

# Direkt Soğutmalı Döküm Yönteminde Nihai Ürün Hatalarına Döküm Şartlarının Etkisi

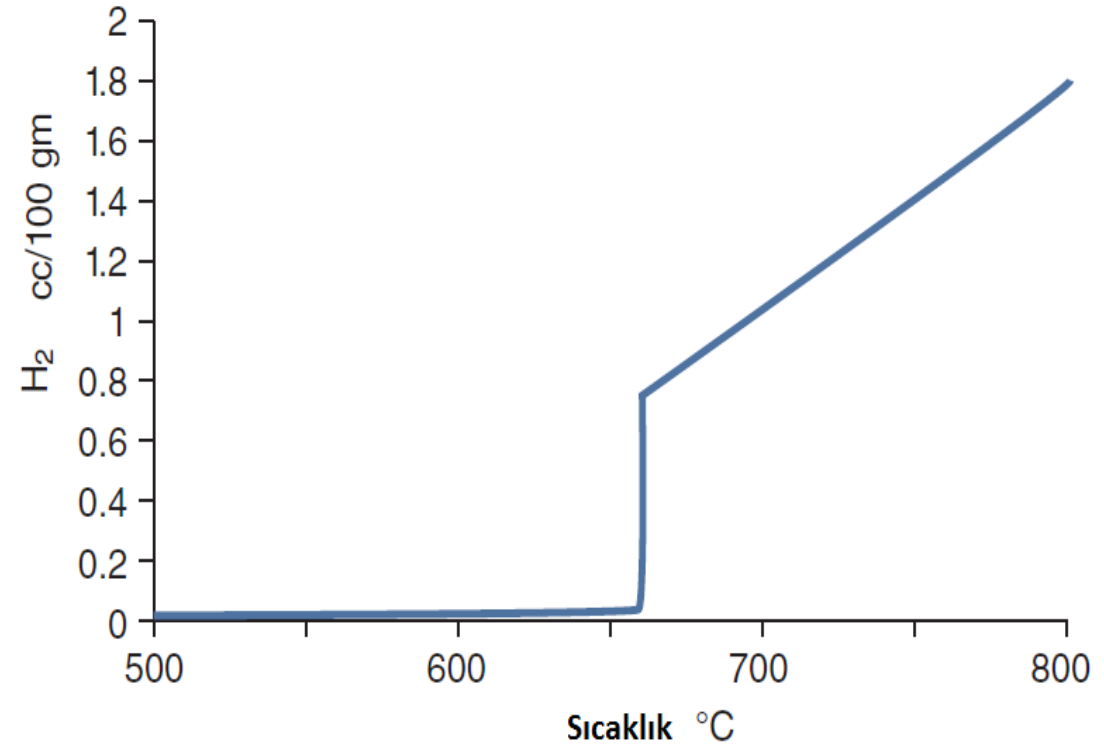
Arda Yorulmaz, Özen Gürsoy, Eray Erzi, Derya Dışpınar (İstanbul  
Üniversitesi)

# Çalışmanın Amacı:

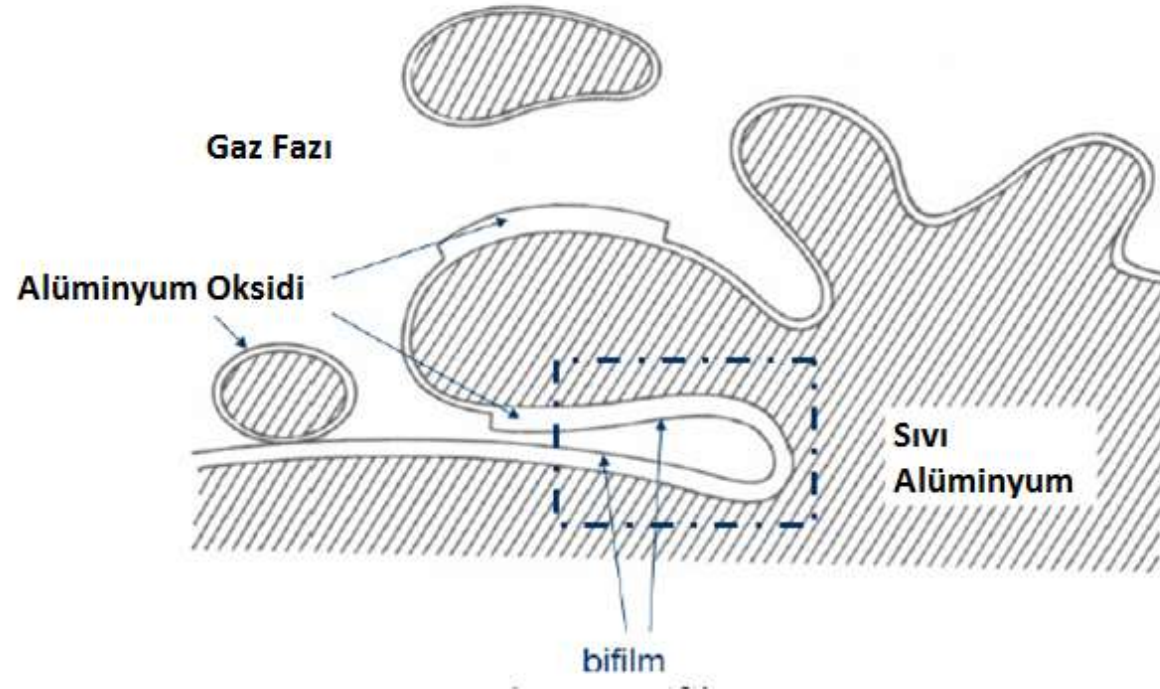
- Nihai ürünlerinde blister sorunu yaşayan işletmede bu sorunların oluşma mekanizmalarının incelenmesi ve bu sorunun çözülmesi.

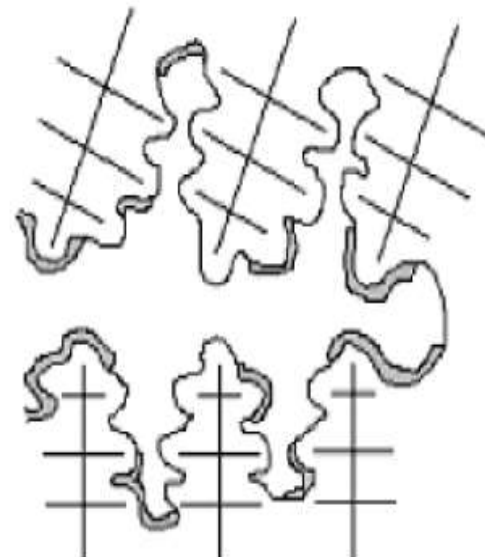
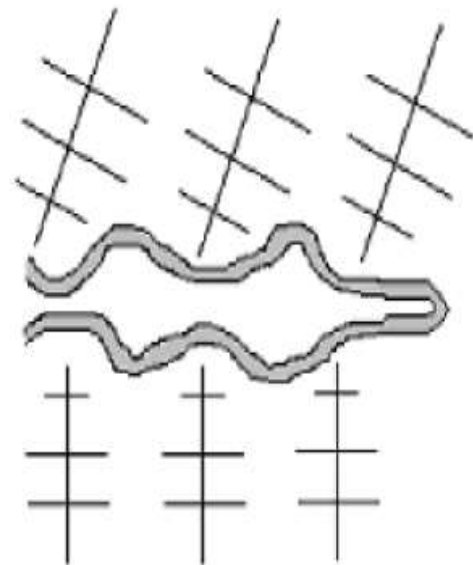
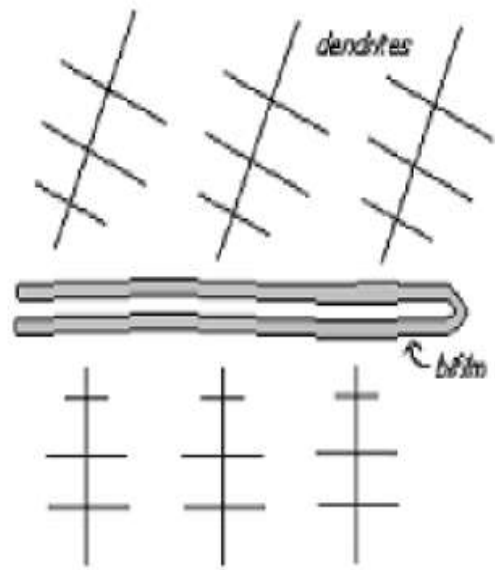
# SIVI METAL TEMİZLİĞİ

