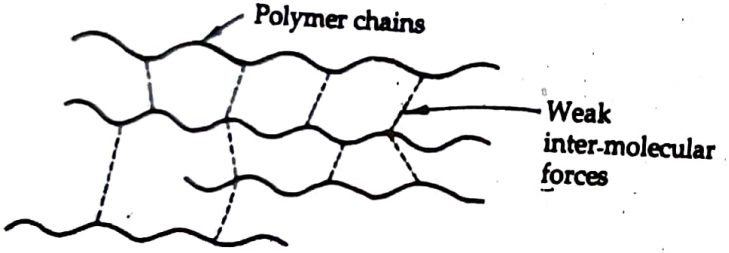
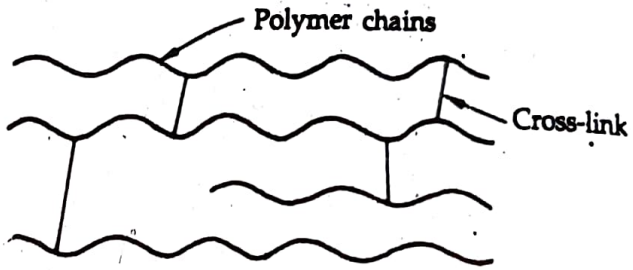
| | Thermoplastics | Thermosets |
|---|---|---|
| 1. | They are formed either by addition or by condensation polymerisation reactions. | They are formed by condensation polymerisation reactions. |
| 2. | They have either linear or branched structures. | They have three dimensional, cross-linked network structure. |
| 3. | Adjacent polymer chains are held together by either van der waals forces, or by dipole-dipole forces or by H-bonds. | Adjacent polymer chains are held together by strong covalent bonds called cross-links. |
| |   |   |
| 4. | They soften on heating and stiffen on cooling. | They do not soften on heating. |
| 5. | Low molecular weight thermoplastics are soluble in their suitable solvents. | They are generally insoluble in any solvent. |
| 6. | They can be remoulded, re-shaped and re-used. | They can't be re-moulded and hence cannot be re-used. |
| 7. | They can be reclaimed from waste, *i.e.*, they can be recycled. | They cannot be re-claimed from waste. They cannot be recycled. |
| 8. | During moulding of thermoplastics, there is no change in their chemical composition. | They undergo chemical changes such as further polymerisation and cross-linking during moulding process. |
| 9. | They are tough materials. | They are brittle materials. |
| 10. | Examples : PE, PP, PVC, PMMA, PS, PTFE, Nylons, Polyesters etc. | Examples : PF, UF, MF, Epoxy, XLPE etc. |