

# Mühendislik Fakültesi



## Kimya Mühendisliği Bölümü

*KMB322-Polimer Kimyası ve Teknolojisi*

*Dr. Öğr. Üyesi, İsa DEĞİRMENCI*






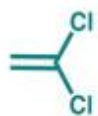



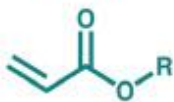
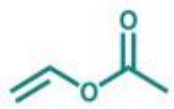
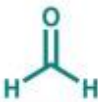
# Anyonik Polimerizasyonu

## ***KMB322-Polimer Kimyası ve Teknolojisi***

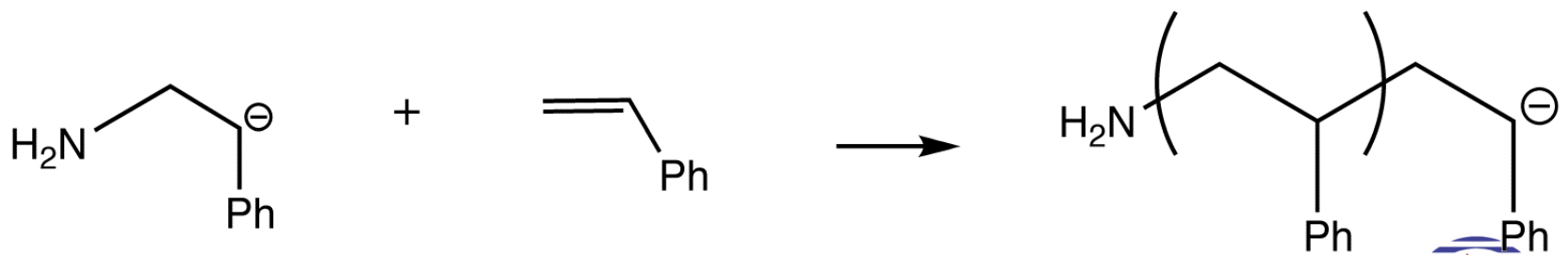
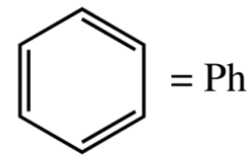
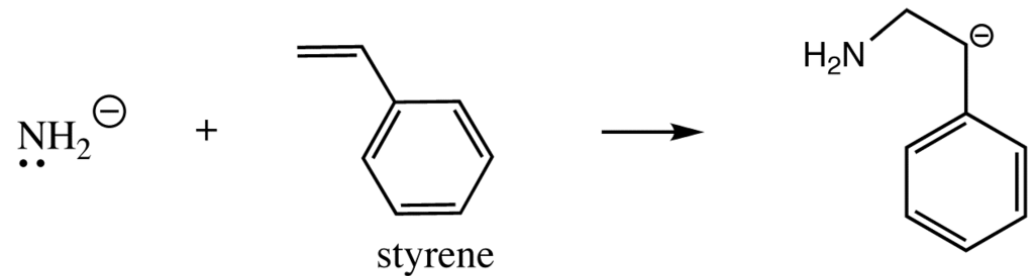
*Hafta-12*



# Monomerlerin Katılma Polimerizasyonu Eğilimleri

Monomer	Radical	Anionic	Cationic
	+	-	-
	-	-	+
	-	-	+
	+	+	+
	+	-	-
	+	+	-
	+	-	-
	+	+	-
	-	-	+
	+	+	-
	+	-	-
	-	+	+