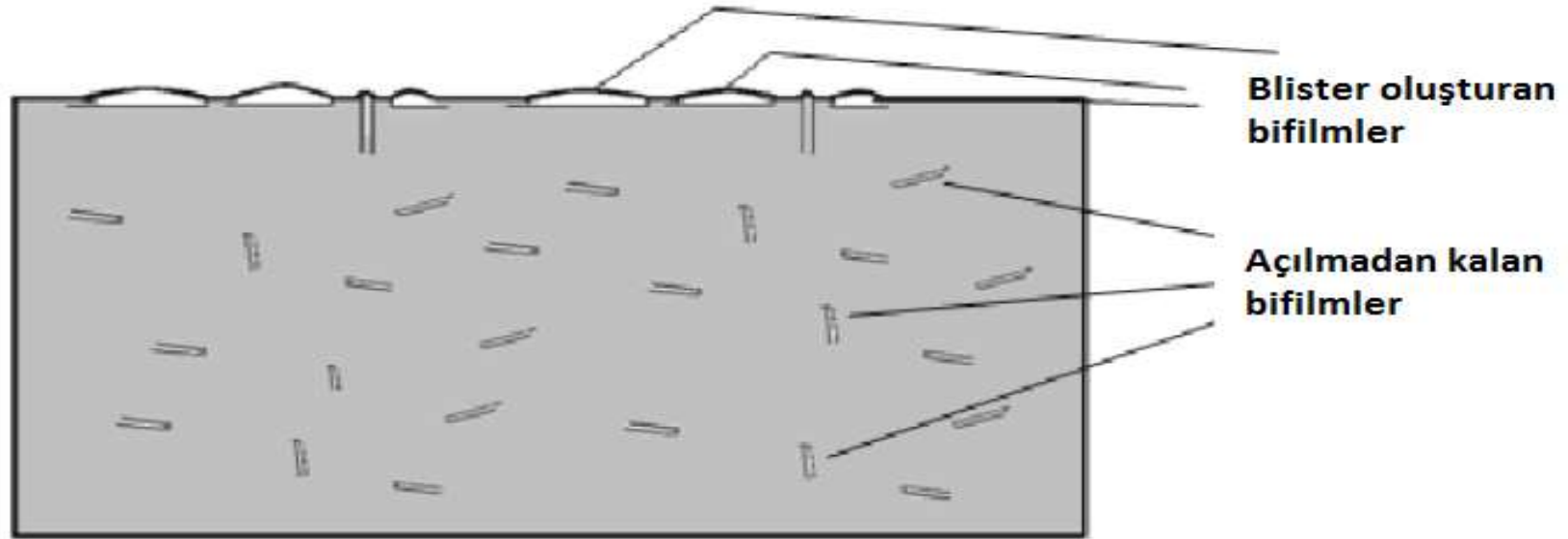
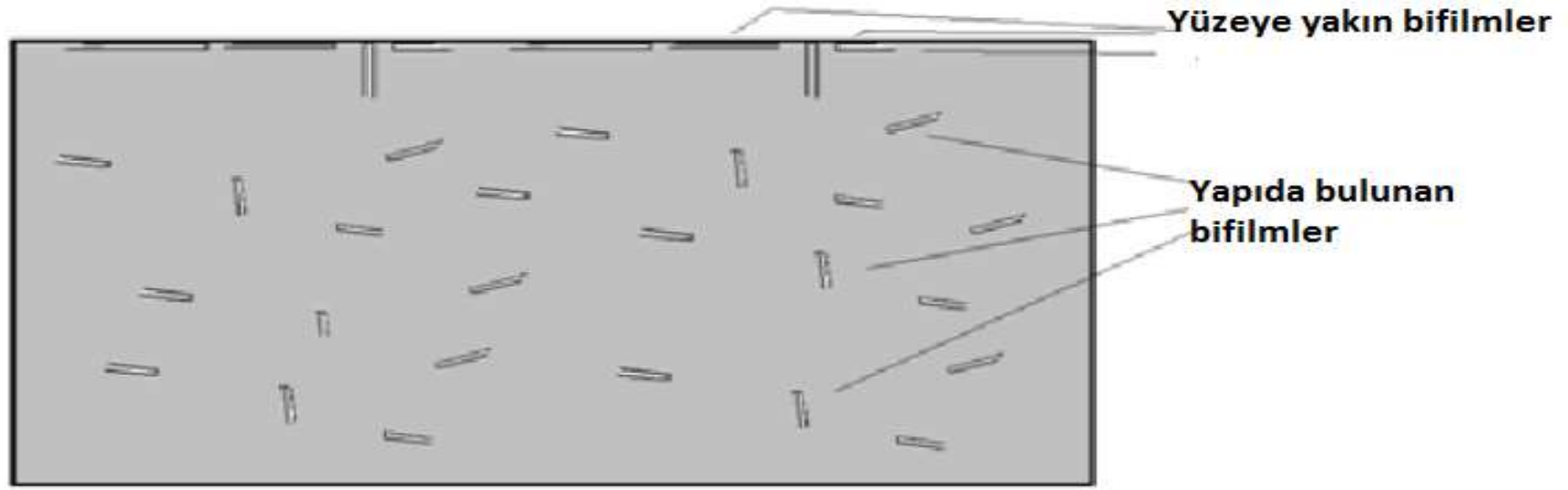
- $3\text{H}_2\text{O} + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 3\text{H}_2$
- $\text{H}_2(\text{gaz}) \rightarrow 2[\text{H}]$

