

3M UK Corporate Analytical Services - Report No 6975

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Subject : **Analysis of 'used' FC-77 – Interim report**

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Background

Three samples of FC-77 fluid were supplied for analysis. The samples were labelled as follows.

- i) 040407 Sample #1
- ii) 040407 Test High Power
- iii) FC-77 from vacuum chamber

Analysis was required to determine if the samples contained any appreciable amounts of hydrogen fluoride (HF) or perfluoroisobutylene (PFIB). Both of these chemicals are known to be extremely hazardous to health.

Analysis Results and Discussion

Each sample was analysed using capillary gas chromatography coupled with a mass selective detector (GC-MS). The chromatograms obtained were searched for characteristic mass fragments of HF and PFIB. No detectable level of either compound was found in any of the samples.

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The samples were re analysed using gas phase FTIR spectroscopy. Again no detectable level of HF was found in any of the samples. It was not possible to use FTIR to measure PFIB levels due to interferences from FC-77.

Conclusions

The analyses carried out show no detectable levels of hydrogen fluoride in any of the samples supplied. The limit of detection for the analysis is estimated at approximately 1.5ppm.

The theoretical rate of production of PFIB is 1000 lower than HF. Any PFIB present in the samples is therefore likely to be present at low part per billion concentrations if at all.