



What is Z-APT™?

Z-APT advanced polymer treatment is a permanent modification of a rubber component's surface at a molecular level that does not change the physical properties of the material.

Z-APT creates a substantial reduction of surface tack and coefficient of friction (COF). Improved lubricity after treatment enhances the performance and promotes longevity of seal life. Unlike other coatings, Z-APT does not crack or flake off. This is a proprietary process that can be used on almost all materials although some polymer types will see greater results than others.

Z-APT treated compounds have been evaluated for potential cytotoxic effects following the guidelines of ISO 10993-5 and found to show no evidence of cytotoxicity. Z-APT also meets the FDA requirements of CFR Title 21, Part 177.2600 that classifies ingredients as suitable for rubber articles intended for repeated use.



Slip and Friction Tester

The Slip and Friction Tester pictured left, measures the sliding resistance of sheet goods, such as, rubber, plastic film, paper, and coated surfaces. It is important to understand that COF is the interaction between the rubber compound and a "test surface".

Precision Associates has the capability to test coefficient of friction (COF) per ASTM D-1894 which uses 2.5" square pieces of molded rubber cut from ASTM Sheets. A variety of rubber materials were tested "as molded" and after being treated with Z-APT for STATIC coefficient of friction measurements.

Test results using a polycarbonate surface are illustrated in the table below. Data for stainless steel, aluminum, and steel is also available.

STATIC COF POLYCARBONATE SURFACE

	19411 SILICONE 40	19711 SILICONE 70	4753 CR 70	23711 EPDM 70	9746 FKM 70	9946 FKM 90
As Molded	.685	.788	1.279	1.532	1.337	1.143
Z-APT	.381	.277	.188	.785	.666	.380
PERCENT REDUCTION COF	44%	65%	85%	49%	50%	67%



Advanced Polymer Treatment

Precision Associates manufactures a number of compounds that are suitable for use in medical applications requiring body or body fluid contact. These materials have been tested by independent laboratories or our material suppliers to assess their ability to meet requirements as defined by several standards organizations.

ISO 10993 is a 20 part standard developed to evaluate the effects of medical devices and their component materials on the body. Precision Associates compounds have been tested to meet the requirements for ISO 10993-5 (cytotoxicity) both "as molded" and with the Z-APT treatment applied.

ISO 10993-5 Materials			
Durometer 70	FKM	EPDM	Silicone
Color	White	White	Clear
Compound #	48725	423725	49726

Precision Associates' lab performed Coefficient of Friction testing on samples of the above ISO 10993-5 Materials on both polycarbonate and stainless steel surfaces. Those results are presented below.