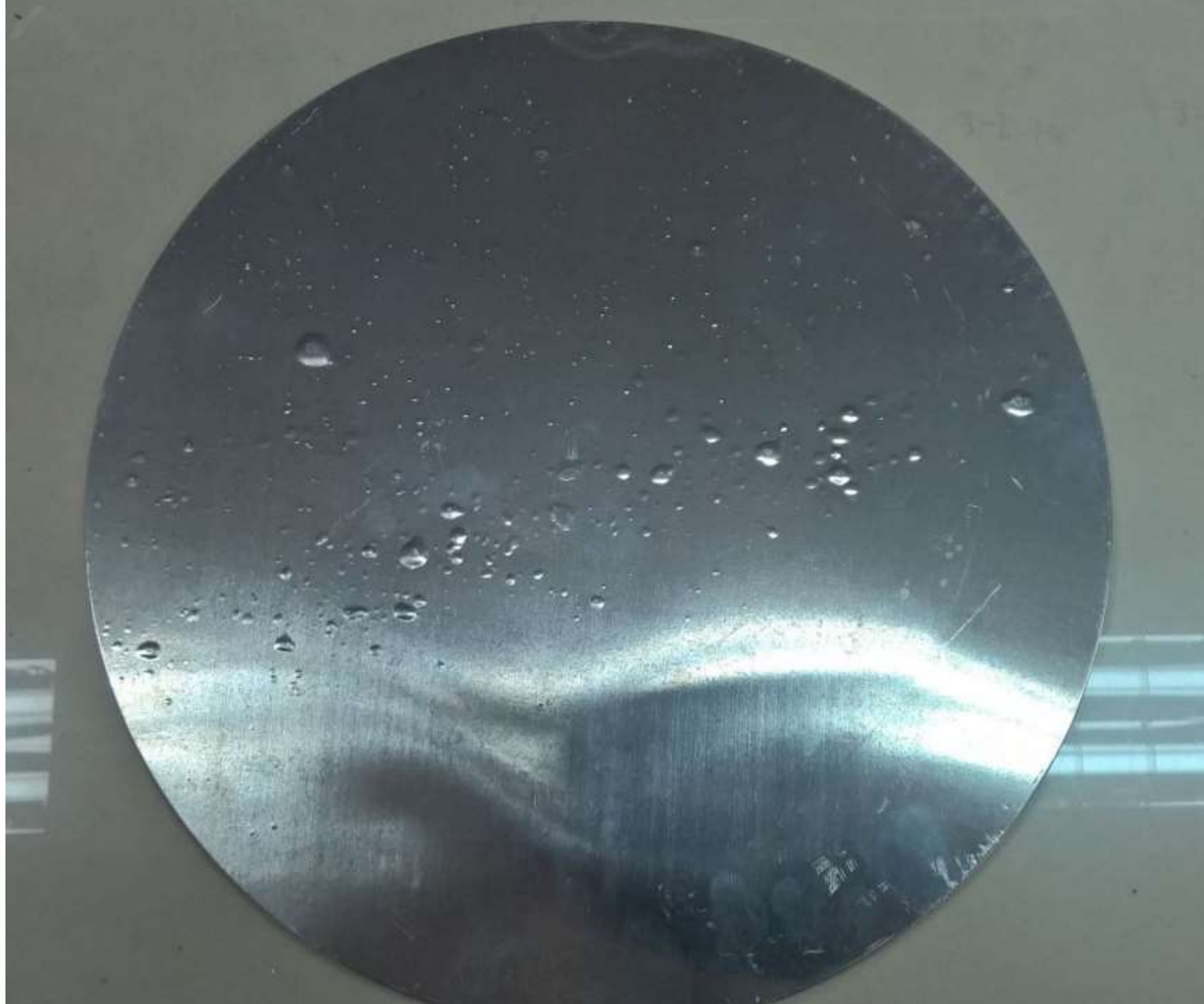


# Bifilm



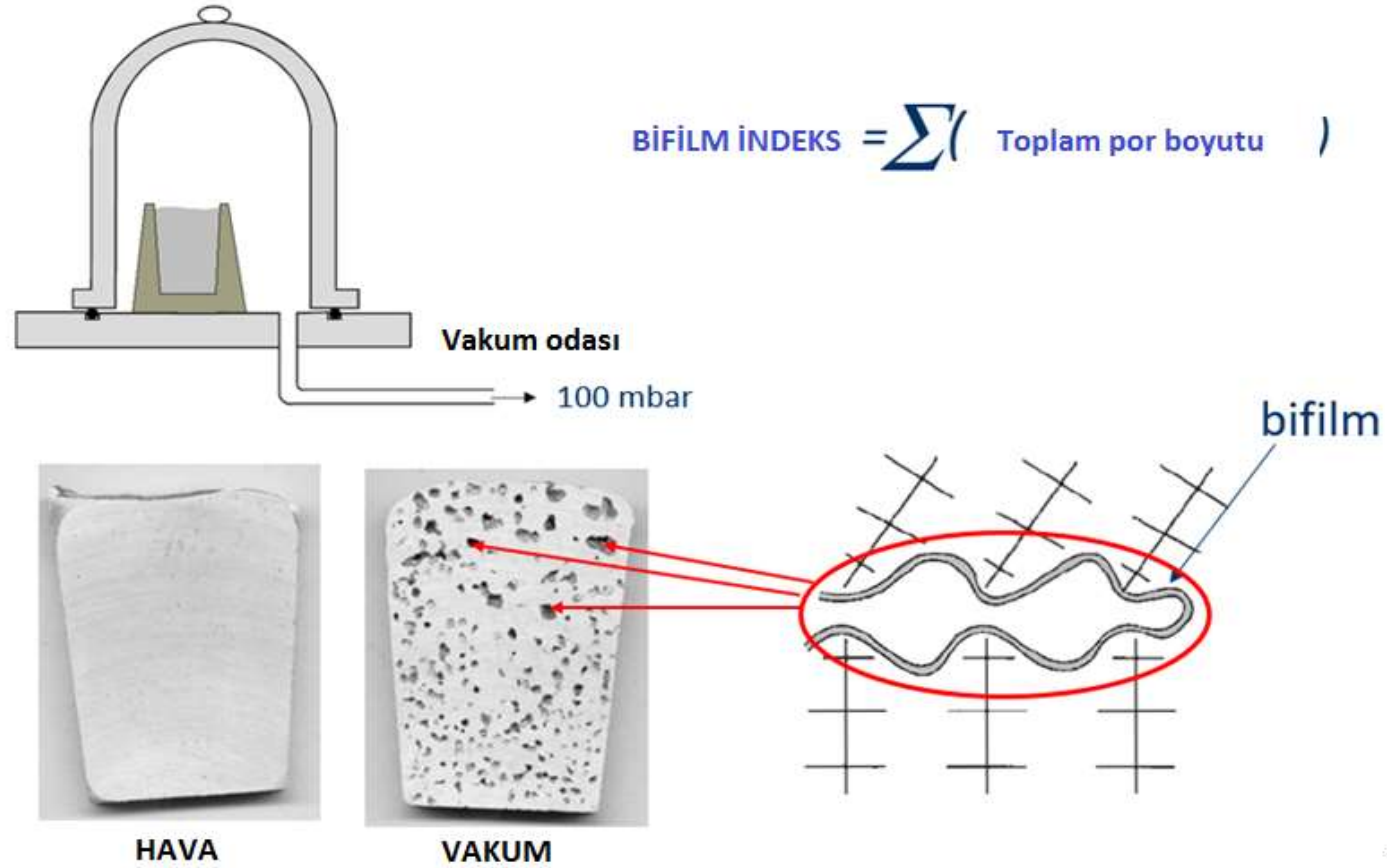




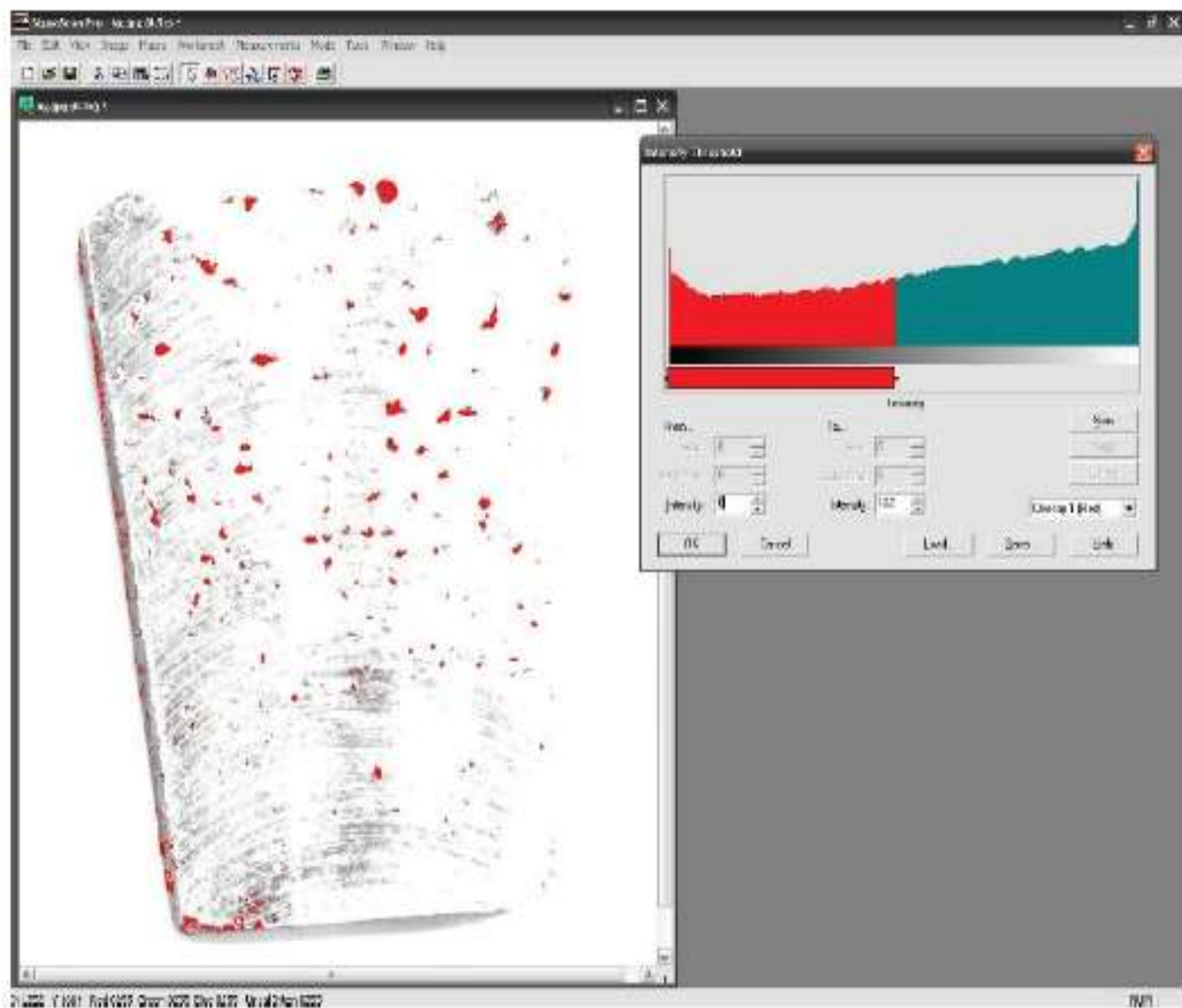


# Sıvı Metal Kalitesi Ölçümü

- Bifilm İndeks







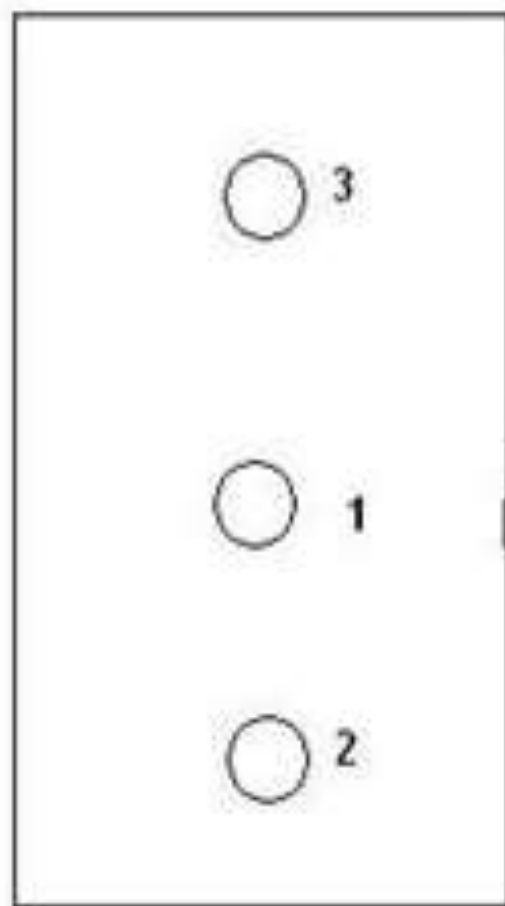


# Deneysel Metod

Al 1050 Alaşımı

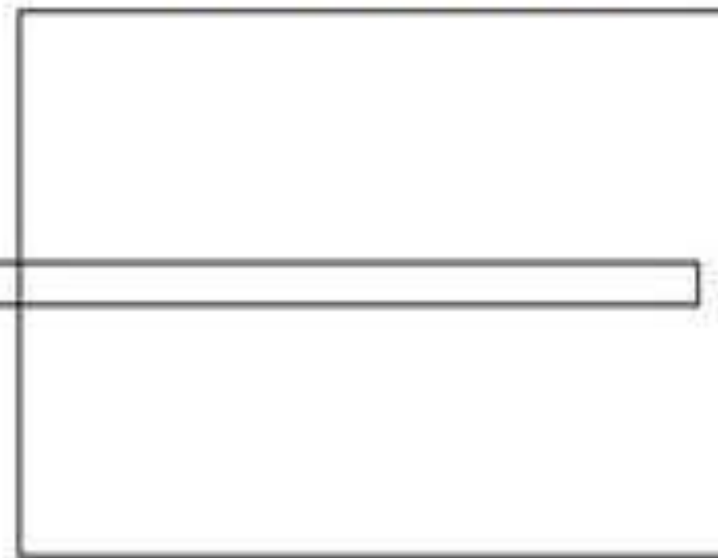
Si	Fe	Cu	Mn	Mg	Zn	Ti	Al
0,2-0,3	0,30	0,02>	0,02>	0,02>	0,02>	0,08- 0,14	Kalan