# Stirenin inorganik bir tuz ile anyonik polimerizasyonu

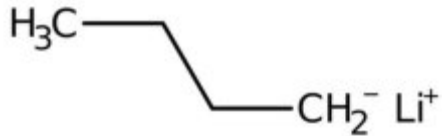


# Başlatıcılar

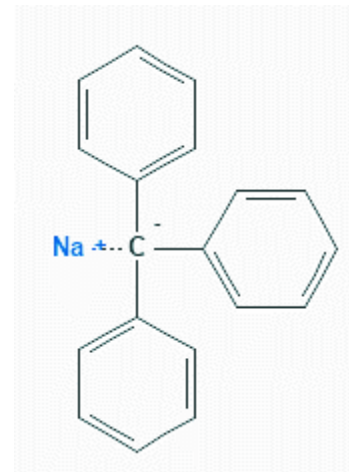
İnorganik başlatıcılar:  $\text{KNH}_2$

Alkil oksitler ( $\text{R-O}^-$ ):  $\text{CH}_3\text{CH}_2\text{-O}^-$

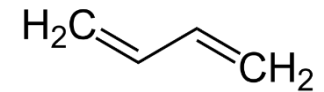
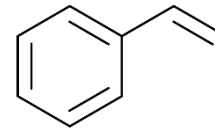
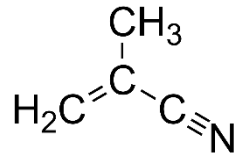
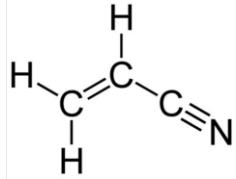
Organometalik başlatıcılar:



n-bütil Lityum

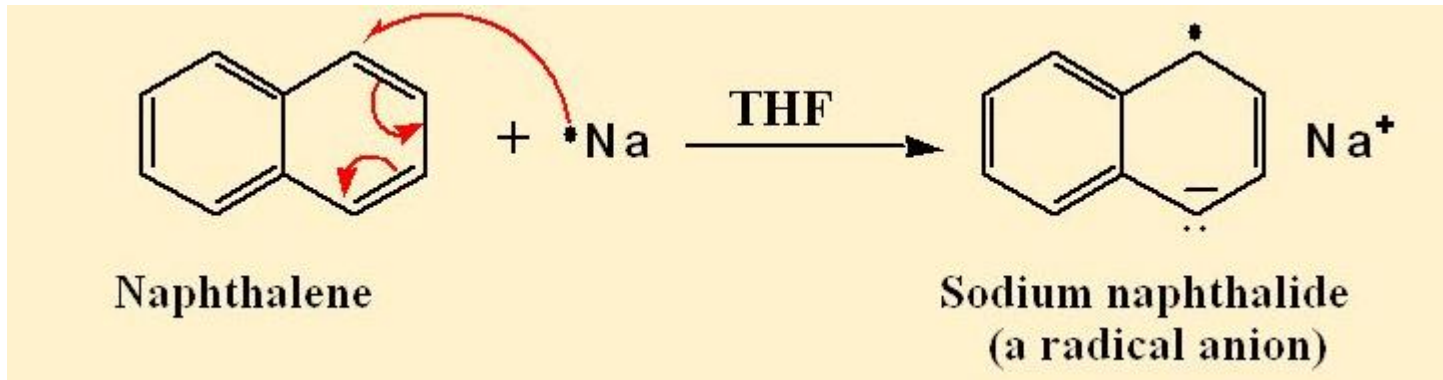


Tri-Fenilmetil sodyum

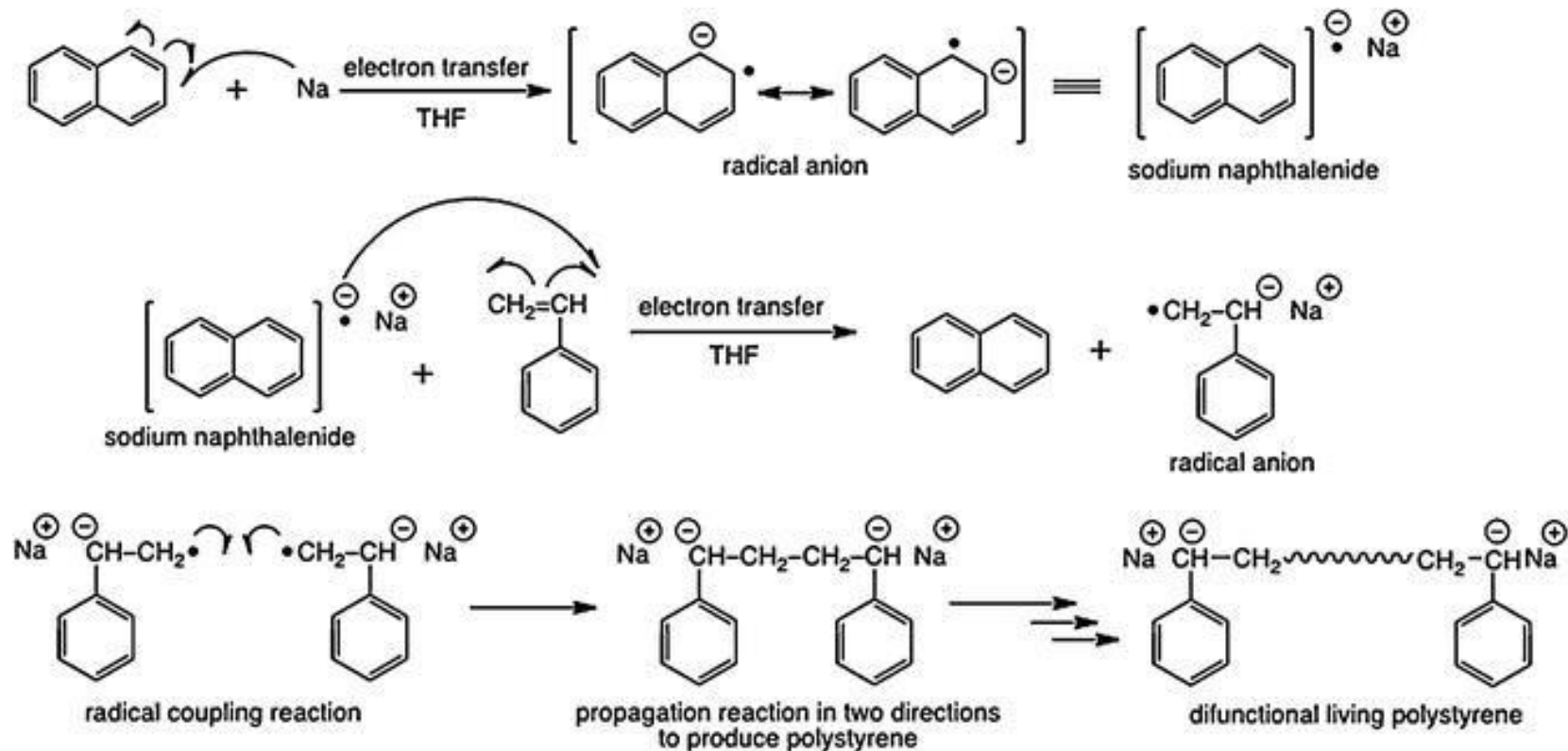


Anyonlar	Akrilonitril	Metakrilonitril	Stiren	1,3-Bütadien
$\text{CH}_3\text{CH}_2\text{-O}^-$	+	+	-	-
Amit ( $\text{NH}_2^-$ )	+	+	+	-
Trifenil Metil	+	+	+	+

