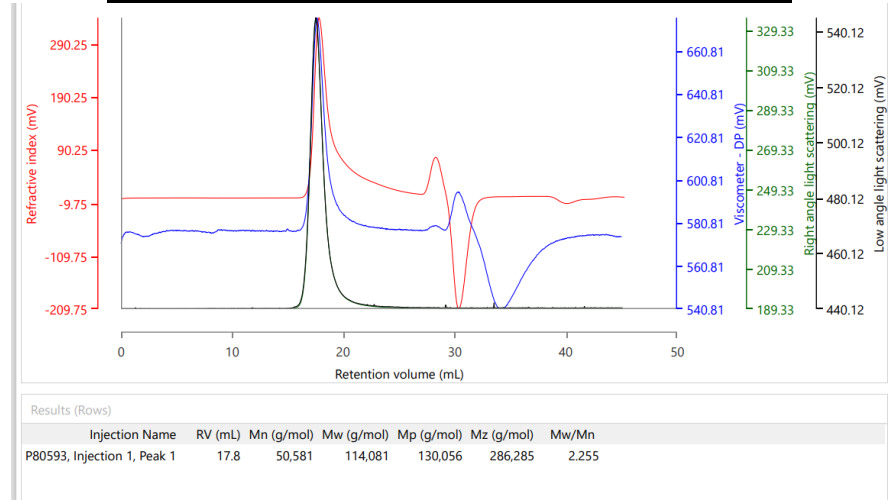
| | | | |
|-------------------|---|-----|---|
| THF-Warm | √ | | |
| CHCl ₃ | √ | DMF | √ |
| 1,4 dioxane | √ | | |

Purification of Polymer

Soxhlet with acetone to remove unreacted monomer

Validation of Architecture:

A. Gel Permeation Chromatography (GPC), SEC- Profile



B. NMR (HNMR) of polymer:

