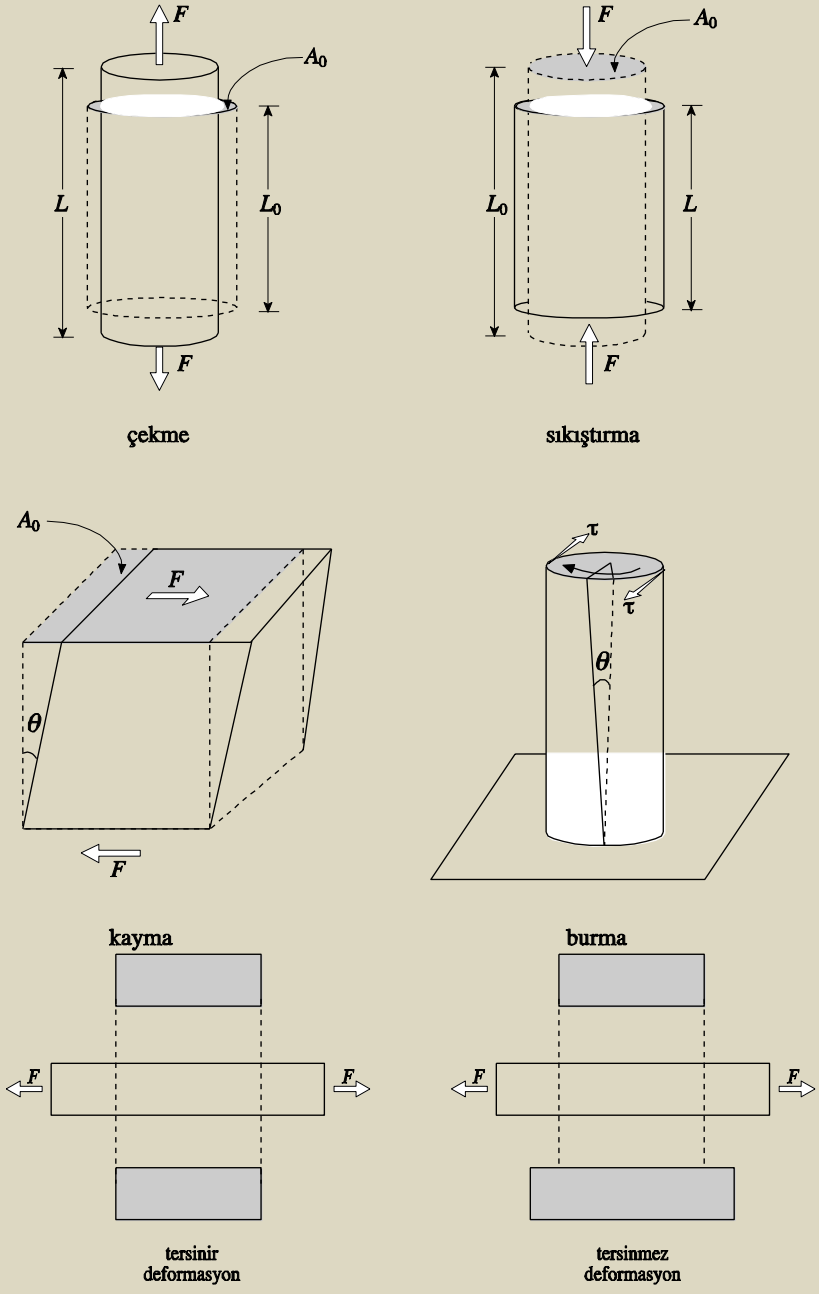
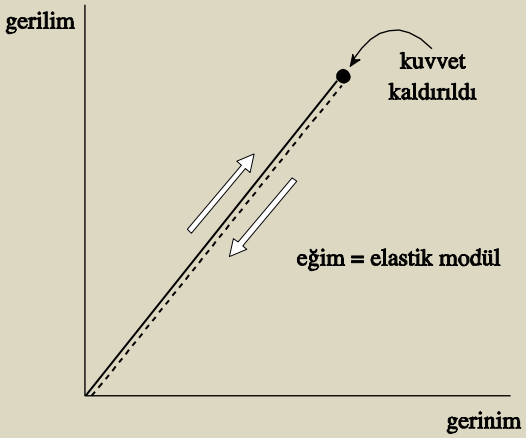
POLİMERLERİN MEKANİK ÖZELLİKLERİ

