BÖLÜM 3 POLİMERLERİN MOL KÜTLESİNİ BELİRLEME YÖNTEMLERİ

SAYISAL ÖZELLİKLER

$$\Delta Q_i = K_i \frac{c}{M_2} \qquad (3.24)$$

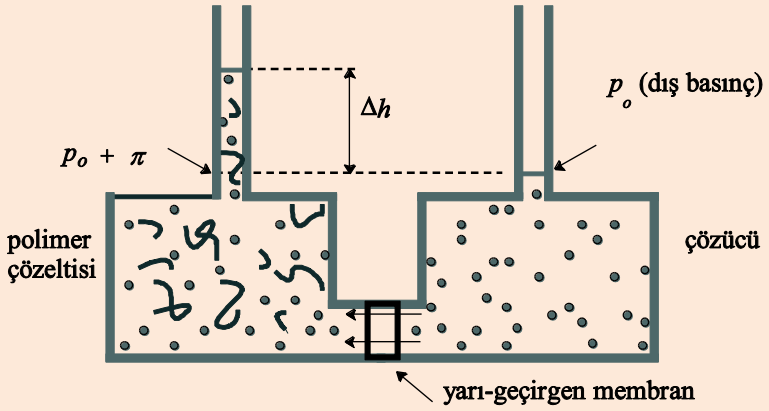
buhar basıncı alçalması $\Delta p = \left(\frac{p_1^o}{\rho_1}\right)\frac{c}{M_2}$ (3.25)

donma noktası alçalması $\Delta T_d = \left(\frac{RT_d^2}{\rho_1 \Delta H_e}\right)\frac{c}{M_2}$ (3.26)

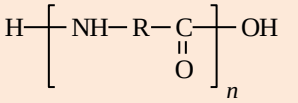
kaynama noktası yükselmesi $\Delta T_k = \left(\frac{RT_k^2}{\rho_1 \Delta H_b}\right)\frac{c}{M_2}$ (3.27)

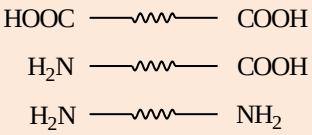
ozmotik basınç $\pi = RT\frac{c}{M_2}$ (3.28)

ozmotik basınç



SON GRUP ANALİZLERİ

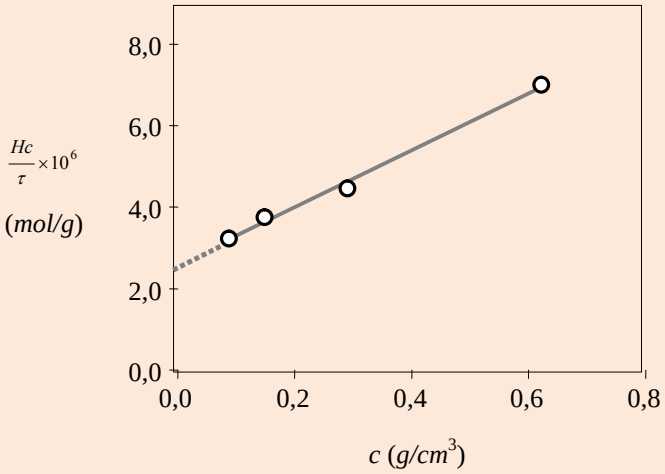




IŞIK SAÇILMASI YÖNTEMİ

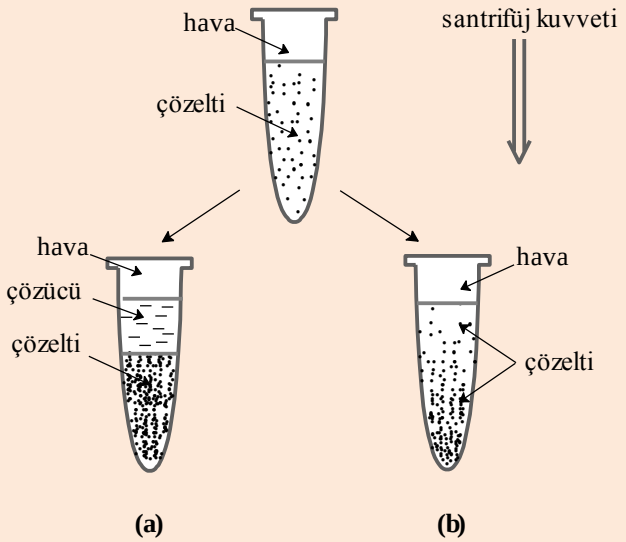
$$H = \frac{32\pi^3}{3\lambda^4 N_A} n_o^2 \left(\frac{n - n_o}{c} \right)^2 \tag{3.54}$$