**Ergitme Fırını**



**Filtre  
Kutusu**

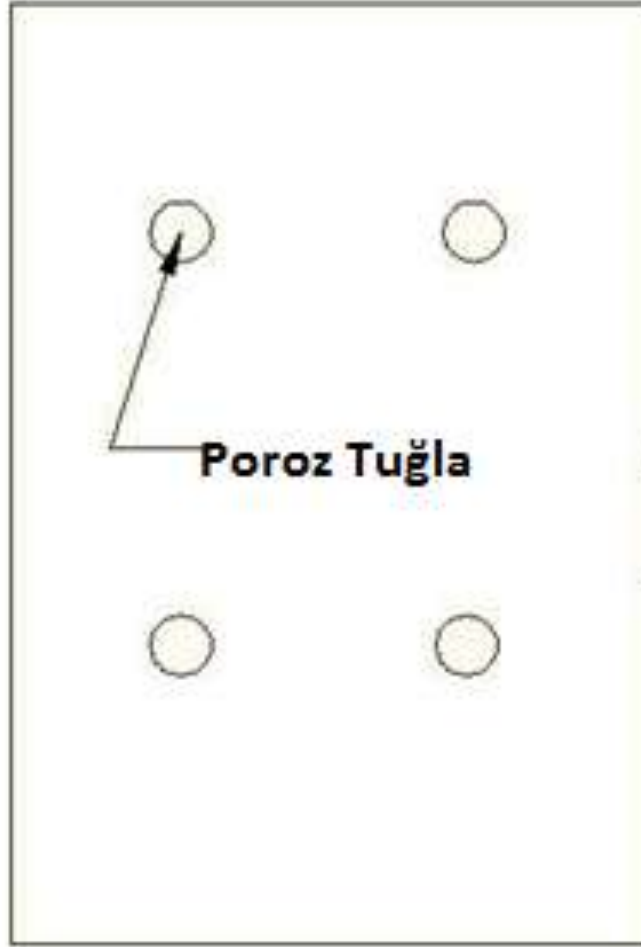
**Döküm Çukuru**





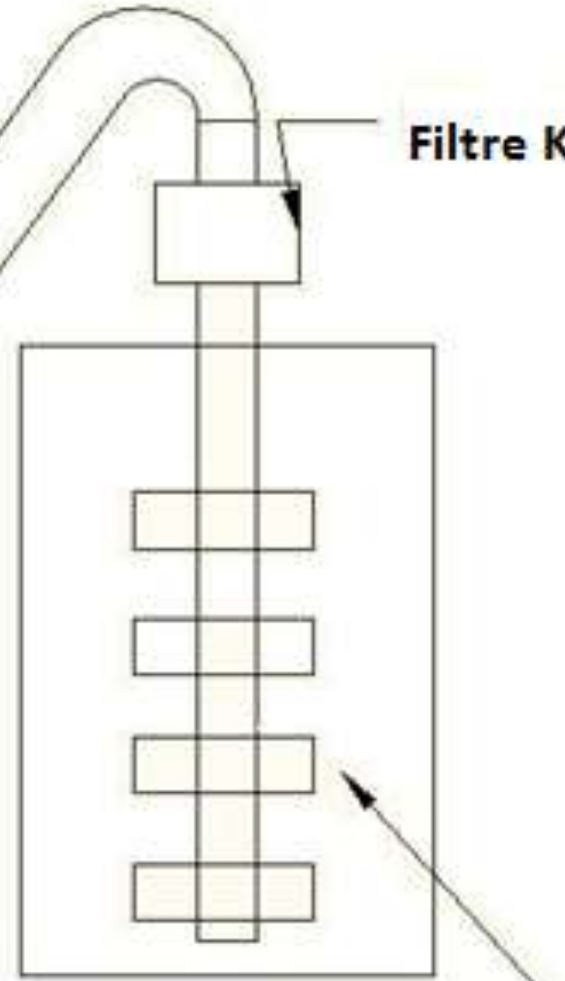


**Ergitme Fırını**

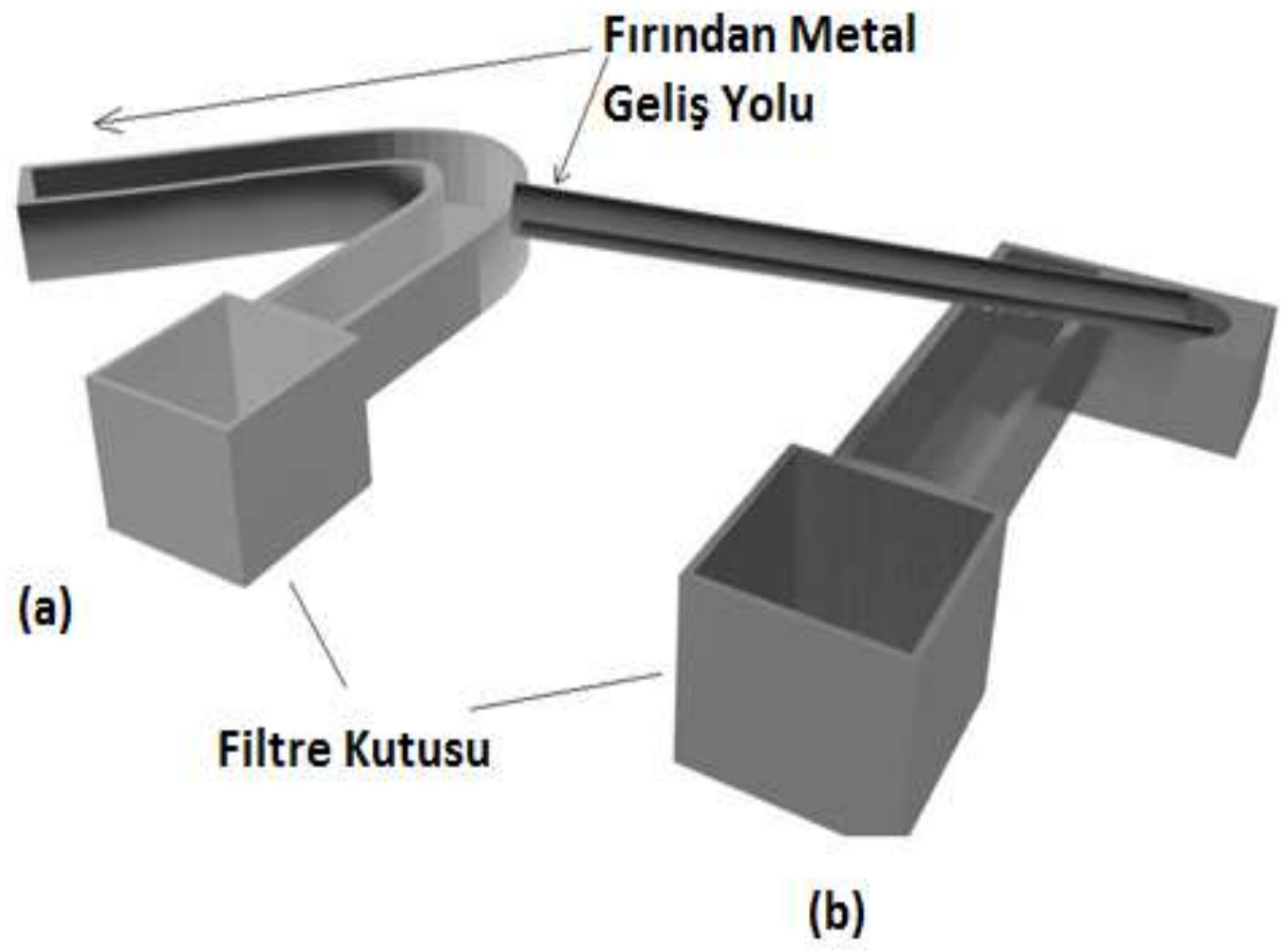


**Poroz Tuğla**

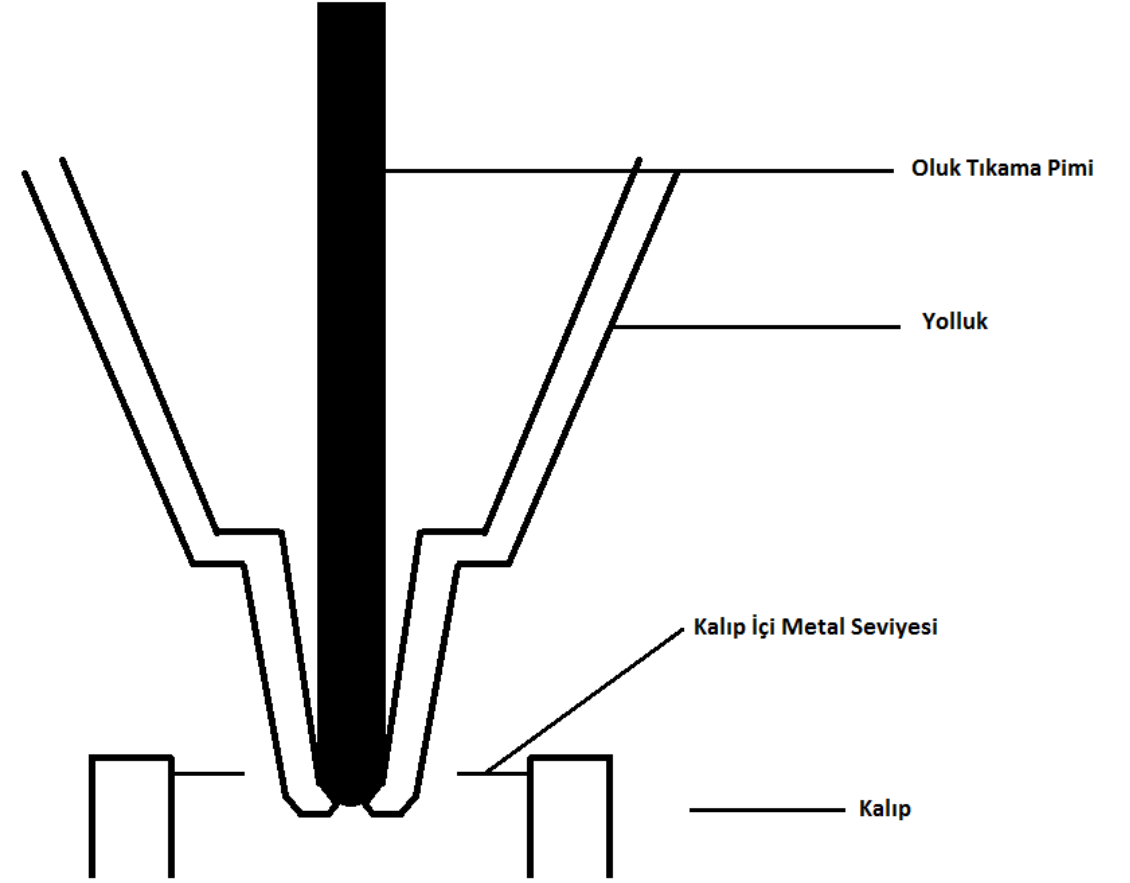
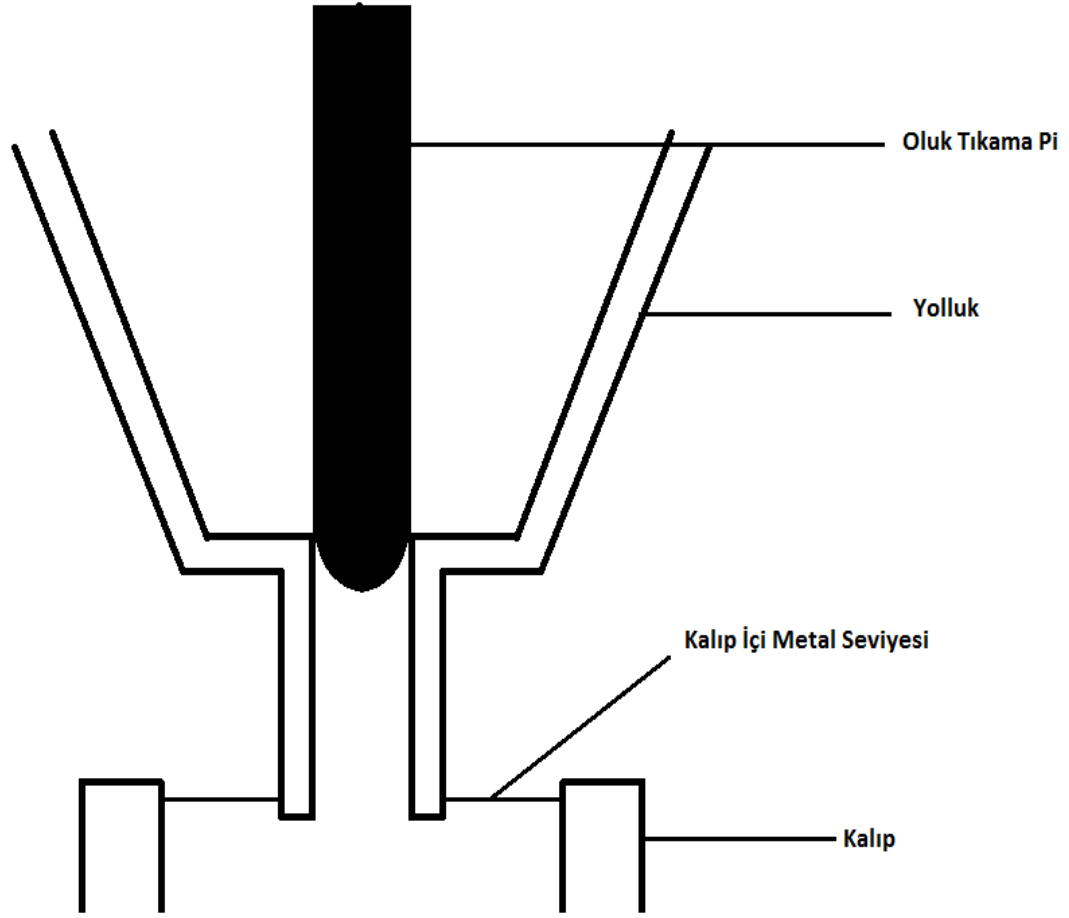
**Filtre Kutusu**