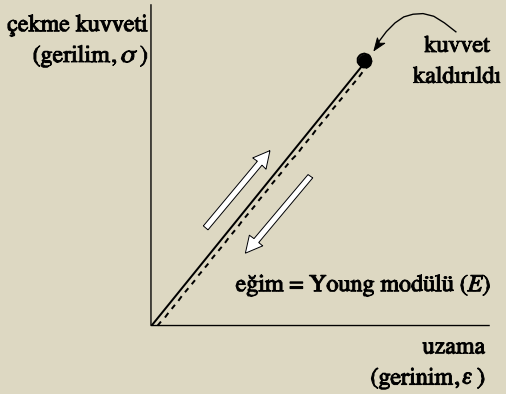
5.1 KUVVET TÜRLERİ

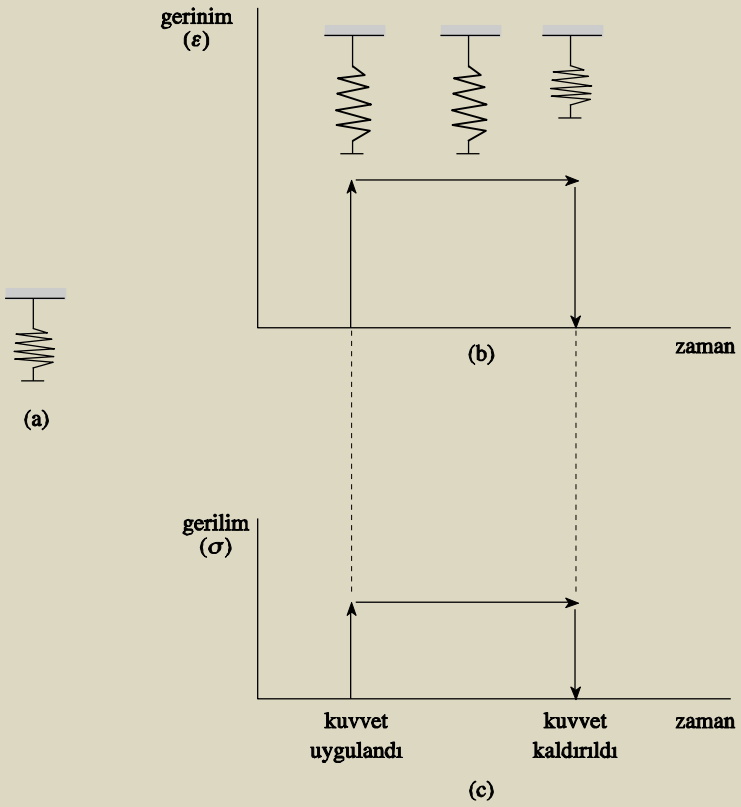
5.2 DEFORMASYON

Deformasyon, yük etkisinde kalan maddelerde gözlenen boyutsal (şekil) değişimleri, akmayı veya ara davranışları kapsayan bir terim olarak kullanılır. Katılar boyutlarını değiştirerek, sıvılar akarak deformasyona uğrarlar.