$$\frac{Hc}{\tau} = \frac{1}{RT} \left(\frac{d\pi}{dc} \right)_T \tag{3.55}$$



ULTRASANTRİFÜJ YÖNTEMİ

sedimantasyon hızı yöntemi



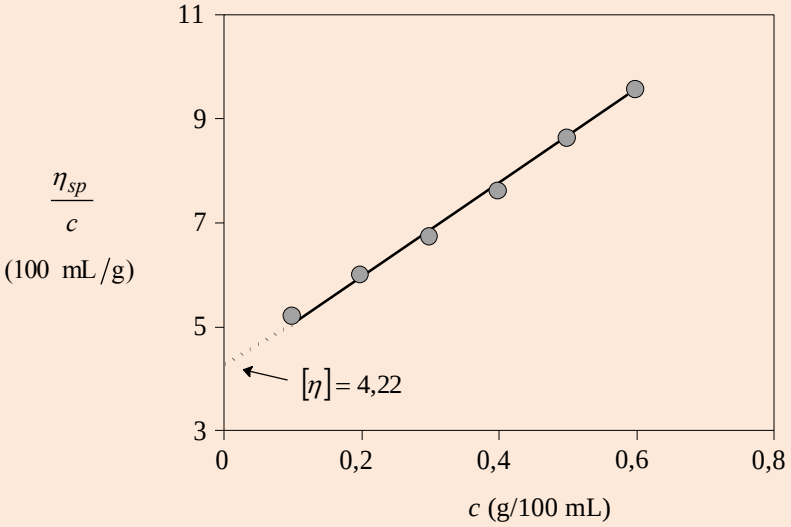
sedimantasyon dengesi yöntemi

VİSKOZİTE YÖNTEMİ

$$[\eta] = KM_v^{\alpha} \qquad (3.85)$$

polimer	çözücü	sıcaklık (°C)	Kx10^5 (100 mL/g)	α	mol kütlesi aralığı (x10^4)
polistiren					
ataktik	benzen	20	6,3	0,78	1-300
		25	41,7	0,60	0,1-1
	toluen	20	4,16	0,788	4-137
		25	7,5	0,75	12-280
		25	7,54	0,783	5-80
		30	12	0,71	40-370
izotaktik	toluen	30	9,3	0,72	15-71
polipropilen					
ataktik	toluen	30	21,8	0,725	2-34
	siklohekzan	25	16	0,8	6-31
izotaktik	dekalin	135	11,0	0,80	2-62
poli(vinil klorür)	klorbenzen	30	71,2	0,59	3-19
	THF	25	49,8	0,69	4-40
		30	83,3	0,83	3-19
	siklohekzanon	25	12,3	0,83	2-14
poli(vinil asetat)	aseton	25	21,4	0,68	4-34
		30	17,6	0,68	2-163
poli(metilmetakrilat)					
ataktik	aseton	25	9,6	0,69	180-350
		30	7,7	0,70	6-263
	kloroform	25	3,4	0,83	40-330
		30	4,3	0,80	13-263
poli(etilen teraftalat)	*m*-kresol	25	0,77	0,95	0,04-1,2
	o-klorfenol	25	30	0,77	1,1-2,9
poli(etilen oksit)	su	30	12,5	0,78	2-500
poli(kaprolaktam) (naylon 6)	*m*-kresol	25	320	0,62	0,05-0,5
	sulu HCOOH (%85)	20	75	0,70	0,45-1,6
poli(hekzametilen adipamit) (naylon 6-6)	sulu HCOOH (%90)	25	110	0,72	0,5-2,5

c (g/100 mL toluen)	t (s)	η_r	η_{sp}	η_{sp}/c (100 mL/g)
0,1	169,8	1,519	0,519	5,188
0,2	245,5	2,196	1,196	5,979
0,3	337,0	3,014	2,014	6,714
0,4	451,1	4,035	3,035	7,587
0,5	592,6	5,301	4,301	8,601
0,6	751,5	6,722	5,722	9,536