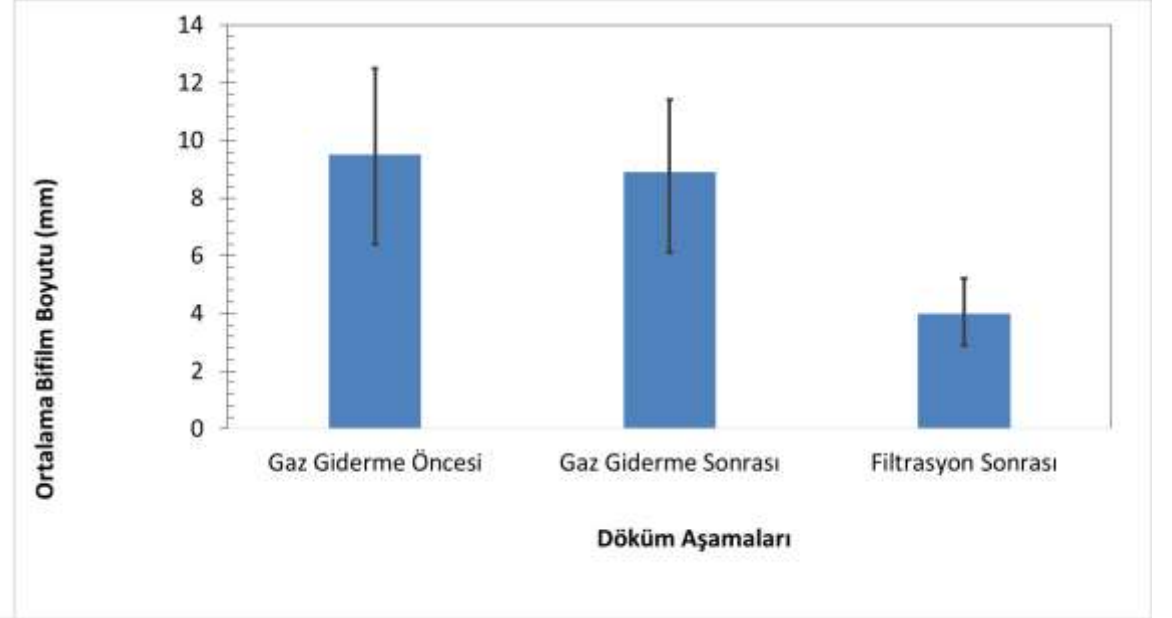
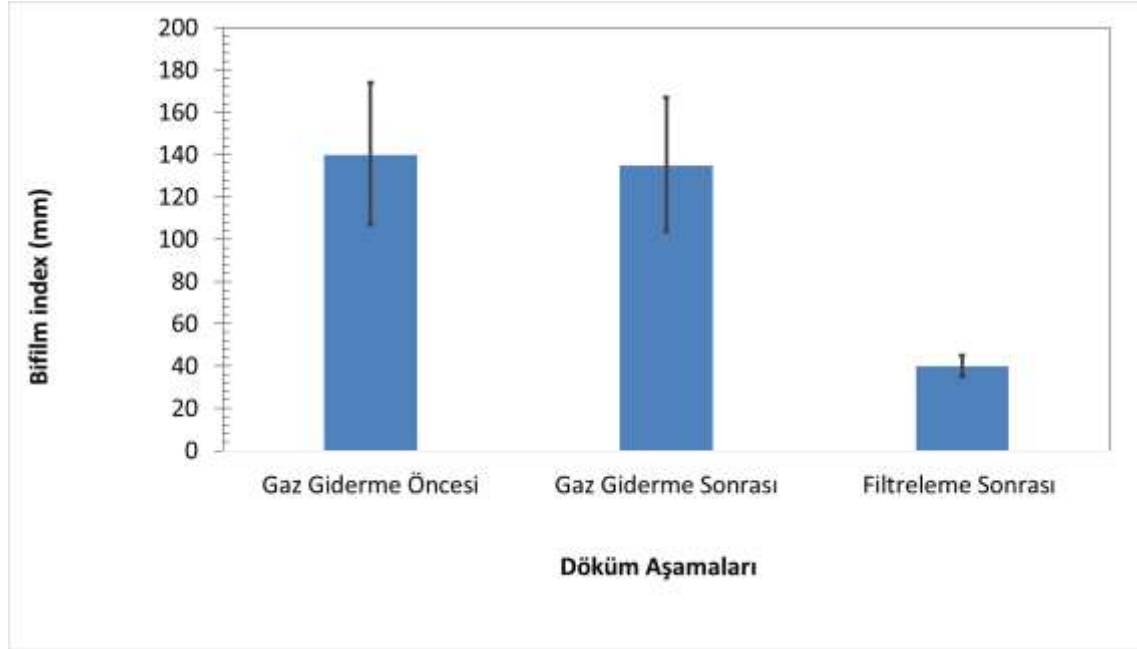
**Döküm Kalıpları**



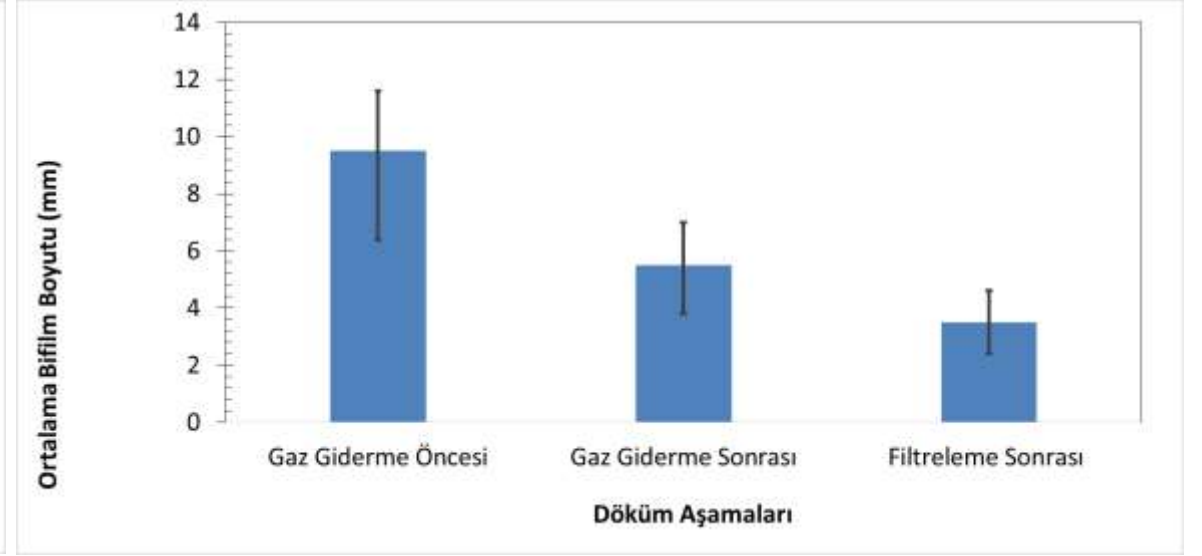
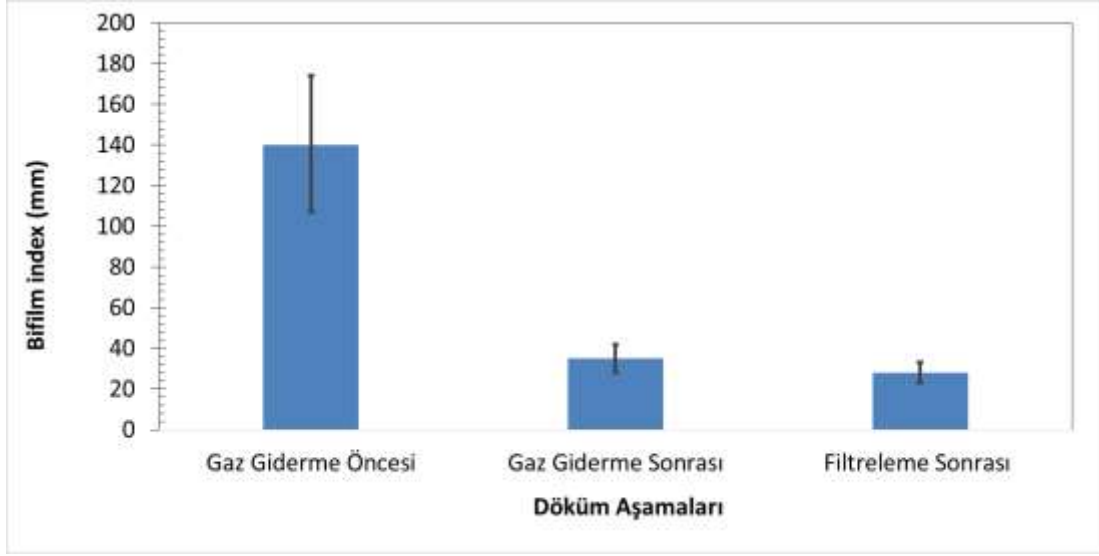




