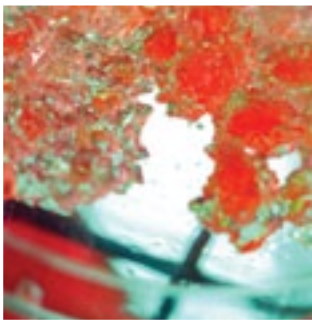
IOM

WORKING FOR A HEALTHIER FUTURE

Lab Services



Why Use the IOM Lab?

The IOM lab will provide you with high quality analytical results, at competitive prices and within the timescales you require. We tailor our services to assist you in managing your or your client's specific workplace or environmental risks.

Our broad range of in-house measurement capability combined with our can do approach to problem solving enables us to provide specialist analysis and investigations that other laboratories are unable to support.

IOM is a leading international provider of health and safety solutions to industry, commerce, public sector and professional bodies. IOM Lab clients have ready access to specialist advice on risks associated with hazardous substances in the workplace and wider environment.

The IOM Lab
Helping you deliver excellence

The IOM Lab is a UK leader in the provision of analytical services to support workplace and environmental monitoring. Our well equipped facilities enable us to undertake a wide range of chemical and mineralogical analysis. In addition to providing routine analysis we have more than 40 years of experience of undertaking more complex investigations and supporting IOM research. Whereas many analytical laboratories only provide routine analysis, we are able to:

- Design and undertake laboratory tests that are predictive of real life exposures (e.g. release of chlorine gas during product use or leaching of metals from a component)
- Undertake research to develop new sampling and analytical methods.

Through the prompt provision of reliable measurement data we help all types of organisations in all sectors manage the risks from chemicals, asbestos and dust.

IOM has an international reputation for excellence in our research, services and consulting across all industry sectors from high technology to heavy industry. An understanding of workplace health is critical to every business and IOM can provide a wide range of expertise that will ensure your organisation is at the forefront of good practice as we work together for a healthier future.

Lab Services
A UK Leader in our Field

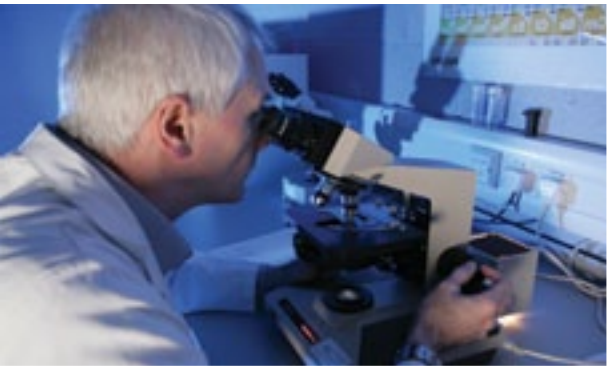
Reliable laboratory analysis of workplace and environmental samples is a crucial component of managing people's health and safety in the workplace and wider environment. Our services support workplace monitoring for hazardous substances, asbestos surveys, site investigations, environmental monitoring and product quality assurance. The IOM lab offers a diverse range of analytical expertise that can help you to determine what people are being exposed to and the size and significance of the exposure. We can also assist you in the design of your sampling strategy and in the interpretation of results. Our standard turn-around time is two weeks with premium services available when time really matters. Contact us to find out how we can help you.

At the heart of our Lab Services we specialise in:

- Bulk asbestos ID
- Fibre counting by optical microscopy
- Dedicated lab for asbestos in soils and aggregates
- GC (BTEX, other hydrocarbons)
- GC-MS (PAHs, PCBs, freons, etc)
- ICP-OES (metals, elemental analysis)
- HPLC (isocyanates, aldehydes, hdryazine etc,)
- Ion chromatography
- SEM (asbestos, other fibres, dusts)
- Microbiology laboratory
- PPE suit testing lab: Type 3, 4, 5 and 6 suits

n.b. All routine laboratory work is covered by our ISO 17025 accreditation.