# Radikal Anyonlar

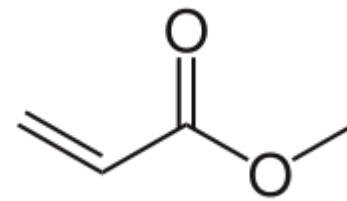


# Radikal Anyonlar

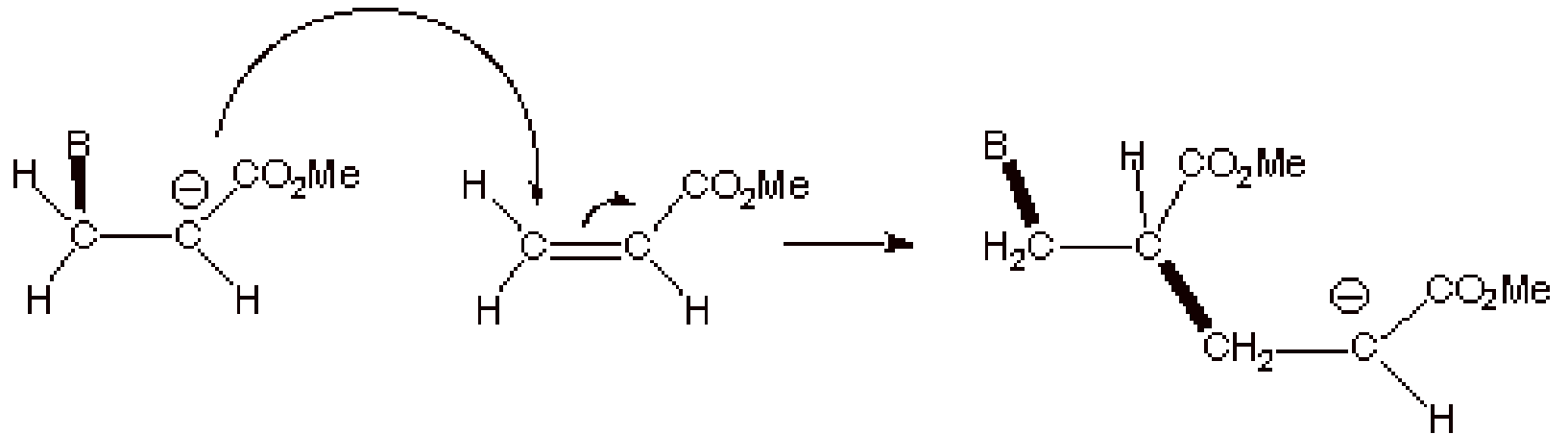
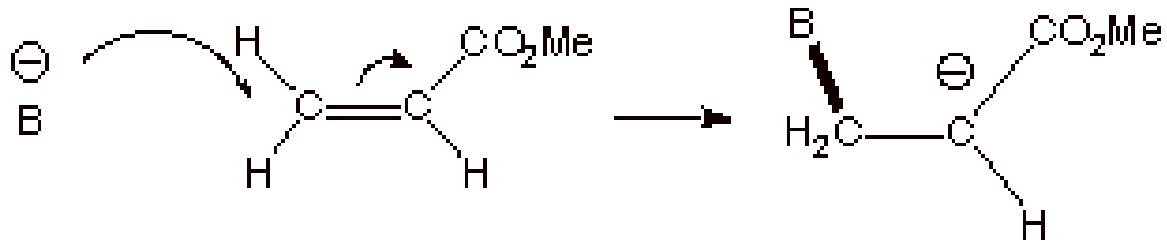


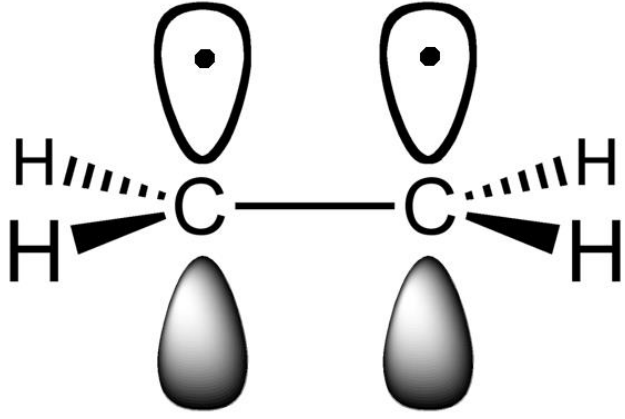
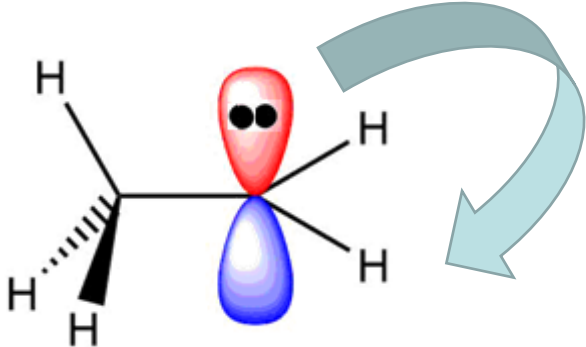