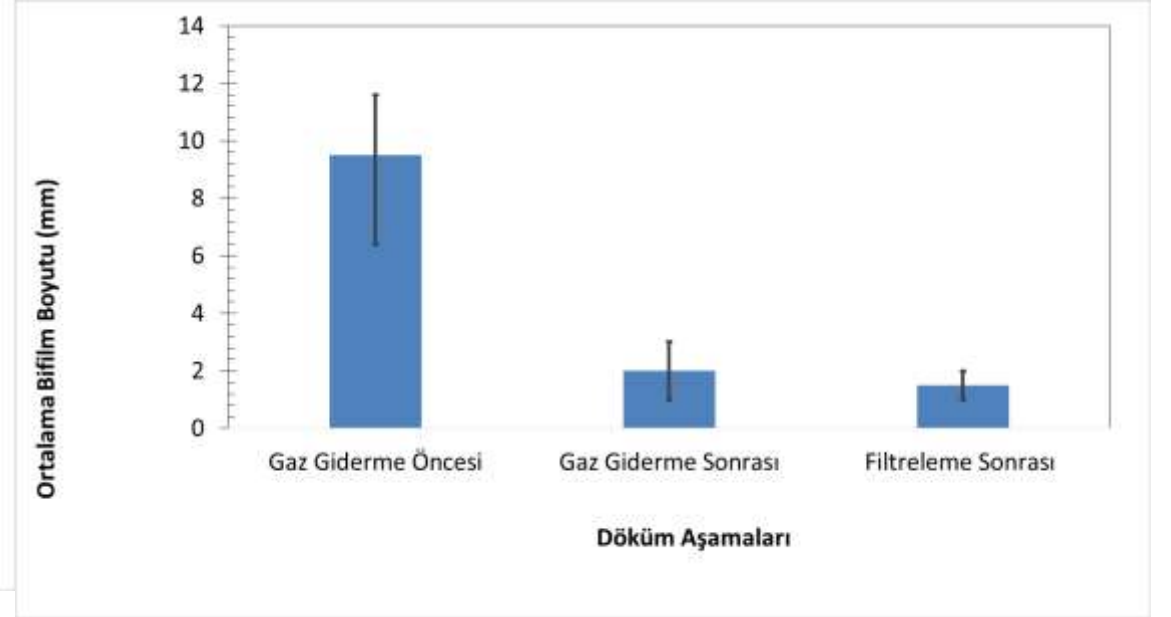
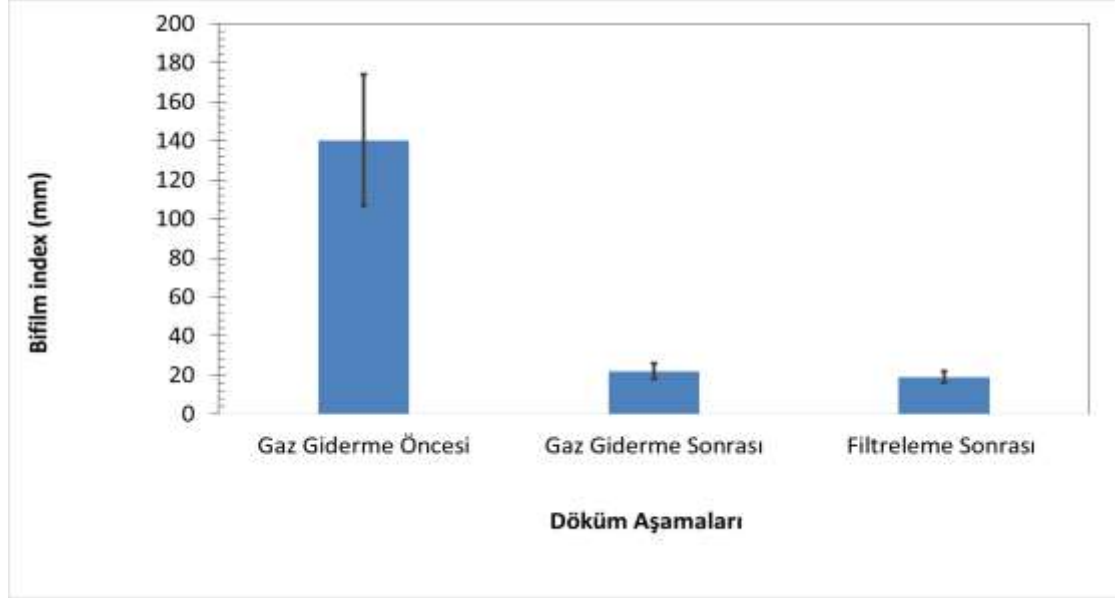
# Boru Tipi Gaz Giderme