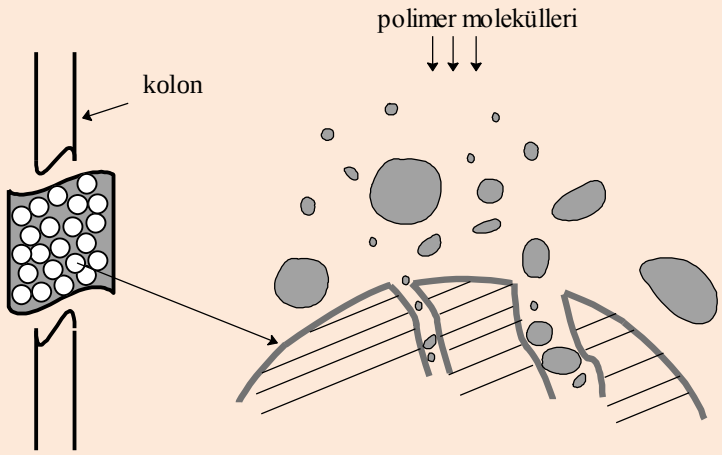


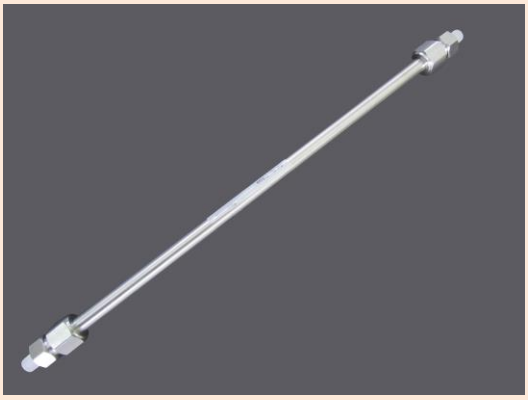
Şekil 3.18 c-η_{sp}/c ilişkisi. y-Kayması intrinsik viskoziteye ($[\eta]$) eşittir.

K ve α sabitlerinin belirlenmesi

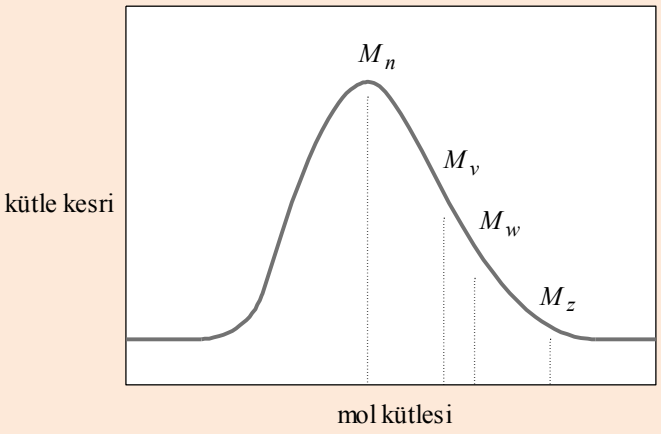
$$\log[\eta] = \log K + \alpha \log M \qquad (3.88)$$

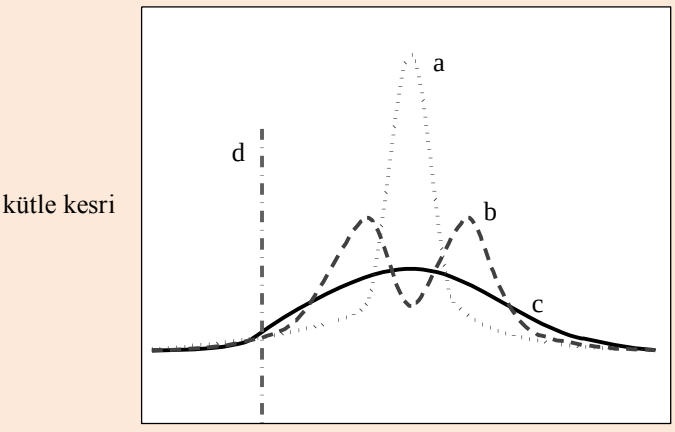
JEL GEÇİRGENLİK KROMATOGRAFİSİ





3.5 MOL KÜTLESİ TÜRLERİNİN KARŞILAŞTIRILMASI





$$HI = \frac{M_w}{M_n}$$