

14.23 For each of four pairs of polymers, we are asked to (1) state whether it is possible to decide which is more likely to crystallize; (2) if so, which is more likely and why; and (3) it is not possible to decide then why.

(a) No, it is not possible to decide for these two polymers. On the basis of tacticity, the isotactic PP is more likely to crystallize than the atactic PVC. On the other hand, with regard to side-group bulkiness, the PVC is more likely to crystallize.

(b) Yes, it is possible to decide for these two copolymers. The linear and syndiotactic polypropylene is more likely to crystallize than crosslinked cis-isoprene since linear polymers are more likely to crystallize than crosslinked ones.

(c) Yes, it is possible to decide for these two polymers. The linear and isotactic polystyrene is more likely to crystallize than network phenol-formaldehyde; network polymers rarely crystallize, whereas isotactic ones crystallize relatively easily.

(d) Yes, it is possible to decide for these two copolymers. The block poly(acrylonitrile-isoprene) copolymer is more likely to crystallize than the graft poly(chloroprene-isobutylene) copolymer. Block copolymers crystallize more easily than graft ones.