# Örnekler

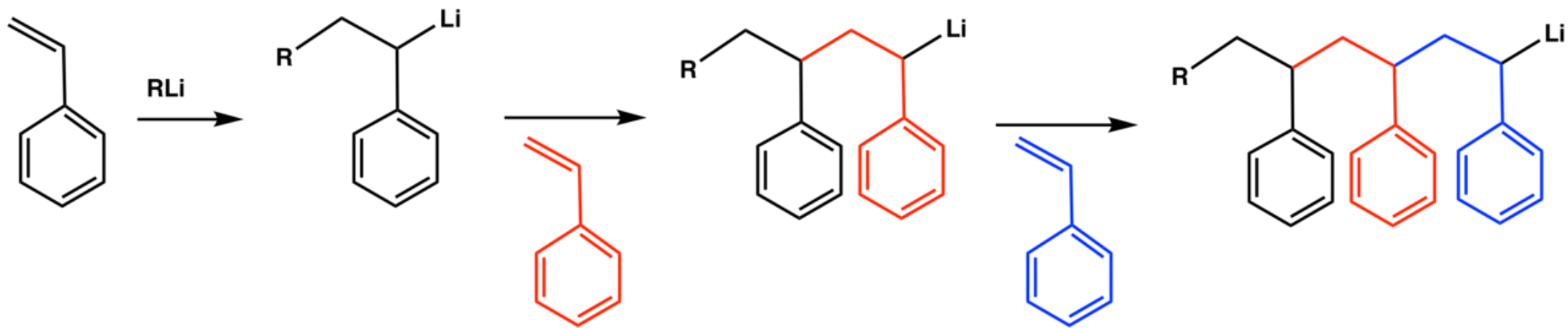


Metil Akrilat



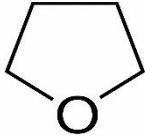



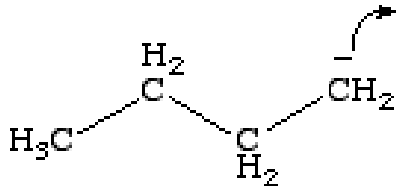
# Stiren



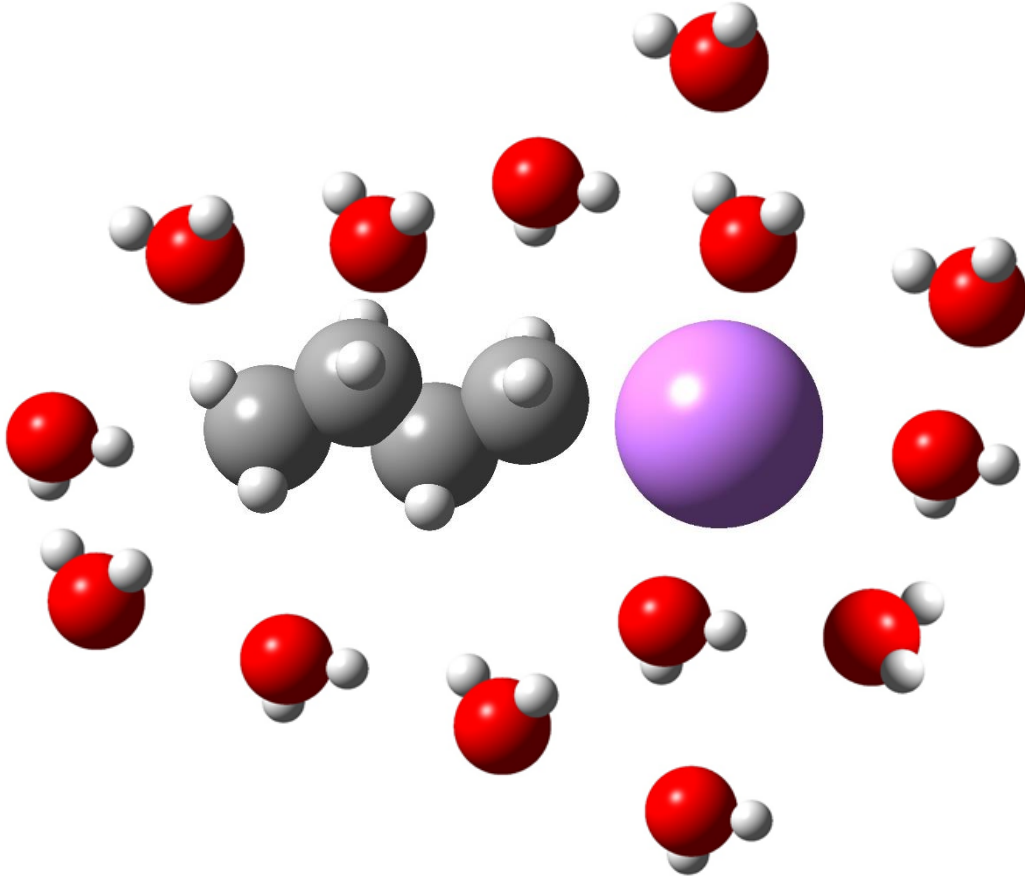
# Çözücünün Polimerizasyon Hızına Etkisi

Katılma