

# TECH ALERT

## Mechanical Integrity - Our Plants & Equipment

*Elastomer Gaskets*

*May 2007*

### Color Coded Gaskets based on Viton® Fluoroelastomers....Ensuring Satisfactory Chemical Resistance

Elastomers generally consist of a rubber compound (for example chloroprene, nitrile, or fluoroelastomer) plus fillers that help impart properties. Due to its properties, carbon black is often considered the optimum filler. However, it creates a challenge in identification, because all compounds containing carbon black are black in color.

Critical applications magnify the identification problem. For example, when high end elastomers like Viton® fluoroelastomers are specified, it is likely they are specified for a demanding or process safety critical application where leaks must be minimized..

Since the chemical resistance of elastomers may be affected by the type of filler, it is not easy to select colored fillers that possess the optimum chemical resistance of carbon black. See photo below showing seals made of different materials.



Unknown Blend

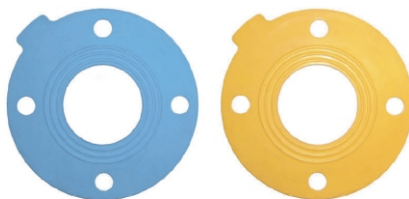
Viton B

Neoprene

DuPont Performance Elastomers has collaborated with its customers to identify a solution for a high problem area: gaskets in flexible hose. Low performing elastomers have routinely been blended and/or substituted for the appropriate grade of Viton® in such applications, resulting in premature failure.

### Background to Collaborative Testing Program

Using Viton® A, Viton® B and Viton® Extreme™, Eagle Elastomers developed several proprietary colored formulations. The colors were blue for Viton® B, gold for Viton® G. See photo.



Note that a red compound has been developed for Viton® Extreme™, but it is not commercially available yet.

The spectrum of aggressive chemicals in which fluoroelastomers were useful was researched and this “chemical universe” was divided into equivalent groups, such as alcohols, ketones, etc. Tests were conducted in the most aggressive chemical in each group (for example, methanol for alcohols).

In every case, colored formulations substituted for one containing carbon black met acceptance tests. All grades are essentially identical. These gaskets are distributed by [Gasket Resources Inc](#) as part of their [Identa-Seal™](#) program. They should be contacted concerning all elements of the test program.

### Pathforward

A program has been developed that will help alleviate the problem of materials mix-ups in an important problem area. It is a sound step in moving towards an acceptable color coding scheme.

For example, when you buy a flexible hose from Branham, you are assured that you will receive gaskets made of Viton® B (blue), when Viton® is specified. If higher levels of chemical resistance are needed Viton® G (gold) ought to be specified.

This program is part of the Genuine Viton® licensee program and provides assurance that a customer obtains Viton® fluoroelastomer in a compound without dilution by cheaper, inappropriate fluoroelastomers.

As the program grows, other potential suppliers must have their test protocols approved. Standards [SU2A](#) and [U13B](#) will identify approved color coded product. Beware of color coded product that is not approved.

**William Stahl**  
**DuPont Performance Elastomers**  
**Ducom 929-6975**