

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Space Structures 1 - Development and Verification (Space Vehicles and Components) (1)

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NOVEL TECHNOLOGIES AND NEW METHODOLOGY FOR MEASURING THE CONTAMINATION
OF (SEMI) VOLATILE ORGANIC COMPOUNDS FROM MATERIALS AND ENVIRONMENTS.

Abstract

Cleanliness of materials and the environments used in the production of spacecraft has become paramount to obtaining reliable data from missions. Determining the source of contaminants from materials and the effect of the manufacturing environment, as well as determining reliable packaging and storage techniques can be undertaken using novel technologies. The combination of application specific sampling techniques, coupled with thermal desorption-gas chromatograph/mass spectrometry allows trace contaminants to be determined. The advances in technology, specifically the use of Time-of-Flight mass spectrometry now allows much lower detection limits of compounds to be established.

This presentation will explain the sampling and analysis process of both emissions of contaminants from materials using chamber testing, sorbent tube collection, data analysis and the comparisons of different analytical technologies, giving an insight into the advances which will benefit the Space exploration industry. Alongside the determination of out-gassing the presentation will look at determining the effect materials and humans have on the Cleanroom environment, using online continuous monitoring systems.