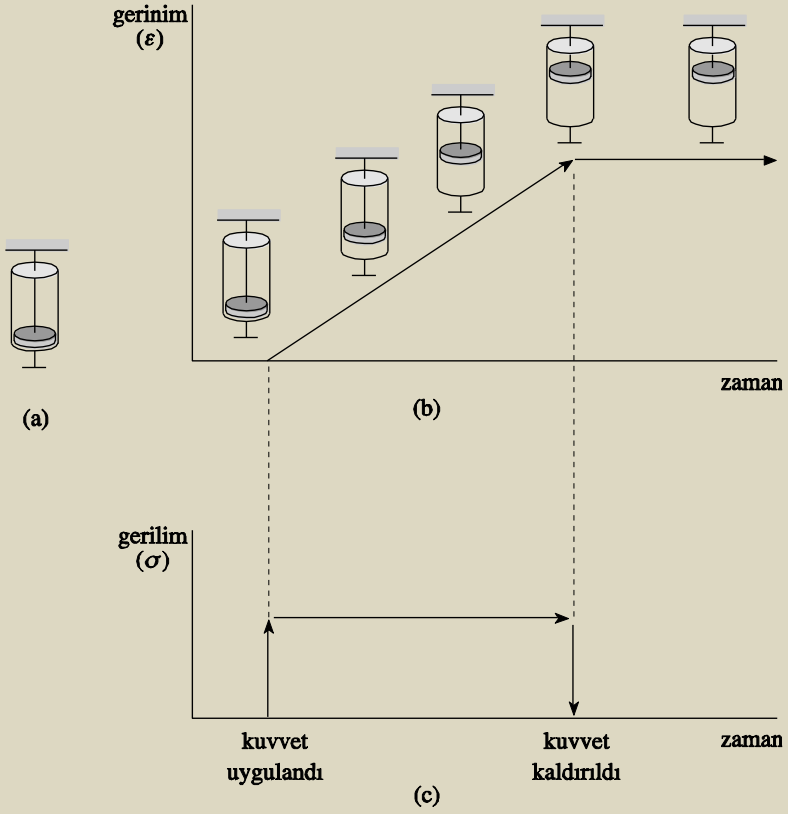



gerilim
kuvvet
kaldırıldı
eğim = elastik modül
gerinim

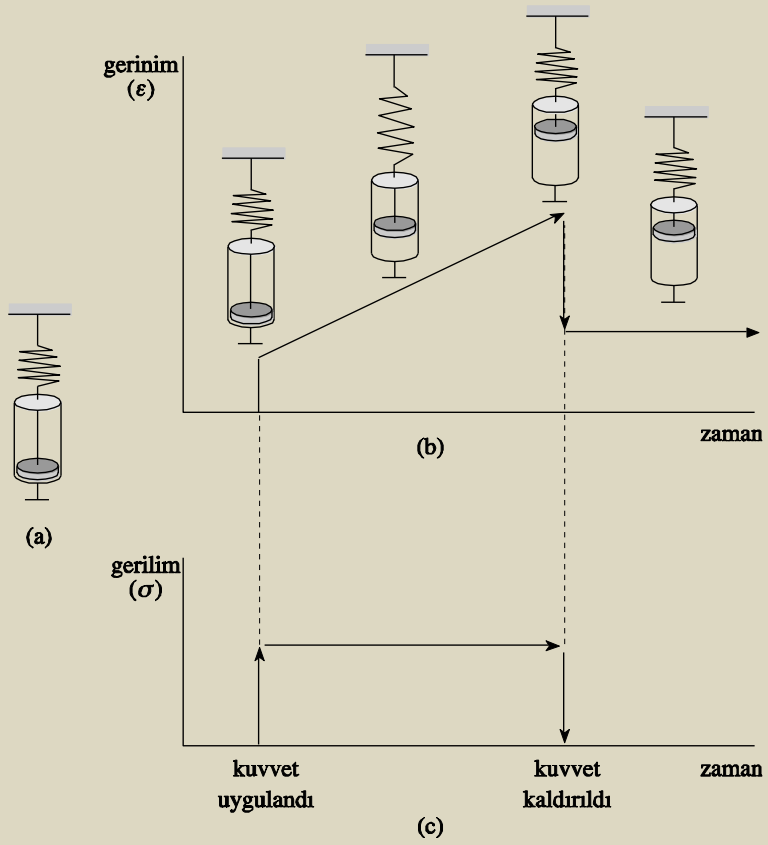

çekme kuvveti
(gerilim, σ)
kuvvet
kaldırıldı
eğim = Young modülü (E)
uzama
(gerinim, ε)


gerinim
(ε)
(a)
(b)
zaman
gerilim
(σ)
kuvvet
uygulandı
kuvvet
kaldırıldı
zaman
(c)