We pride ourselves in providing our clients with high quality and excellent response-based lab services. This is only possible because of our experienced, committed and conscientious staff. All have been through the IOM's intensive training requirements and operate within our tight UKAS Accredited quality systems. The combination of good experience, industry qualifications and IOM training provides our clients with assurance of integrity of results and service.



1. Asbestos and Other Fibres

Asbestos in bulk materials and soils

Asbestos in bulk materials and soil: The IOM has one of the UK's largest teams of experienced asbestos analysts. We developed and pioneered methods of quantitative analysis for asbestos in soils and other bulk materials such as vermiculite. We provide advice on sampling strategy and interpretation of the results and also undertake site investigations and risk assessments.

Fibre counting and SEM

We provide optical fibre counting to support routine workplace monitoring in facilities where exposure to MMMF is possible and for asbestos in air. Our scanning electron microscope (SEM) enables us to quantify asbestos in air, water or wipe samples. This is particularly important where many fibres are present but few are likely to be asbestos such as in schools where most fibres originate from clothing. The SEM is invaluable for samples of ambient or indoor air where the anticipated fibre levels are low. It also enables us to undertake discriminatory fibre counts such as RCF versus MMMF and fibre sizing.

We have UKAS accreditation for the analysis of asbestos in bulk materials, soils and aggregates and for the quantification of asbestos in soils and aggregates. We also have accreditation for optical fibre counting and analysis of filters and wipes for asbestos by SEM.

2. Dust and Crystalline Silica

Dust monitoring often plays a key role in managing workplace exposures to hazardous substances. We undertake gravimetric analysis of dust samples which can then be further analysed for other substances. Quartz and other crystalline silica phases cause serious lung disease and are widely present in dusts associated with quarrying, construction work and other workplace environments. We can analyse for crystalline silica using X ray Diffraction (XRD), if there is a likelihood that quartz and/or high temperature silica phases such as cristobalite may be present (e.g. refractory products), or by infrared spectroscopy (IR) if quartz is the silica phase of interest (e.g. quarrying, stone masonry).

Our scanning electron microscope (SEM) can be used to examine dust constituents at high magnification which when combined with elemental analysis by EDX can enable us to help clients identify specific dust sources such as cement dust or aluminium salt from a local stack. SEM can be a powerful tool in the identification or elimination of potential dust sources causing nuisance in the general environment or concern in work and other indoor environments.

We have UKAS accreditation for the gravimetric analysis of dust on filters, crystalline silica by XRD and quartz by IR.

3. Metals, Acid Anions, Acid Gases

Metals are associated with a wide range of adverse health effects and are present in the work, home and outdoor environment. We provide analysis of metals such as lead by ICP-OES in samples of workplace and ambient air, soil, paint, water and other bulk materials. This includes collection and analysis of lead in samples of tapwater to meet building regulation requirements for new builds. We also offer analysis for hexavalent chromium.

We use ion chromatography to analyse for common acid anions and gases including hydrochloric, hydrofluoric, nitric and sulphuric acid as well as gases such as nitrogen dioxide and ozone.

We have UKAS accreditation for the analysis of a wide range of metals and for acid anions.

4. Solvents and Other Organic Chemicals

We provide analysis by gas chromatography (GC) for VOCs in workplace samples, other air samples, soil, fluids and in headspace. We undertake quantitative analysis for total VOC levels and a wide range of specific substances and mixtures such as white spirit or resin acids. We use high performance liquid chromatography (HPLC) to analyse for isocyanates, hydrazine, formaldehyde and other aldehydes.

Where there is uncertainty about the compounds present, we can use gas chromatography in combination with mass spectrometry (GC-MS) to identify the major substances and follow this up with quantitative analysis, where appropriate. This is particularly helpful where there is an indoor air quality issue and an "unknown smell" that is giving rise to anxiety about possible health effects.

We also use the GC-MS to analyse for freons (refrigerant gases), polyaromatic hydrocarbons (tars), polychlorinated biphenyls (PCBs), acetic anhydride, organic lead, some pesticides and other specific substances such as some lubricants.

