

Method Summary:

Static Headspace Analysis (outgassing) is performed by subjecting the Gel 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 DGL X4 film (DGL Gel-Film is also referred to as "Process B" Gel film material) 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. The results are summarized as follows:

Compound Detected	Detection time	VOC
Isopropyl Alcohol (IPA)	0.91 minutes	1.92 µg/g

The only outgassed component detected was Isopropyl Alcohol (IPA) which had a detection time of 0.91 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 only small fractions of Isopropyl Alcohol were outgassed from Gel-Pak DGL "Process B" X4 Gel material.

Analysis performed by Charles Evans & Associates, independent laboratory.