**Written evidence from SOCOTEC Asbestos Ltd (ASB0004)**

SOCOTEC Asbestos Ltd is a UKAS-accredited surveying and testing organisation which employs 180 staff in the asbestos management field. We deliver asbestos compliance services across the UK to a wide range of clients in various sectors, including MOD, retail, transport and the public sector. We are submitting evidence to the enquiry to highlight the technology gaps within the asbestos monitoring sector.

Q. Is HSE making best use of available technology and systems to monitor the safety of asbestos that remains in buildings?

As there is no known lower dose threshold for mesothelioma, all occupational exposures present a risk of developing mesothelioma. The Control of Asbestos Regulations 2012 (CAR 2012) require employers to prevent exposure or to reduce it to the lowest level reasonably practicable.

CAR 2012 Regulation 4 Duty to Manage provides the key regulation for managing asbestos within buildings, with the accepted premise that asbestos containing materials that are in a sound condition can remain in-situ. The CAR requires the asbestos consultancy industry to use the HSE clearance indicator of 0.010 f/ml as the limit at which normal occupation inside a building is deemed acceptable. This is not the safe level, but the level at which the phase contrast microscopy (PCM) technique for air monitoring can provide a reliable result. Following asbestos removal, UKAS-accredited organisations undertake the 4 Stage Clearance process and air monitoring to provide reassurance that residual fibre levels are below 0.010 f/ml or 10,000 fibre /$m^3$. The PCM method determines total fibre concentration and is not capable of determining asbestos fibre concentration.

The alternative analytical methods available and currently used in Europe include scanning electron microscopy (SEM) and transmission electron microscopy (TEM). These methods both have the capability of determining the asbestos fibre concentration to a lower limit of quantification.

The newly revised and published Health and Safety Executive document *HSG 248 The Analysts Guide 2021* outlines the test method for PCM analysis and states in A4.1 that *The determination of airborne fibre concentrations on filter material by light microscopy is subject to many errors, making the method one of the least accurate analytical techniques in the occupational and environmental fields.* Determining fibre concentrations in air using PCM has considerable time advantages and cost savings when undertaken on-site compared to SEM/TEM, which requires filters to be returned to a laboratory for analysis.

The established background level of asbestos fibre within buildings is acknowledged to be at a level of 0.0005 f/ml. With exposure to asbestos required to be kept to as low as reasonably practicable, how can the asbestos analytical industry provide reassurance that exposure to asbestos in buildings containing asbestos will be as low as reasonably practicable when fibre levels between the clearance indicator (0.010 f/ml) and the background level (0.0005 f/ml) cannot be accurately measured?

SOCOTEC has been involved in an air monitoring project to assess the spread of asbestos contamination within buildings for a client to provide testing down to background levels, providing reassurance that building occupants are not being exposed to asbestos. This is undertaken to firstly establish the spread of asbestos contamination so that remedial action can be taken and prevent employees' exposure to asbestos, but also to demonstrate that employees are not being exposed to elevated levels of asbestos above background levels.

The air monitoring strategy involves running sample pumps for longer durations to enable a lower limit of quantification on the air test by PCM. Air monitoring filters are also sent for SEM analysis to enable the discrimination of fibres on the filter to provide confirmation as to whether asbestos fibres are present.

HSG 248 Asbestos: The Analyst Guide (2021) does provide guidance on the use of alternative analytical techniques including SEM and TEM for fibre discrimination in conjunction with standard PCM testing. However, an opportunity has been missed in terms of improving analytical methods and a move towards TEM/SEM and lower limits of detection as seen in France, Germany and Netherlands.

At present, a gap exists within the asbestos testing field where alternative technologies exist which would be better suited to monitoring at lower levels of detection. Further guidance is required to all duty holders under CAR Regulation 4 on the future requirements for assessing asbestos risk in buildings by undertaking air monitoring at lower limits of detection.

***September 2021***