

## APPLICATION NOTE

### Bleed Comparison Between Natural and Red PTFE Samples Using Gas Chromatography

#### Introduction

Intuitively, one would surmise that pigmented materials (i.e. those that are colored in some way) would be more likely to pose as a contaminant source when compared to materials that are not pigmented. This study compares two (2) 0.005" thick samples of PTFE. One is red in color and the other is non-pigmented or natural. It is assumed that the red PTFE would bleed more than the natural PTFE.

#### Experimental

GC: Septa were extracted (50 mg/ml) in dichloromethane: methanol (50:50) for one hour, then analyzed by GC under the following conditions:

Column	Agilent DB-1 30.0 m x 320 um (19091Z-213)
Detection	FID
H2 flow	30 ml/min
Air flow	400 ml/min
Makeup flow	25.0 ml/min (He)
Detector Heater	300 °C
Injection Size	1.0 uL (splitless)
Oven	50 °C hold for 3 minutes, 50-100°C @ 25°C / min, 100-300°C @10°C/min, 300-325°C @25°C/min (hold for 5 minutes)
Pressure	25 psi for 27 minutes, 50 psi from 27-33 minutes.

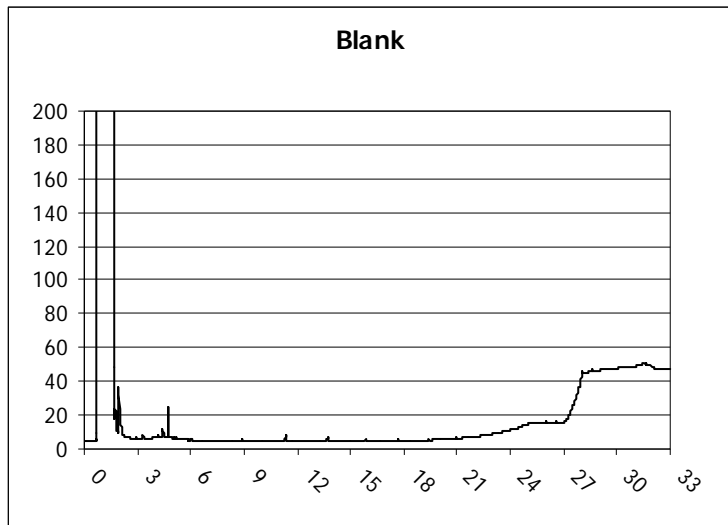
In addition, control blanks were also analyzed for each method.

#### Results

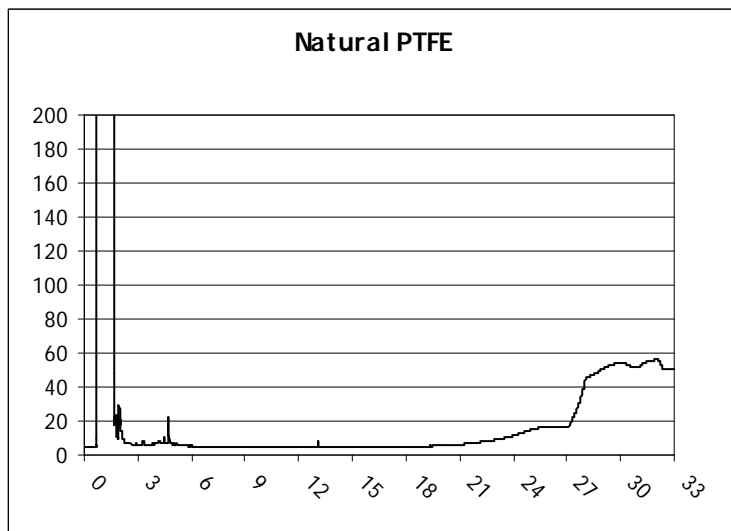
Total peak area was measured to 325°C and yielded the following results:

Sample	Peak Area
Blank	0
Natural PTFE	0
Red PTFE	315

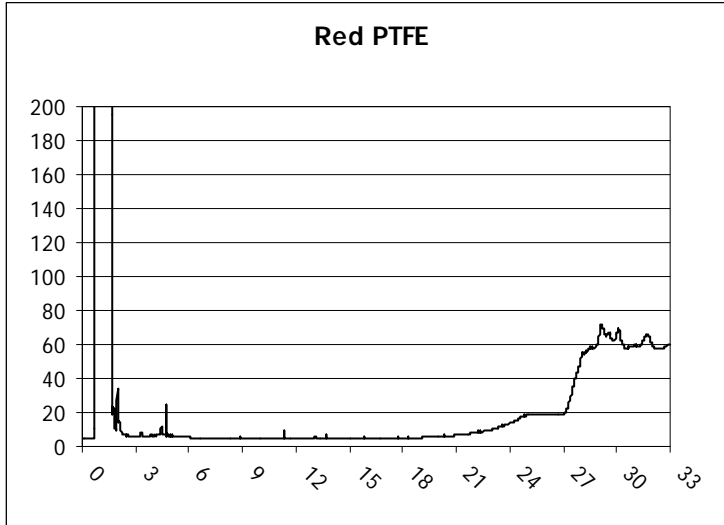
Figure#1 – Blank (total peak area = 0)



Figure#2 –Natural PTFE Sample (total peak area = 0)



Figure#3 – Red PTFE Sample (total peak area = 315)



## Summary

The Total Peak Area illustrates that the Natural (non-pigmented) PTFE shows a value of (0) zero, while the Red PTFE yielded a total peak area of 315. Using lower bleed materials provides truer readings, eliminates another potential error source, decreases sample contamination, and improves productivity.

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