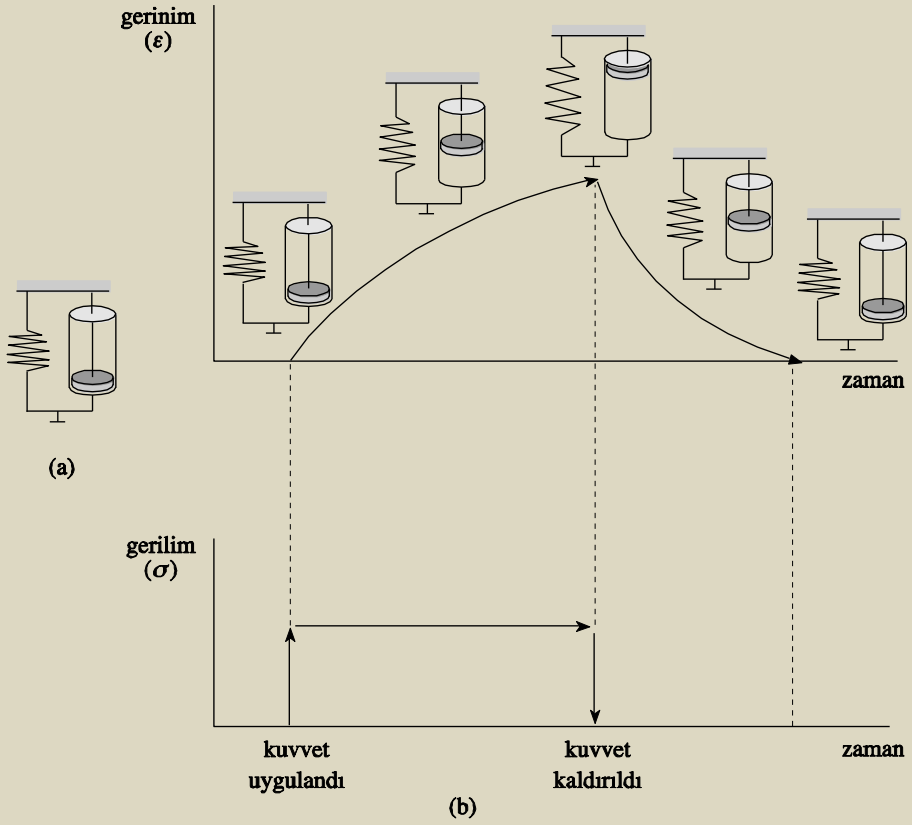
5.5 VİSKOZ DEFORMASYON



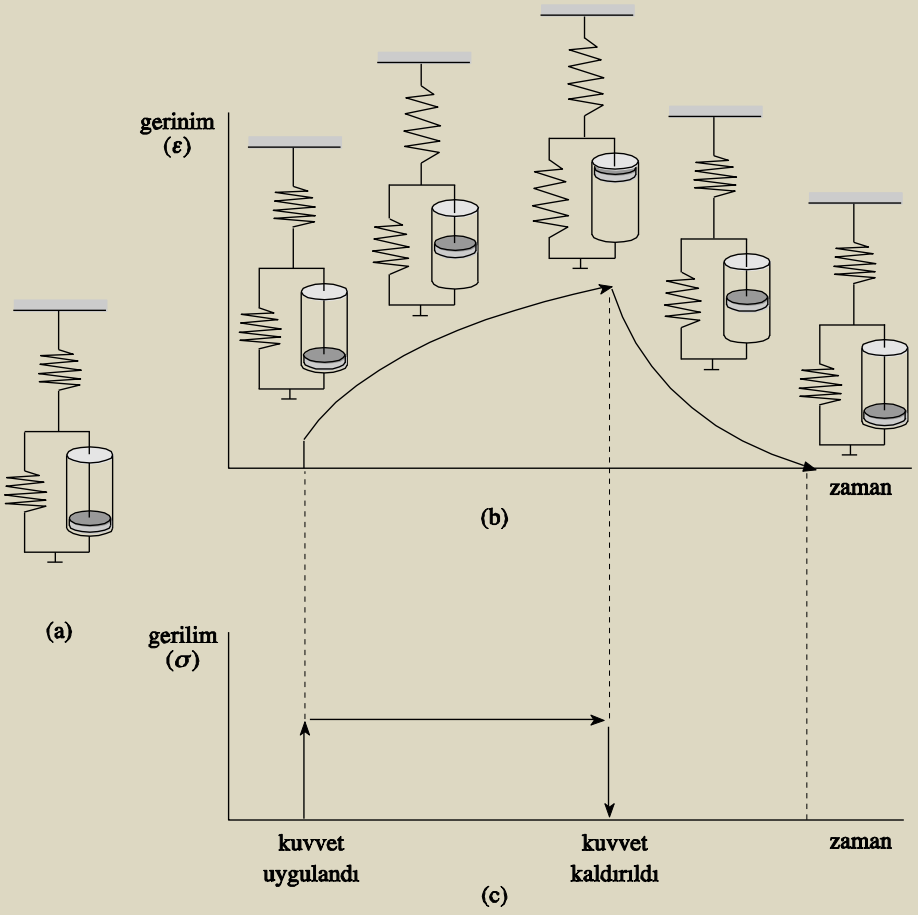
5.6 VİSKOELASTİK DEFORMASYON

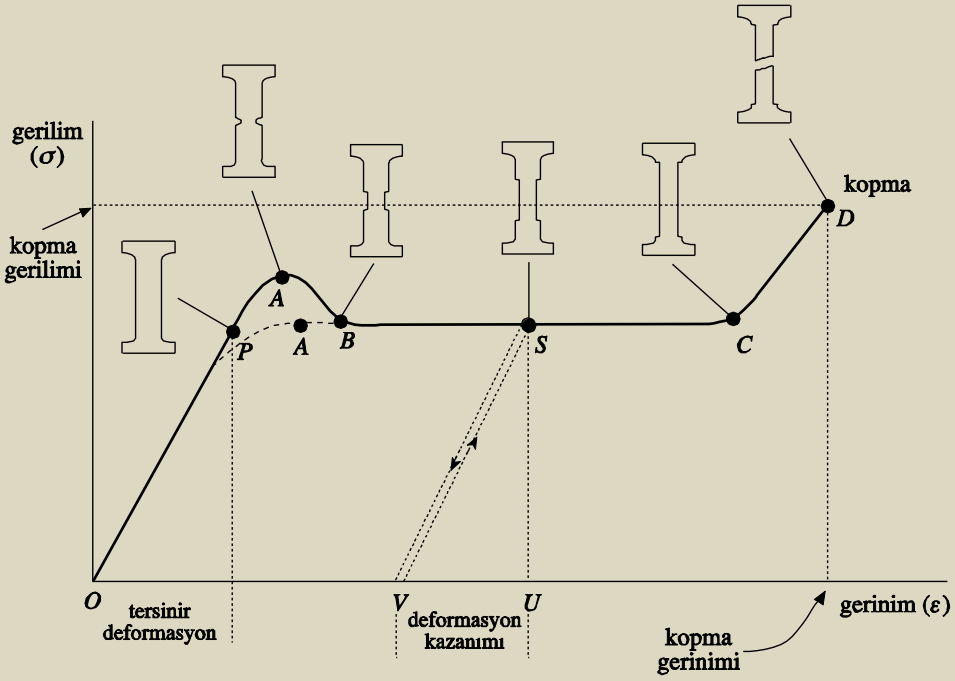


Voigth-Kelvin modeli

