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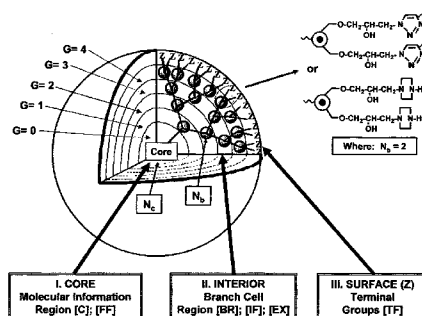
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(54) Title: DENDRITIC POLYMERS WITH ENHANCED AMPLIFICATION AND INTERIOR FUNCTIONALITY



(57) **Abstract:** Dendritic polymers with enhanced amplification and interior functionality are disclosed. These dendritic polymers are made by use of fast, reactive ring-opening chemistry (or other fast reactions) combined with the use of branch cell reagents in a controlled way to rapidly and precisely build dendritic structures, generation by generation, with cleaner chemistry, often single products, lower excesses of reagents, lower levels of dilution, higher capacity method, more easily scaled to commercial dimensions, new ranges of materials, and lower cost. The dendritic compositions prepared have novel internal functionality, greater stability (e.g., thermal stability and less or no reverse Michael's reaction), and reach encapsulation surface densities at lower generations. Unexpectedly, these reactions of polyfunctional branch cell reagents with polyfunctional cores do not create cross-linked materials. Such dendritic polymers are useful as demulsifiers for oil/water emulsions, wet strength agents in the manufacture of paper, proton scavengers, polymers, nanoscale monomers, calibration standards for electron microscopy, making size selective membranes, and agents for modifying viscosity in aqueous formulations such as paint. When these dendritic polymers have a carried material associated with their surface and/or interior, then these dendritic polymers have additional properties for carrying materials due to the unique characteristics of the dendritic polymer, such as for drug delivery, transfection, and diagnostics.



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- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
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