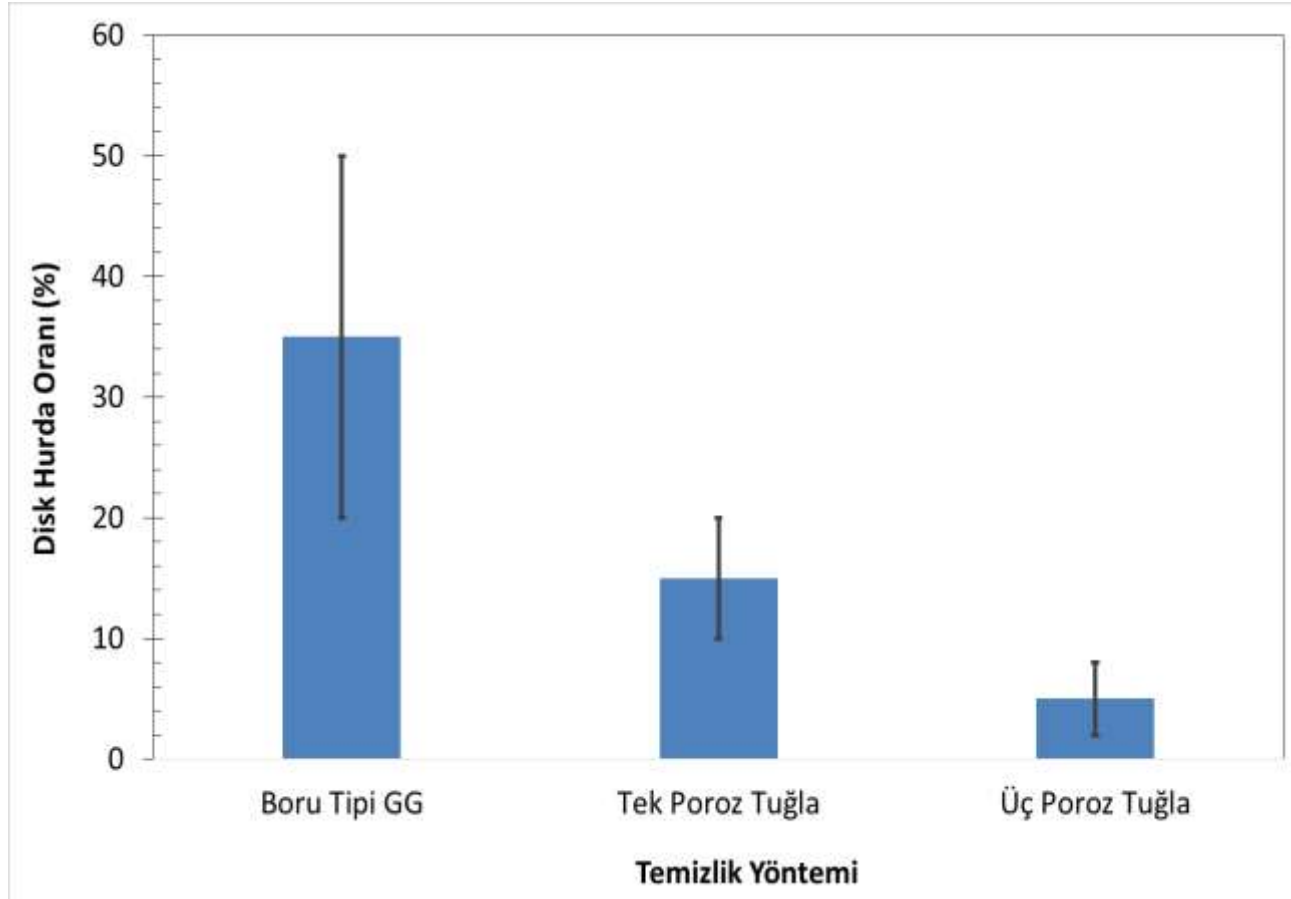
# Tek Poroz Tuğla



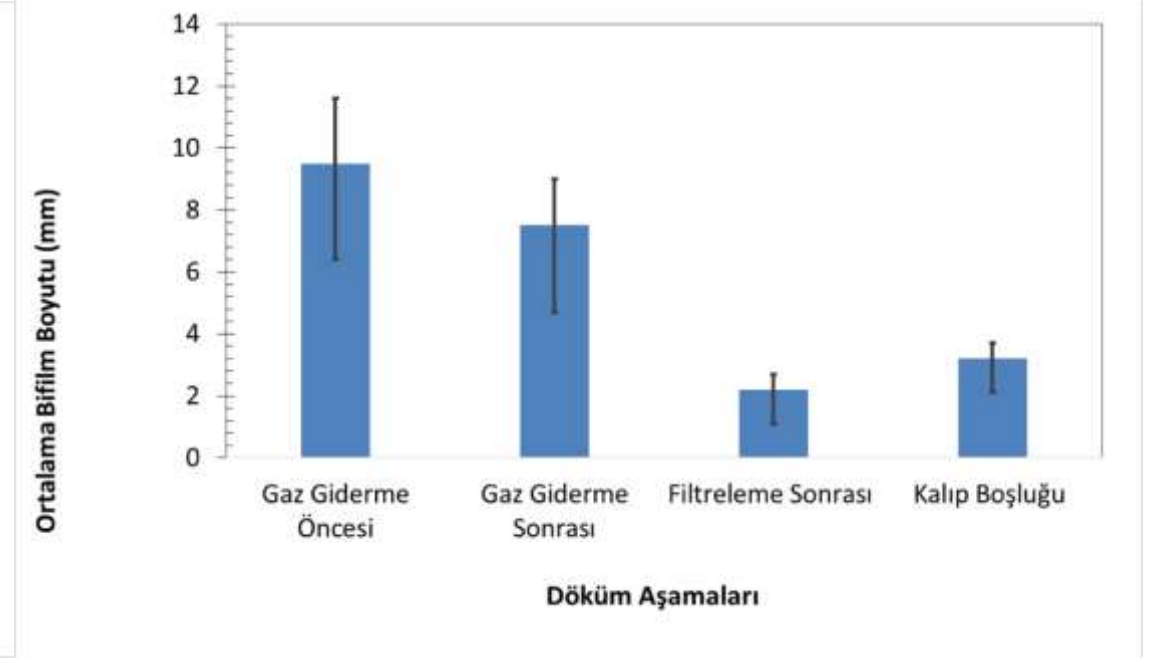
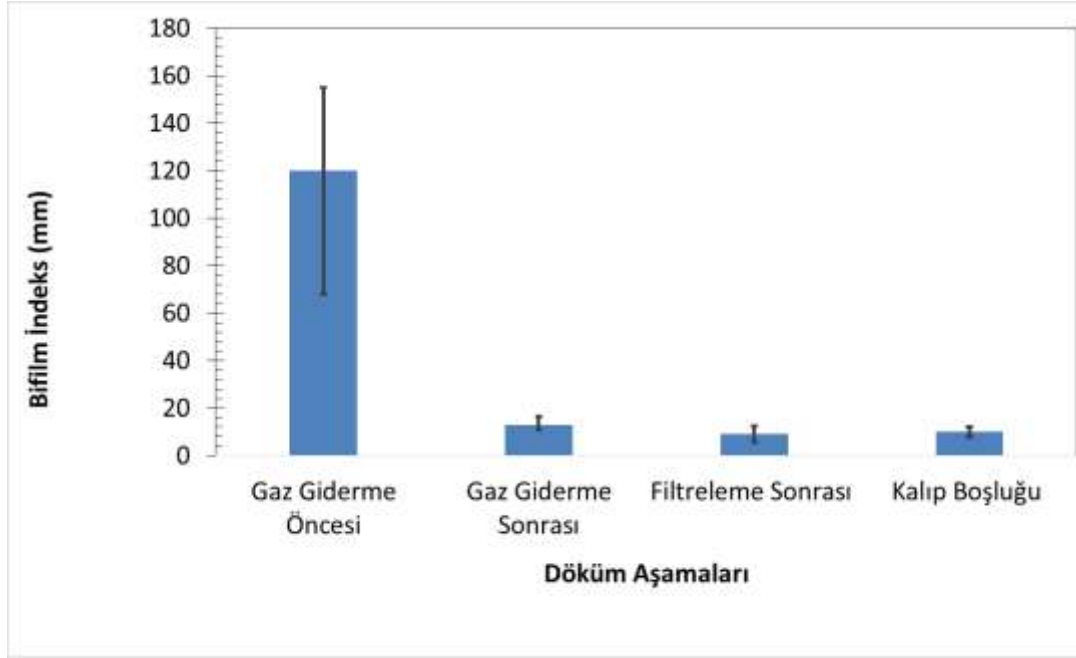
# Üç Poroz Tuğla



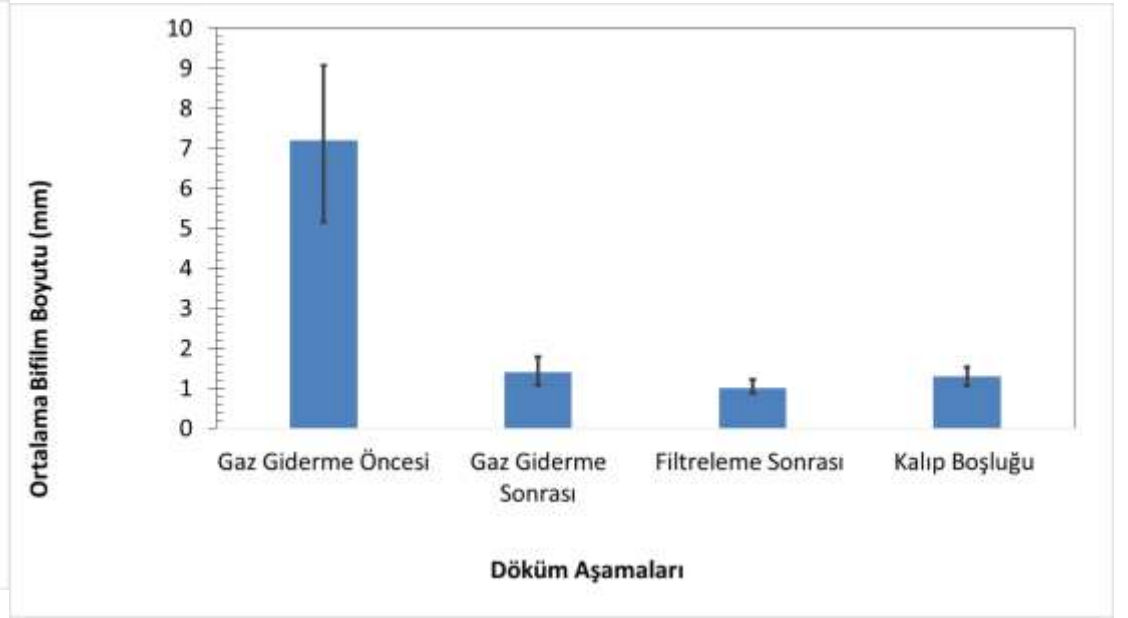
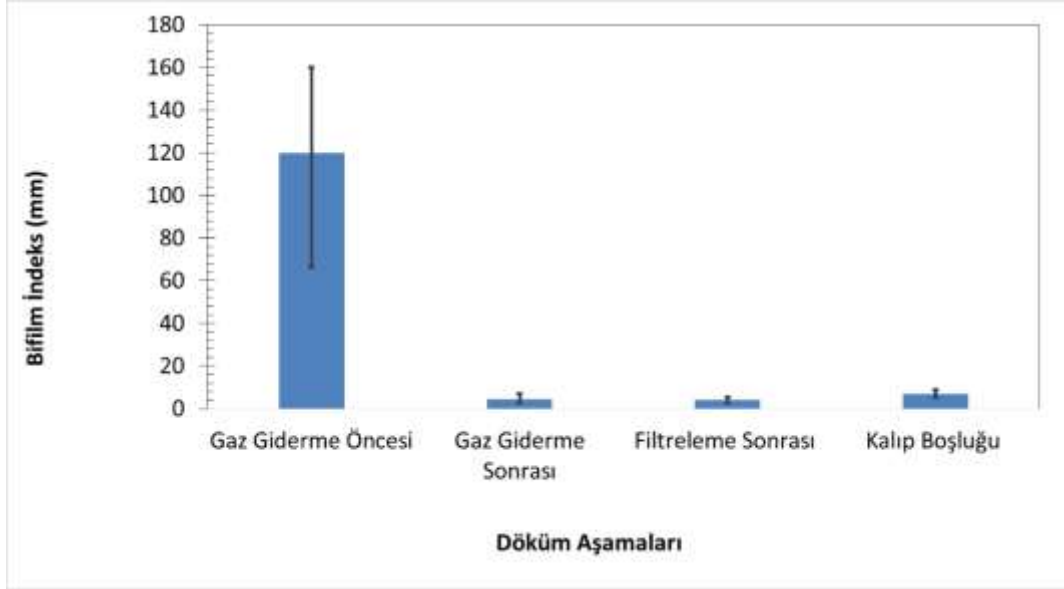
# İlk Aşama İçin Fire Oranları