We have UKAS accreditation for frequently requested analytes: benzene, toluene, ethyl benzene, xylene, chlorinated solvents, formaldehyde, resin acids and isocyanates.

Our chemistry team will be pleased to discuss your particular sampling and analytical requirements and help you to find the most cost effective approach to investigating workplace exposures or air quality issues. We can provide appropriate sampling media and pumps for hire, if required.

5. Pharmaceuticals

We have developed and validated analytical methods for occupational hygiene samples for over 30 pharmaceutical actives including thiamine hydrochloride, taxmoxifen citrate, tacrolimus, pioglitazone hydrochloride, hydrochlorothiazide, candesartan cilexetil, tamsulosin, famotidine, solifenacin succinate, S-isoquinoline, R-modafinal, mirabegon, spironolactone, ethinyl oestradiol and norethisterone.

The validation process includes identifying appropriate sampling media and efficiency of recovery, sample stability, detection limits and analytical uncertainty.

We also provide routine analysis of occupational hygiene samples for substances for which validations have been undertaken as well as providing analysis for a wide range of other substances used in the pharmaceutical industry.

Related services include occupational hygiene monitoring and the provision of advice on in-house occupational exposure limits (OELs) for the pharmaceutical industry.

6. Microbiology

In May 2011 IOM opened a dedicated Microbiology laboratory to support the testing and validation of specialised healthcare ventilation systems. Airborne samples from operating theatres and other specialised healthcare premises, are collected using the Casella slit sampler and SAS air sampler, and are transferred to the laboratory at our Stafford office for analysis. Having our own laboratory means we can provide reliable results in a timely fashion, enabling us to achieve faster turnaround times for our reports to clients.

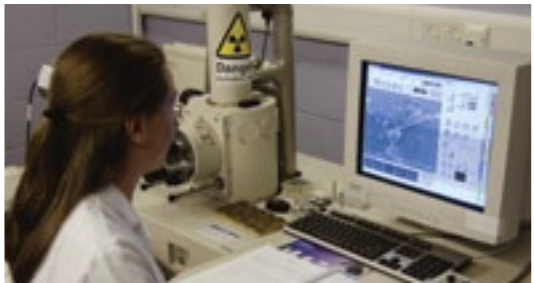
Other services include:

- Basic identification of bacteria to genus level.
- Identification of moulds to species level using colonial and microscopic structure.
- Enumeration of total count, moulds, Gram negatives, E. coli and Staphylococcus from swabs.
- Bio-aerosol analysis, enumeration of total count, moulds, thermophillic Aspergillus, gram negatives, S. aureus, E. coli and Salmonella from filters (either from personal IOM sampling heads or from heads mounted to sample at composting sites).

7. Testing of Chemically Protective Suits

We test the effectiveness of chemically protective suits for manufacturers of protective equipment and also for major users against the relevant UK and international standards. Our results are used as the basis of certification (CE marking) and are also used to assist in product development, as part of regular quality assurance testing by manufacturers and for reassurance of user industries. Our service includes advice on the standards and clauses required, clear specifications, liaison throughout the test programme and agreed schedule of delivery through to reporting. Our testing to the appropriate UK and European standards is fully accredited by UKAS. The tests that we offer are:

- Practical performance testing and total inward leakage testing for protective clothing, ventilated and non-ventilated (Type 5) to European Standards ISO 13982 (parts 1 & 2), EN943 (part 1) and ISO 1073 (parts 1 & 2). Please note that a few tests contained within these standards are not covered by our UKAS accreditation
- Determination of the resistance of Types 4 and 6 chemical protective clothing to penetration by a liquid spray to EN 1749-4 (Spray test)
- Determination of the resistance of Type 3 chemical protective clothing to penetration by a jet of liquid (jet test) to EN 1749-3



IOM – working for a healthier future across a wide range of workplace health needs.

- Occupational Hygiene
- Occupational Health
- Lab Services
- Safety of Nanomaterials
- Environment and Public Health
- Human Factors & Ergonomics
- Specialist Hospital Ventilation
- Expert Witness Services
- Research
- Asbestos in Soils
- Training

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