tepkimesi hız sabitleri ( $k_p$ , l/mol.s)

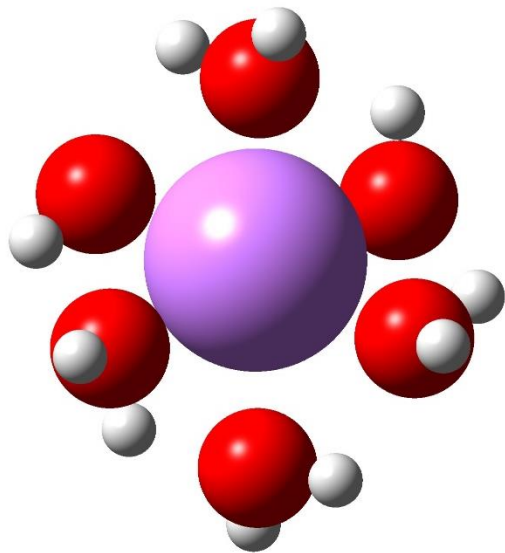
Kasyonlar	Polar Çözücü (Tetrahidrofuran, THF) 	Apolar Çözücü n-hekzan 
$\text{Li}^+$	160	0,94
$\text{Na}^+$	80	3,4
$\text{K}^+$	60	20
$\text{Rb}^+$	50	22
$\text{Cs}^+$	22	24



