



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.

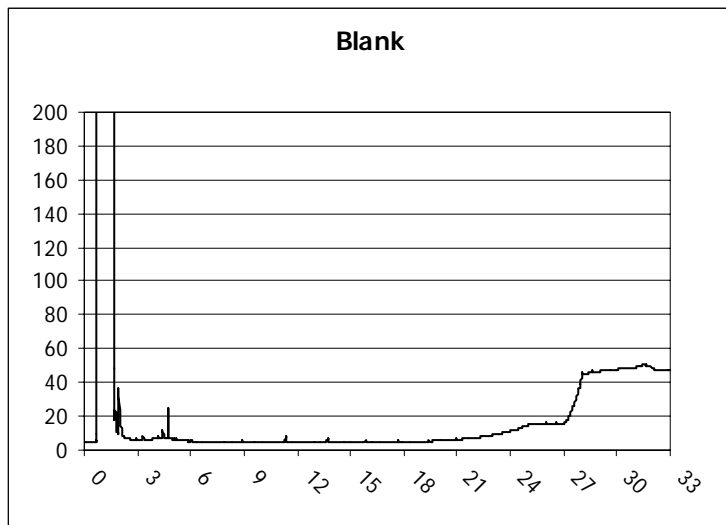
In addition, control blanks were also analyzed for each method.

Results

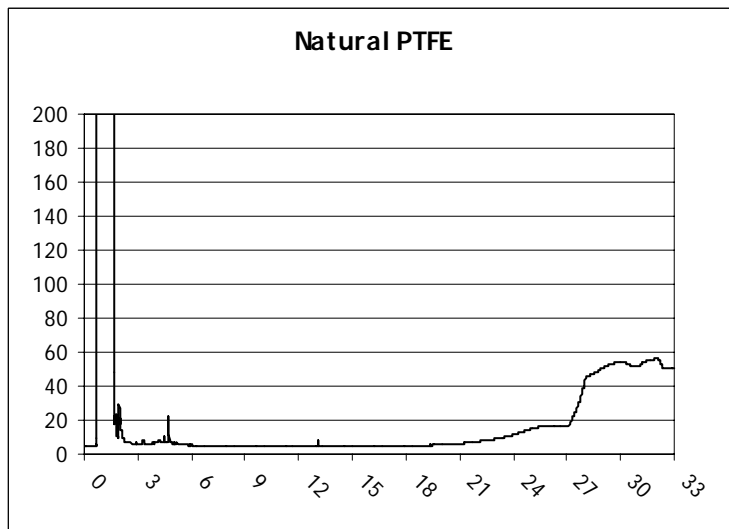
Total peak area was measured to 325°C and yielded the following results:

Sample	Peak Area
Blank	0
Natural PTFE	0
Red PTFE	315

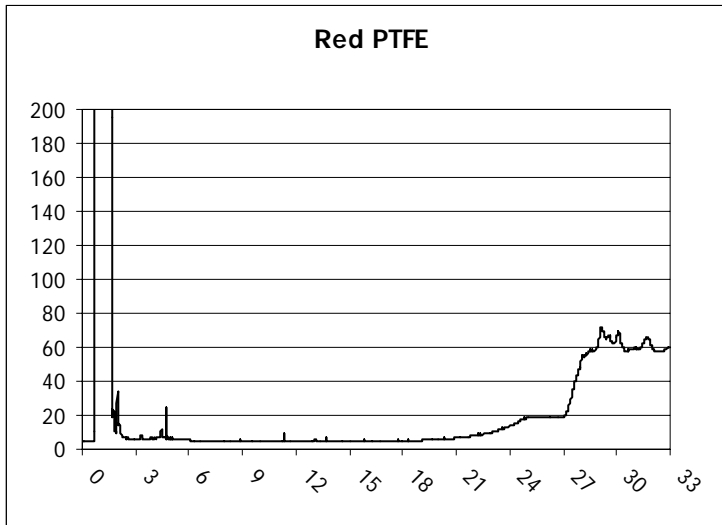
Chart#1 – Blank (total peak area = 0)



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



Chart#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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