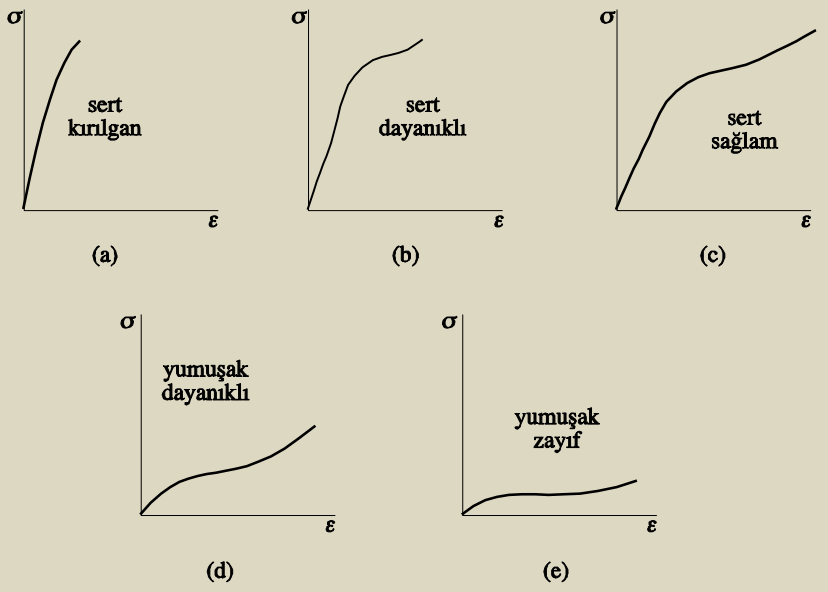


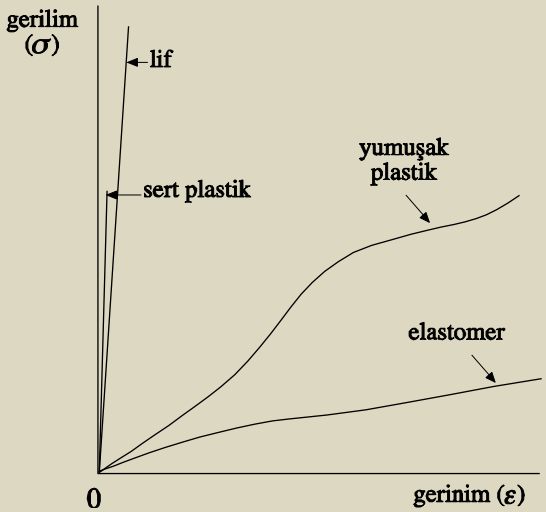
5.7 PLASTİK AKMA

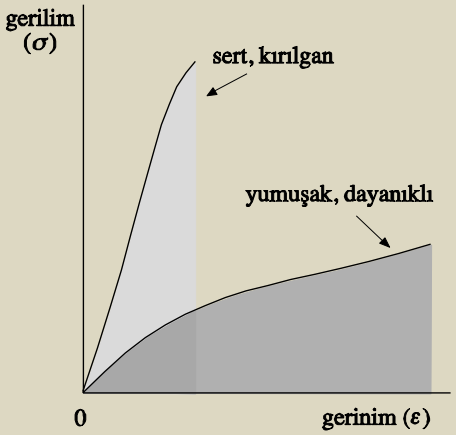




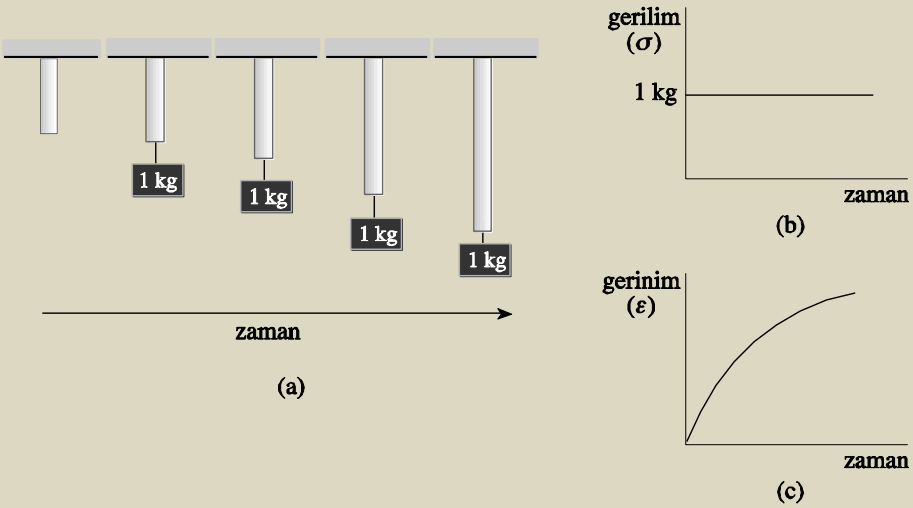
5.8 POLİMERLERDE KARŞILAŞILAN GERİNİM-GERİLİM İLİŞKİLERİ






gerilim
(σ)
sert, kırılgan
yumuşak, dayanıklı
0
gerinim (ε)

5.9 SÜRÜNME


1 kg
1 kg
1 kg
1 kg
zaman
(a)
gerilim
(σ)
1 kg
zaman
(b)
gerinim
(ε)
zaman
(c)