Øvingsoppgaver materialteknologi

Kapittel 14, 15, 16, Løsningsforslag

a)
Vulcanization, see page 542 in Callister.
Addition of sulfur compound
Increase in cross linking
Imporvements of modulus, strength and resistance to degradation

b)
i. Addition polymerization, Units attached one at the time, active center formed by initiator (catalyst) Callister p. 651

ii. Condensation polymerization. Stepwise reactions, byproduct. Callister p. 562

c)
See fig. 16.9 in Callister p. 587

d)
b) elastic
c) viscoelastic
d) viscous

e)
$i_C = 10^{-4}$ A/cm^2 from Figure 2.

Insert into equ 17.24: $r = \frac{i}{nF}$; r= 10^{-4}/(2x96500)= 5x10^{-10} mol/(cm^{2}s)

f)
Elastic deformation:
Stage 1: Elongation of amorphous chains
Stage 2: Increase in crystallite thickness
Plastic deformation
Stage 3: Tilting of lamellar chain folds Stage 4: Separation of crystalline block segments Stage 5: Orientation of block segments and chains
See fig. 15.13 in Callister