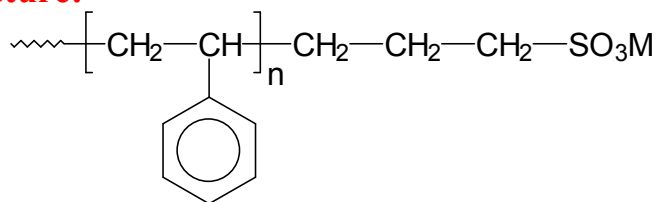


Experimental Procedure and Conditions:
Synthesis and Characterization of Sulfonic acid Terminated
Polystyrene and its Salts

Chemical Structure:



M = H, Na, Li, K, etc

Polymerization:

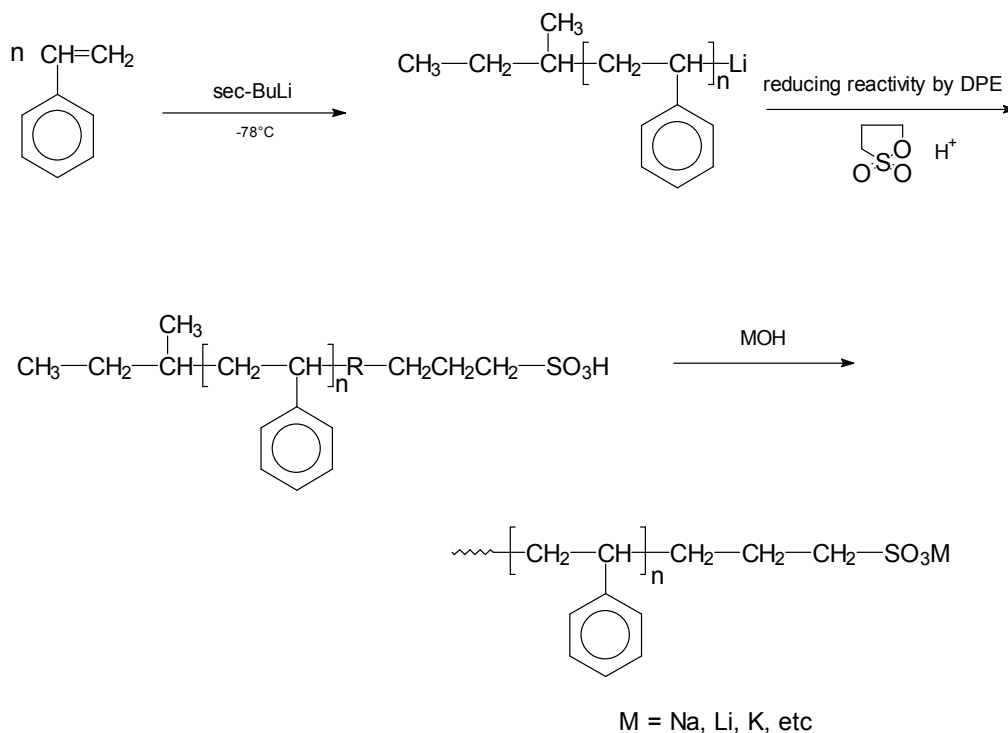
Following illustration is the general procedure for the synthesis of such polymer. For batch to batch it may change such as type of initiator, solvents etc, please call us if you would like to know the exact procedure for the batch of polymer you bought from us.

Sulfonic acid functionalized polystyrene was carried out by terminateing the anionic living polymerization of styrene by dried propansultone. Its salt was prepared by neutralization with the base solution. The scheme of the reaction is illustrated below:

The results of the oligomers are summarized in the table.

Sample#	DP* (n) by GPC	DP (n) by NMR	Functionality by element analysis	
P2422- StSO₃Na/H	3	3	>99%	

* DP is the Degree of polymerization, shown in the scheme as n.



Characterization:

Molecular Weight: Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF as the eluent. The columns were calibrated with monodisperse polystyrene. The molecular weights and the polydispersity index for the precursor (pick-out before propansultone addition) polymer were calculated. The functionality of polymer was verified by proton NMR.