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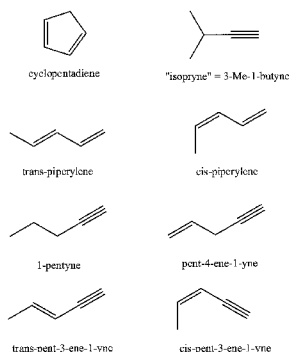
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(54) Title: POLYMERIZATION OF ISOPRENE FROM RENEWABLE RESOURCES



(57) Abstract: The invention features compositions and methods for producing polymers of isoprene derived from renewable resources such as isoprene produced from cultured cells that use renewable carbon sources. A starting isoprene composition, such as a bioisoprene composition, is distinguished from petroleum based isoprene by the purity profile (such as lower levels of certain C5 hydrocarbons other than isoprene, presence of certain compounds associated with the biological process for production) and the relative content of the carbon isotopes. Polymers obtained by polymerization of such starting isoprene composition according to this invention, such as a polyisoprene homopolymer or a copolymer having repeat units that are derived from isoprene, are distinguishable from isoprene containing polymers from petrochemical resources. The present invention more specifically discloses a polyisoprene polymer which is comprised of repeat units that are derived from isoprene monomer, wherein the polyisoprene polymer has $d^{13}C$ value of greater than -22‰. This type of polyisoprene can be a cis-1,4-polyisoprene homopolymer rubber. Also provided are methods for verifying that a polyisoprene homopolymer or a copolymer having repeat units that are derived from isoprene contains isoprene that is from a sustainable renewable non-petroleum derived source.

