Nanomaterials

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Types of Engineered Nanomaterials

For understanding, nanomaterials are designed into three types as follows:

(i) Nano Composites

(ii) Dendrimers

(iii) Carbon based materials

Nano Composites

(i) Nano Composites: Nanocomposites are a broad range of materials consisting of two or more components, with at least one component having dimensions in the nm regime (i.e. between 1 and 100 nm).

Types of Nanocomposites

Nanocomposites are classified according to the types of reinforcement materials and matrix materials used in their construction. According to the type of matrix material, nanocomposites are generally classified into following three classes :

1. Polymer Matrix Nanocomposites (PMNC)
2. Ceramic Matrix Nanocomposites (CMNC)
3. Metal Matrix Nanocomposites (MMNC)

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Dendrimers

(ii) Dendrimers: Dendrimers are repetitively branched molecules. The name comes from the Greek word ‘dendron’ (tree). These nanomaterials are nanosized polymers built from branched units. The surface of dendrimer has numerous chain ends, which can perform specific chemical functions.

Dendrimers

Dendrimers are used in molecular recognition, nanosensing, light harvesting, and opto-electrochemical devices. They may be useful for drug delivery.

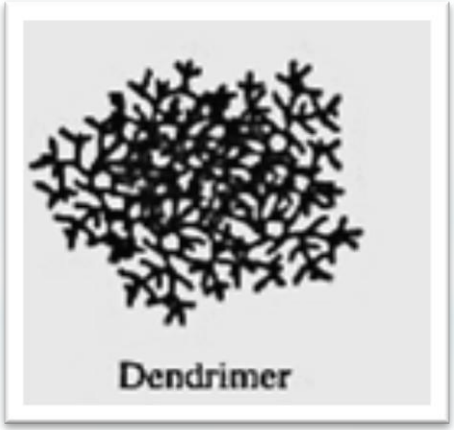

Fig (1) Dendrimer