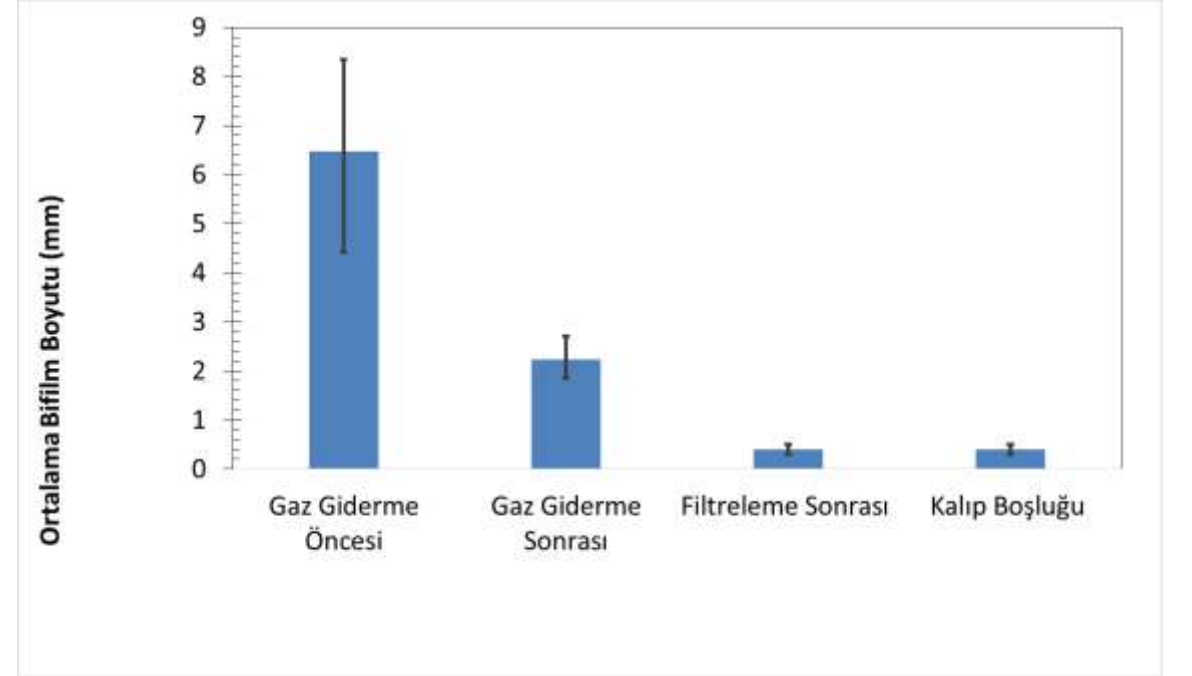
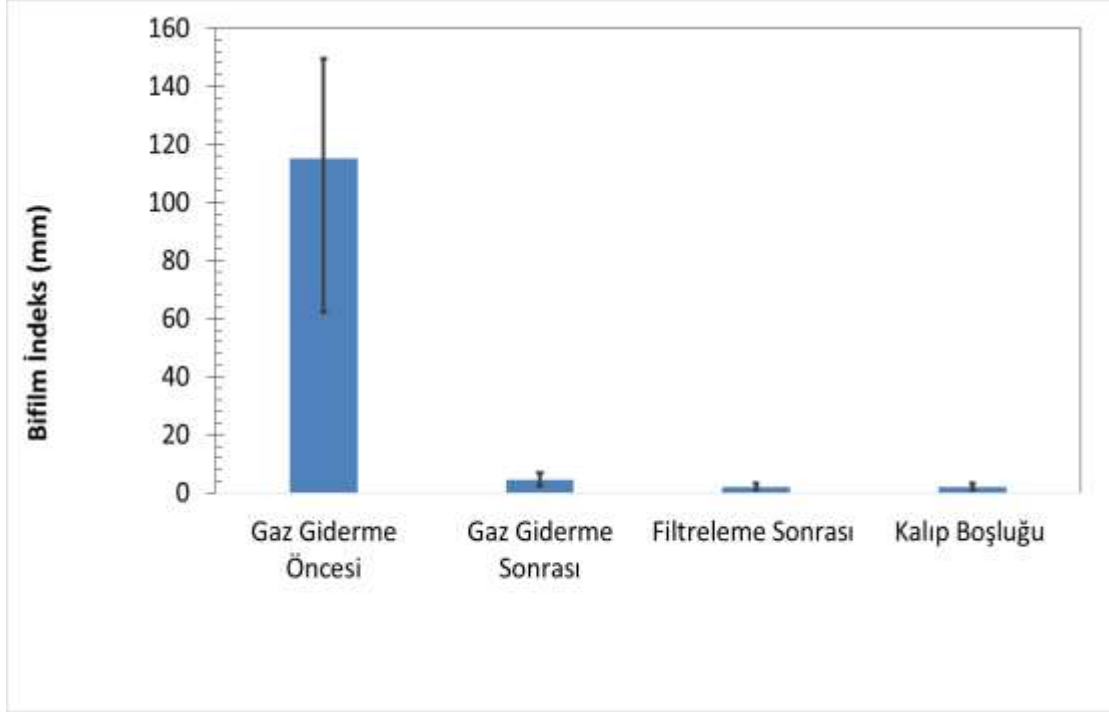
# İlk Durum



# Yolluk Deęiřimi

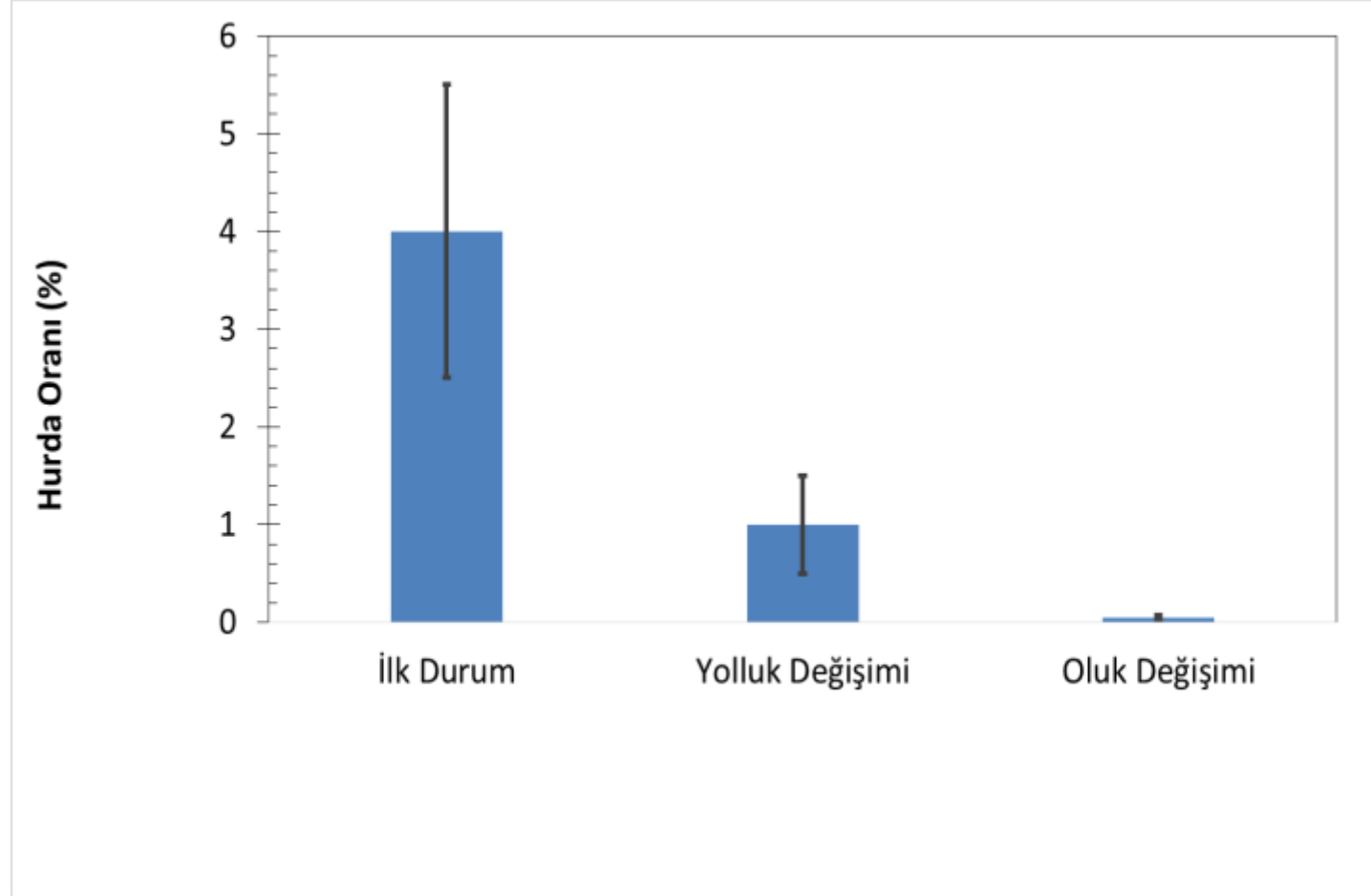


# Oluk Değişimi





# İkinci Aşama Değişiklikler İçin Fire Oranları



# Sonuçlar

- Sıvı Metal Kalitesi nihai ürün kalitesini etkileyen en önemli faktördür.
- Boru tipi gaz giderme ile %35 olan ortalama fire oranı tek poroz tuğla ile ortalama %15, iki poroz tuğla daha yerleştirilmesi ile ortalama %5 seviyesine düşmüştür.
- İkinci çalışmada türbülanslı yolluk akışı önlendikten sonra %4 olan fire oranı ortalama %1 seviyesine indirilmiş ve oluk mekanizmasının da değiştirilmesiyle %0,01 seviyesine kadar azaltılmıştır.
- Kontrollü bir fırın içi gaz giderme ile fırın içi sıvı metal kalitesi yükseltilebilir
- Türbülanssız akış sıvı metal kalitesini korumak için önemlidir
- Kalıp dolum şekli sıvı metal kalitesini etkileyebilir.
- Bifilm indeks sıvı metal kalitesi ölçümü için uygun bir yöntemdir.