



# TECHNICAL BULLETIN

## Rubber Product Identification

There are several reasons why it may be important to consider Rubber Product Identification methods when designing seal applications: • In systems that seal toxic materials, it may be imperative that the proper seal material is installed. • More than one polymer type may be used in the same device that is designed to work with a number of fluids. • The age of a rubber product may be important to know when installing a seal that might have been inventoried for some time. • Trouble shooting failed systems can be made easier when the seals are properly identified. • Finally, knowing which cavity a molded part was produced in may be helpful in reducing problems resulting from variation between cavities in a mold.

PAI uses several methods to identify molded rubber parts. The best method for a specific application will likely depend on the type of seal and the information required. O-Rings, for example, do not lend themselves well to most methods involving lettering because the entire part is often a sealing surface which must remain pristine. Items like U-cups and other types of lip seals usually have several areas that may be used to apply markings.

This bulletin explores the different methods we employ to mark parts. In addition to the methods described here, ask us about character printing and individual packaging. End users will need to decide which method is most appropriate for their application.

### Color Coding

Color coding is used most often to distinguish between different polymers or compounds when a manufacturer requires the same size manufactured in a variety of materials

Painted marks are applied as dots or lines to identify different compounds. Most manufactures develop their own systems using different colors and numbers of markings.



Custom Seals with Three Red Dots

T-Coat™ PTFE coatings in varied colors may be applied to the seal surface. In addition to providing identification, T-Coat™ coatings provide lubrication; beneficial for automated assembly operations.



PAI offers six T-Coat™ colors

Colored Compounds may be used to distinguish different compounds or different (end user) products. The items at right are all made from essentially the same compound - only their color is different. The manufacturer uses the colors to identify product model sizes.



Custom Seals made using three colors to identify end user products



3800 North Washington Ave.  
Minneapolis, MN 55412-2142

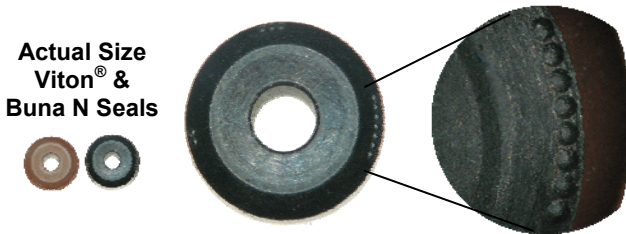
Toll Free: 1-800-394-6590  
612-333-7464  
Sales: 612-334-9190  
FAX: 612-342-2417

[info@PrecisionAssoc.com](mailto:info@PrecisionAssoc.com)

## Mold Engraving

Individual Characters may be engraved into rubber product molds. Typical uses are for part numbers, or cavity identification.

This method has can be done at a reasonable cost, depending on the size of the item and where the marking is desired. Lettering is generally raised on the part, inset lettering is typically more expensive. Cavity inserts may be used to change lettering for different P/Ns, but these inserts tend to leave lines on the product. The location of engraving can be critical, as it will affect the seal if in the wrong location. O-Rings, for example are not a good choice for engraving due to their application.



Custom Seal with Micro Dot Cavity Marking

Very tiny parts may preclude standard mold engraving methods. For precise applications requiring that mold cavities be identified, PAI may be able to use coded micro dots to identify individual cavities.

## Laser Engraving

Laser Engraving provides the widest variety of options for product marking. Part Numbers, Batch Numbers, Cure Dates, Expiration Dates, Logos or any number of things can be permanently engraved into an item.

Unlike most mold engraving, laser engraving does not extend out from the parts, allowing heel of lip seals to be marked.



ASTM Polymer Designation engraved into Piston Cups to prevent mix-up in assembly



Detailed P/N Laser Engraved



Batch Number Laser Engraved into Heel of U-Cup

**After 57 years in the rubber business, we've learned to be flexible. We'll bend over backwards to design custom solutions that meet your needs *precisely*. PAI is the company you can trust for rubber seal solutions **YOUR WAY!****

- Over 1,000 different compounds
- More than 2,400 O-Ring Sizes
- In-house Mold Shop
- Custom Molding
- 99% on-time delivery
- ISO 14644-1 Class 7 Clean Room

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