Solution of problems

Ch 13

13.18 Why are laminated FRP products made by the spray-up method not as strong as similar products made by hand lay-up?

Answer. Because, in hand lay-up, orientation of the fibers is controlled; whereas in spray-up, the fibers in each layer are randomly oriented.

13.21 What are some of the advantages of the closed mold processes for PMCs relative to open mold processes?

Answer. The advantages of a closed mold are (1) good finish on all part surfaces, (2) higher production rates, (3) closer control over tolerances, and (4) more complex three-dimensional shapes are possible.

13.25 What is filament winding?

Answer. Filament winding is a process in which resin-impregnated continuous fibers are wrapped around a rotating mandrel with the internal shape of the FRP product; the resin is cured and the mandrel is removed.

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13.13 A positive mold with a smooth surface will produce a good finish on which surface of the laminated product in the hand lay-up method: (a) inside surface or (b) outside surface?

Answer. (a).

13.15 Filament winding involves the use of which one of the following fiber reinforcements: (a) continuous filaments, (b) fabrics, (c) mats, (d) prepregs, (e) short fibers, or (f) woven rovings?

Answer. (a).

Ch 12

12.3 Viscosity is an important property of a polymer melt in plastics shaping processes. Upon what parameters does viscosity depend?

Answer. Viscosity of a polymer melt depends on (1) temperature and (2) shear rate. Also, (3) the molecular weight of the polymer affects viscosity.