



Q: Are there any materials that will not blob at all?

A: All materials will experience the blob and zit problem to one degree or another, but optimized settings can reduce or eliminate them.

## PRINT QUALITY

1. The print has several blobs or zits on the outside of the print.
2. Surface finish does not look good.

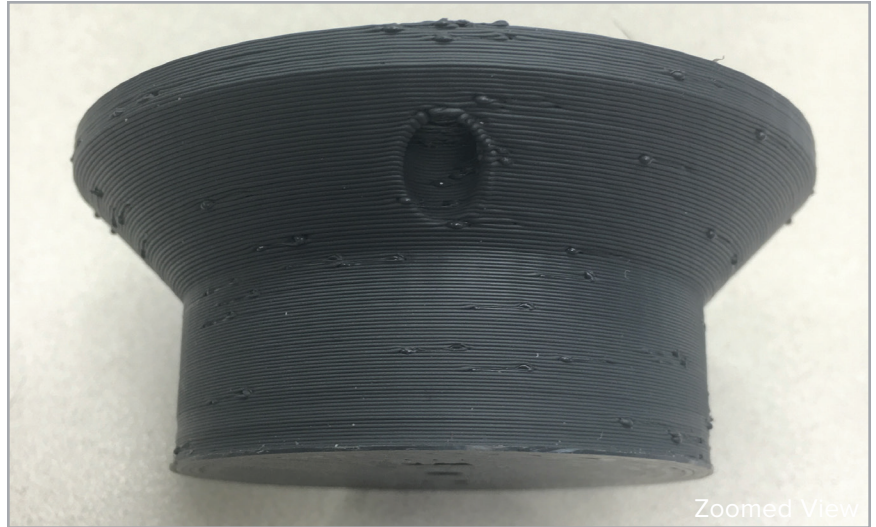
## PROBLEM

A combination of settings:

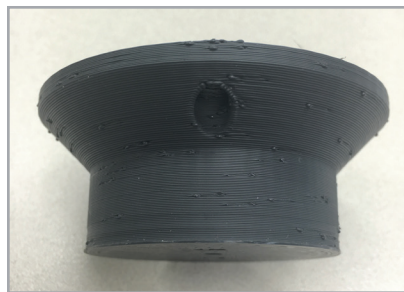
- Retraction settings are not set correctly. These settings should be adjusted to avoid over-extrusion at a starting or stopping point of the extruder.
- Retraction Distance:  
Bad Print: .10mm
- Start Points:  
Bad Print: Use random start points for all perimeters

## CORRECTIVE ACTION

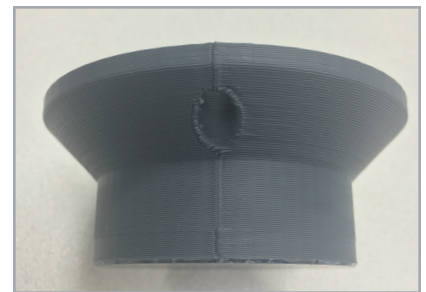
- Retraction Distance:  
Good Print: 1.10mm
- Start Points:  
Good Print: Choose start point closest to specific location



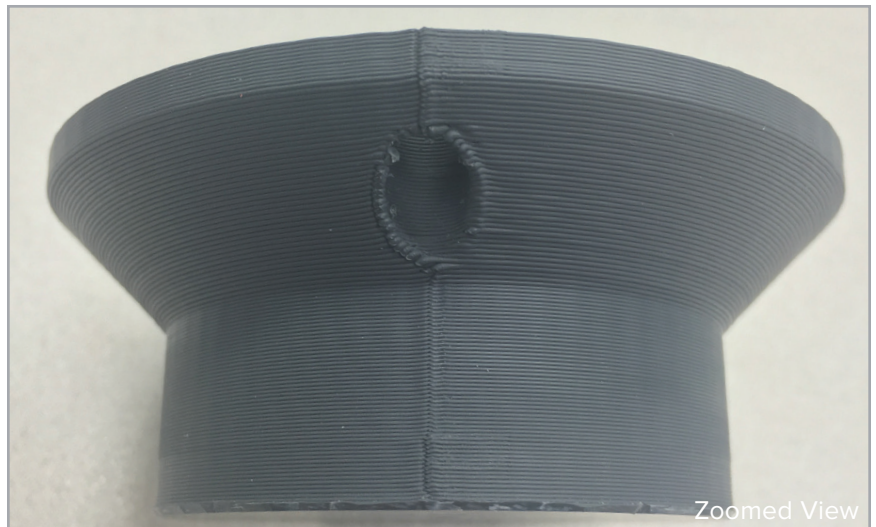
**Failed Print:** The print has several blobs or zits on the outside of the print, lowering the quality of the completed part.



**Failed Print**



**Fixed Print**



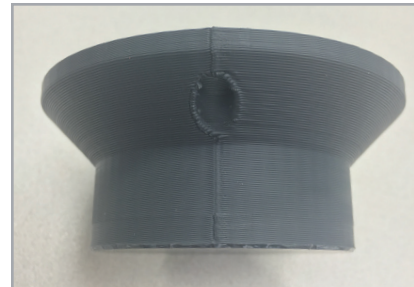
**Fixed Print:** Proper settings are essential for smooth layers. There are no blobs or zits on the completed part.



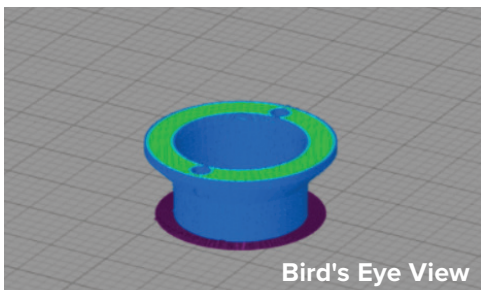
**Rule of Thumb:** Only make one adjustment at a time, so you can see the result of the change.



Failed Print

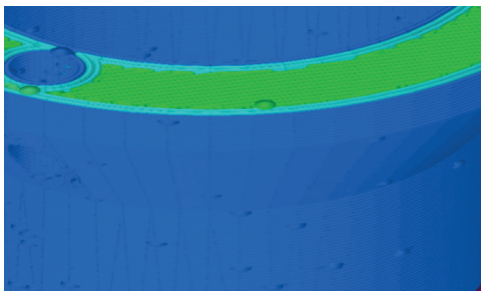


Fixed Print



Bird's Eye View

Model, Sliced:



Model, Sliced:

## KEY POINTS

Note the check box to view the retraction points is checked. This will help to visualize the retraction points before beginning the print. Most of the time a single retraction "seam" is more pleasing to the eye than random retraction points.

PRINT PROCESS SETTINGS	BEFORE FIX BAD PRINT	AFTER FIX GOOD PRINT
Material Type	PLA	PLA
Bed Temperature	80C	80C
Nozzle Size	.6mm	.6mm
Nozzle Temperature	200C	200C
Flow Rate (Extrusion Multiplier)	1.00	1.00
Extrusion Width	.72mm	.72mm
Print Speed	100mm/s	100mm/s
Layer Height	.3mm	.3mm
Number of Perimeters	3	3
Top Layers	10	10
Bottom Layers	10	10
Infill Percentage	15%	15%
Support Structures	none	none
Retraction Distance	0.10mm	1.10mm
Start Points	Random	Closest to location

## OTHER NOTES

**Random Start Points:** Layer start points are randomly distributed all over the model.

**Start Points Closest to the Location:** All layer start points are aligned as close as possible to the specified XY location.