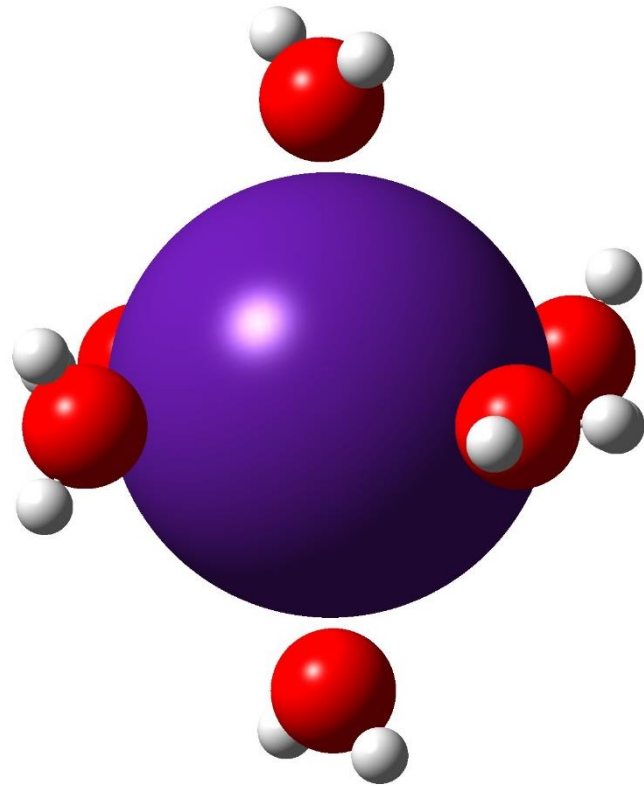
# Organometalik Tuzun özünmesi



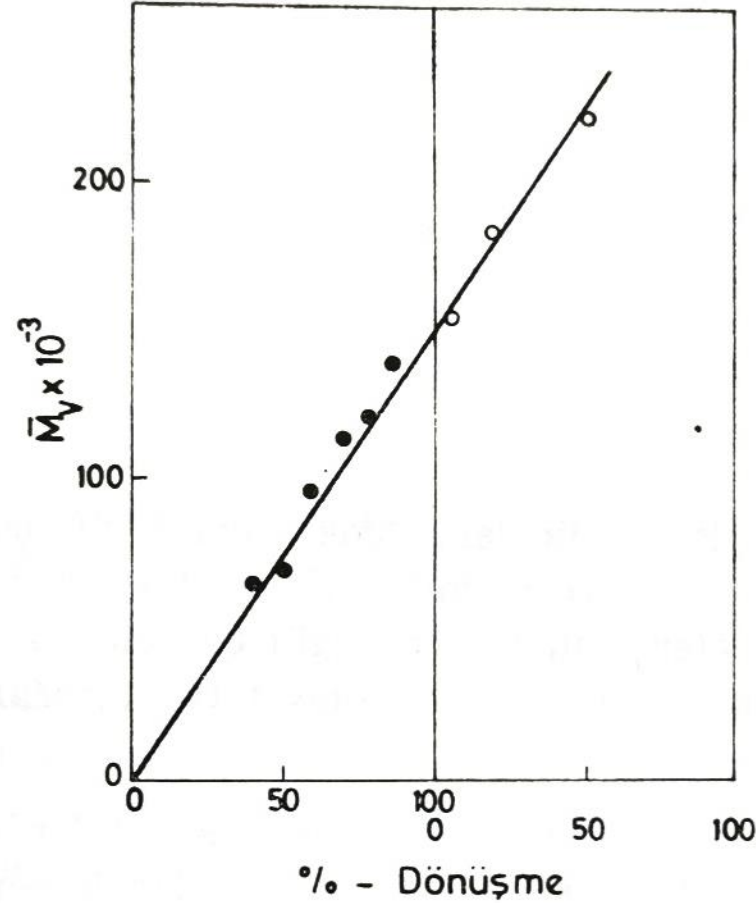
**Li<sup>+</sup>**



**Cs<sup>+</sup>**



# Yaşayan Polimerler



Şekil V-1. Metil metakrilatın anyonik polimerizasyonunda molekül ağırlığının dönüşme ile artması. (●)  $C_4H_9Li-Zn(C_2H_5)_2$  ile başlatılan polimerizasyon. (○) ikinci kez monomer katıldığında canlı anyonların büyümesi (Kay. 15).

