



**STRENGTH TESTING OF 2 INCH AND 4 INCH
PLASTIC SNAP RINGS**

**CIA LAB# 137628
ANALYTICAL JOB# 58960**

Per your request we have completed the strength testing of the snap ring clamping teeth and the threaded mounting flange on the 2 inch and 4 inch plastic snap rings. The results are summarized below.

SAMPLE LOG-IN

The samples were logged as follows:

SAMPLE DESCRIPTION	ANALYTICAL SAMPLE NUMBER
2" Snap Rings (Teeth)	560770
4" Snap Rings (Teeth)	560771
2" Snap Rings (Threaded)	560772
4" Snap Rings (Threaded)	560773

Multiple specimens were submitted for each of the samples listed above.

ANALYTICAL RESULTS/CONCLUSIONS

The samples were tested on an 1122 Instron machine using a crosshead speed of 0.5 in/min. (4" screw threads tested on 1125 Instron due to load exceeding 1,000 pounds.) The results obtained are listed below.

2 Inch Snap Ring Strength Tests

TRIAL #	2" SNAP RINGS (TEETH) (#560770) DOWNWARD PULL (lbs. force)	2" SNAP RINGS (TEETH) (#560770) SIDE PULL (lbs. force)	2" SNAP RINGS (THREADED) (#560772) 5/16" SCREW THREADS (lbs. force)
1	188.6	780.2	618.8
2	170.0	731.5	715.3
3	325.4	606.5	533.9
Average	228	706	623

4 Inch Snap Ring Strength Tests

TRIAL #	4" SNAP RINGS (TEETH) (#560771) DOWNWARD PULL (lbs. force)	4" SNAP RINGS (TEETH) (#560771) SIDE PULL (lbs. force)	4" SNAP RINGS (THREADED) (#560773)**3/8" SCREW THREADS (lbs. force)
1	118.0	699.8	2796.6
2	335.7	691.5	2749.9
3	105.8	485.5	2847.1
Average	187	626	2798

ANALYSIS DISCUSSION

The snap rings were tested on the 1122 Instron with a 1,000 lb. load cell @ 0.5"/minute crosshead speed.

**This test was conducted on the 1125 Instron with a 20,000 lb. load cell @ 0.5"/minute crosshead speed.

The clamping teeth were attached to the last three teeth on each of the ring halves. The test was conducted in two directions, side pull and downward pull. The force, to break away, was measured in pounds.

The 2 inch snap ring threaded mounting flange was tested with a 5/16" bolt pulled upward until the plastic threads gave way. The force to break the threads was measured in pounds.

INSTRUMENTATION

SCIENTIFIC INSTRUMENT	MANUFACTURER/MODEL	PURPOSE
Universal Testing Machine	Instron/1125	Determines Physical Properties of Polymers
Universal Testing Machine	Instron/1122	Determine Physical Properties of Polymers

CHARTS

Enclosed please find the following CHARTS generated during the analysis.

ENCLOSURE

DESCRIPTION

CHART 1	2" snap ring downward pull on clamping teeth.
CHART 2	2" snap ring sideways pull on clamping teeth.
CHART 3	4" snap ring downward pull on clamping teeth.
CHART 4	4" snap ring sideways pull on clamping teeth.
CHART 5	2" mounting flange thread strength test.
CHART 6	4" mounting flange thread strength test.

Roger Rohrer 4/7/06
Roger Rohrer Date
Quality Assurance