



## Understanding EPDM Gasket Performance



# Flow Smart EPDM Gasket Performance

## Critical Study

The EPDM Gasket study shown here is an assessment of data taken from an in-line Steam study, which is supported by Extraction data. We find it to be more revealing than ever because we are interpreting the data according to what is critical to your process. In the past the only performance data evaluated was “how many cycles were run before leaking occurred”. Our third party evaluation proved that a system is compromised long before leaks were revealed.

Our studies prove that your gaskets don't fail upon leaking; they fail when your gasket leaches its critical components, thereby losing dimensional stability and becoming susceptible to deformation and extruding into the process stream. Cleanability is compromised and the process becomes vulnerable to trapping bacteria.

## Performance Example



The gasket study was done for FlowSmart. It was a blind study that revealed very definitive and consistent details. The criteria of the tests were as follows:

### Material Appearance - Extrusion - Stickiness: 1-5

- 1 - No stickiness, gasket falls off
- 2 - Slight stickiness, just pushing on the edge pops the gasket loose
- 3 - Moderate stickiness, gasket has to be peeled off but is not uniformly fixed across fitting face
- 4 - Heavy stickiness, gasket holds both fittings together and has to be pried off with fitting and then peeled off of second face and is uniformly fixed to face
- 5 - Extreme stickiness, removal requires using a screwdriver to start removal
- 6 - Extreme stickiness, material left adhered to fitting after gasket is removed

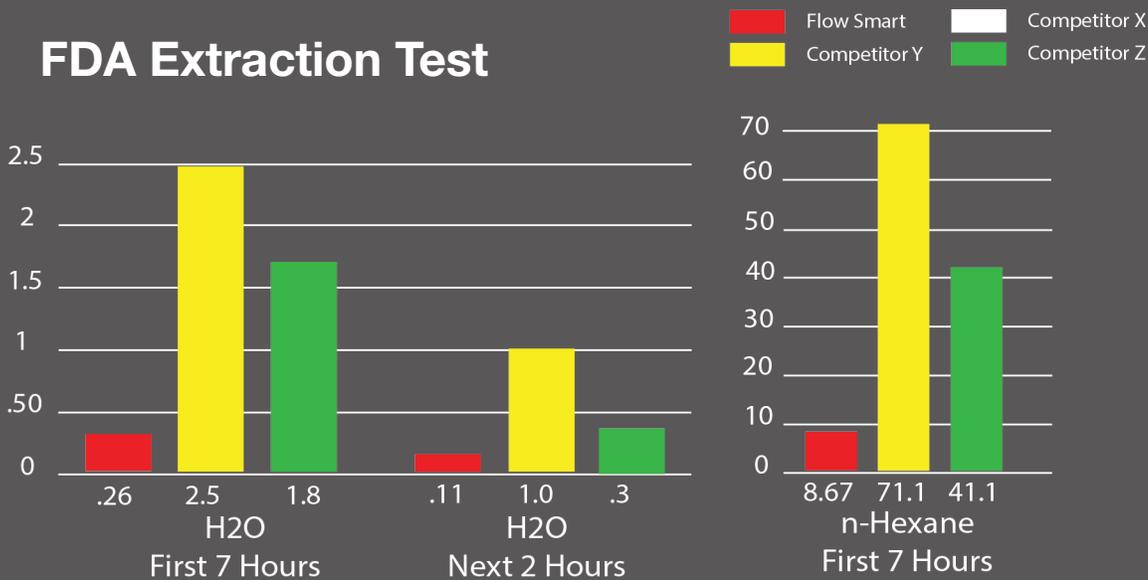
### Here is what we learned from the study:

1. The two best performers were FlowSmart and Competitor X. The X product intruded more than the FlowSmart product very consistently. Their maximum intrusion was .060, FlowSmart's was .040. Typically FlowSmart's intrusion was 0 or .025, where the X product had at least .030 on one side of each gasket.
2. Neither FlowSmart's products nor X company left gasket material attached to the ferrules. This is the closest to a “nonstick” EPDM. The Y and Z gaskets left gaskets on the ferrule faces and had to be scraped off.
3. The photo's tell the story in how badly the Y and Z products performs.

