

Method Summary:

Static Headspace Analysis (outgassing) is performed by subjecting the Gel-Film sample in a sealed container to a controlled temperature for a fixed period of time. This procedure drives volatile compounds from the sample matrix into the atmosphere above the sample, called the headspace. This procedure is commonly referred to as outgassing. The volatile components are then injected onto the Gas Chromatograph (GC), where they are separated until subsequent analysis by Mass Spectrometry (MS).

Test Standard:

IDEMA Microcontamination Standard M8-98
Determination of Volatile Organic Compounds (VOC) by Static Headspace GC/MS

Test Method and Results:

Gel-Pak proprietary WF/PF X4 film was tested in a sealed glass headspace vial at 28°C for 24 hours. The volatile and semi-volatile components were then analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). The results are summarized as follows:

Compound Detected	Detection time	VOC
Isopropyl Alcohol (IPA)	0.91 minutes	0.70 µg/g
Trimethylsilanol	1.31 minutes	0.06 µg/g

The outgassed components detected were Isopropyl Alcohol (IPA) and Trimethylsilanol, both of which had a detection times less than 2.0 minutes. Components that are detected within the first 12 minutes are considered volatile. Those detected after 12 minutes are considered semi-volatile, and may not completely volatilize.

Results Summary:

Static Headspace Analysis revealed that isopropyl alcohol and a very small fraction of trimethylsilanol were outgassed from Gel-Pak WF/PF X4 Gel-Film.

Analysis performed by Charles Evans & Associates, independent laboratory.