

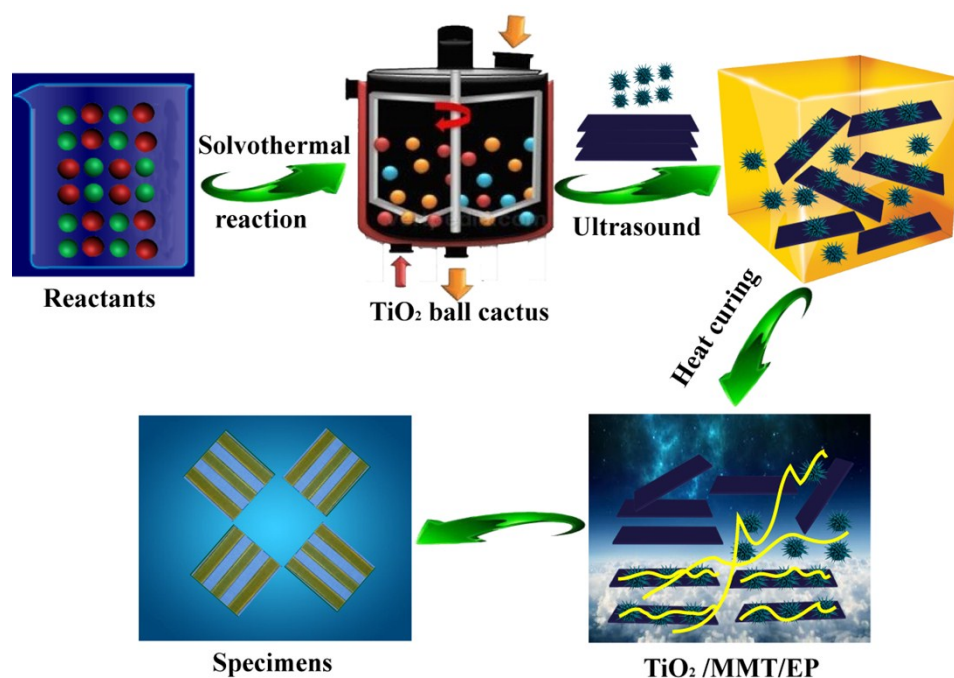
## Double dimensionally ordered nanostructures: Toward multifunctional reinforcing nanohybrid for epoxy resin

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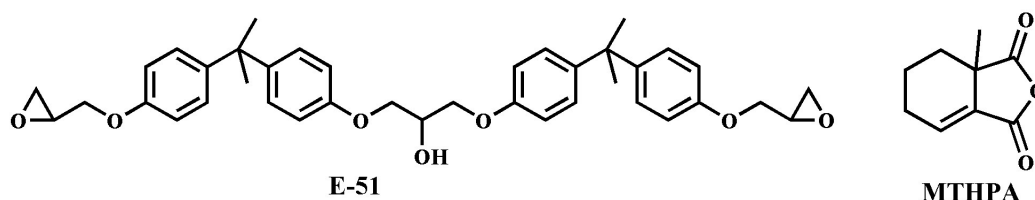
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**Fig. S1** Schematic illustration showing the fabrication of TiO<sub>2</sub>/MMT/EP nanocomposites.



**Fig. S2** Molecular structure of E-51 and used curing agent MTHPA.

**Table S1.** Nanocomposites content

| Nanocomposites                                | Content (phr) | Nano-TiO <sub>2</sub><br>ball cactus (phr) | MMT (phr) |
|---|---------------|--|-----------|
| TiO <sub>2</sub> /MMT/epoxy<br>nanocomposites | 2             | 1  | 1         |
|   | 4             | 2  | 2         |
|   | 5             | 2.5  | 2.5       |
|   | 6             | 3  | 3         |
|   | 8             | 4  | 4         |

**Table S2.** Tensile mechanical properties of neat epoxy and TiO<sub>2</sub>/MMT/EP nanocomposites

| Sample | Tensile strength<br>[MPa] | Young's modulus<br>[GPa] | Elongation at break<br>[%] |
|--------|---------------------------|--------------------------|----------------------------|
| 0      | 40.40 ± 3.18              | 0.50 ± 0.18              | 9.98 ± 0.41                |
| 2      | 85.74 ± 2.83              | 2.97 ± 0.12              | 10.28 ± 0.22               |
| 4      | 97.42 ± 0.89              | 3.06 ± 0.32              | 10.44 ± 0.37               |
| 5      | 98.84 ± 2.06              | 3.36 ± 0.09              | 10.52 ± 0.18               |
| 6      | 93.38 ± 3.11              | 3.00 ± 0.25              | 10.46 ± 0.16               |
| 8      | 76.62 ± 1.21              | 2.96 ± 0.39              | 9.59 ± 0.35                |