# What you should know about "Stick"

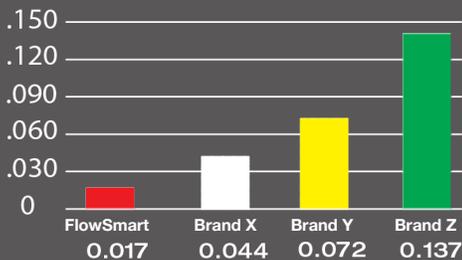
Stickiness is often discussed with EPDM gaskets. An independent study proved that all four brands did stick to the ferrule after a number of steam cycles. So is stick an area of concern? Yes but only when the gasket cannot be removed from the ferrule. The engineer who ran our study commented that brands Y and Z peeled and then broke apart with some material separating into the operator's hands and the other material remaining attached to the ferrule. While the FlowSmart gaskets and the European brand also stuck, both gaskets remained intact upon removal from the ferrule faces. This provides the operator a clean start with the new replacement gasket and ensuring that no gasket particles find their way into the process stream. FlowSmart's EPDM and the newer European brand both accomplish the important condition of clean, intact removal that has been a constant mode of failure for many years. Their higher costs doesn't equal higher value! FlowSmart provides this value while our European competitor does not.

## FDA Extraction Test



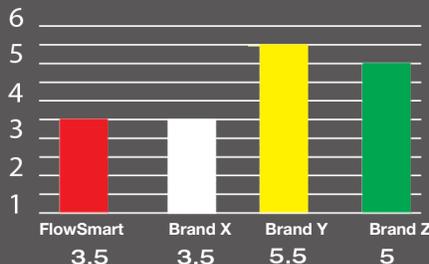
In the first 7 hours gaskets extract the greatest amount of their componentry, which is consistent here. FlowSmart's competitor's extracted 10 times more of their composition in water and 5 times or more in Hexane. This is evidence of the gasket structure already beginning to fail thus contributing to the extrusion into the pipeline and susceptibility to decomposition.

### Average Maximum Intrusion per Gasket in Inches



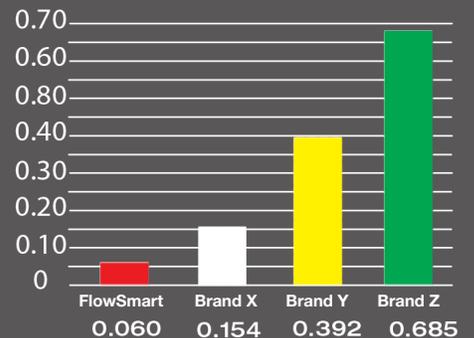
FlowSmart Gaskets exhibited minimal intrusion.

### Gasket Stick Analysis



Based on 1 to 6 rating (see notes\*) FlowSmart and European brand adhered but released intact while the other brands left gasket material on ferrule faces.

### Gasket Rating Factor (Intrusion x Stick) Lowest number is best performer



Two critical gasket factors graphed to display the total performance value of the EPDM gaskets

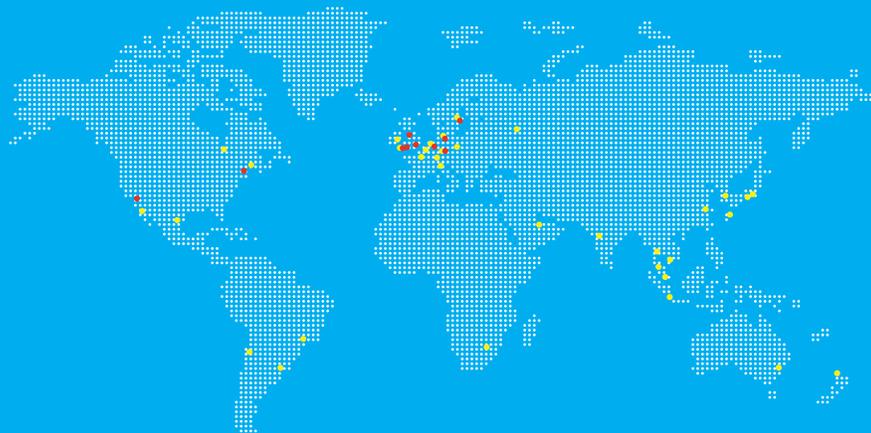


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