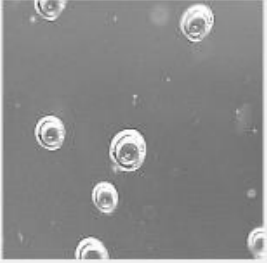
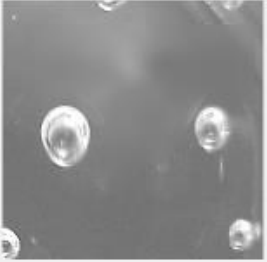


Original Image (a)



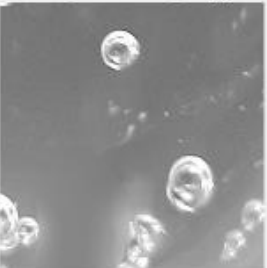
Original Image (b)



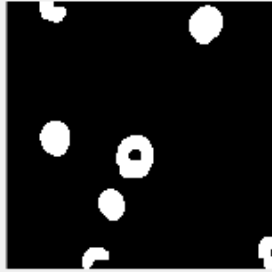
Original Image (c)



Original Image (d)

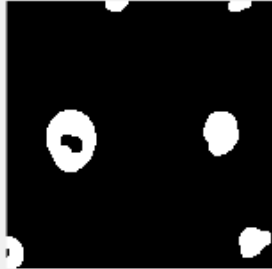


Binary Image (a)



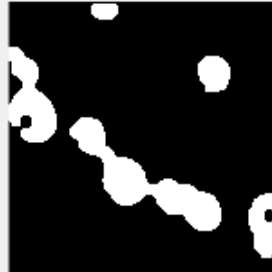
A  
Count: 7  
Ratio: 0.0705

Binary Image (b)



B  
Count: 6  
Ratio: 0.0726

Binary Image (c)



C  
Count: 5  
Ratio: 0.1481

Binary Image (d)



D  
Count: 6  
Ratio: 0.1377

## SOLUTION:

- Use Otsu's method to spot the bubbles from the background based on intensity with '*graythresh*' function
- Create the black and white image with '*im2bw*' and the threshold value
- Apply morphological operations to BW
- Use '*strel*' '*imclose*' and '*imopen*' to locate and smoothen the bubbles, close their gaps, and remove smaller noise
- Assumed '*disk*' would work best with '*strel*' because of the shape and nature of the bubbles
- Fill the holes in any gaps that are bubbles