



International Seminar for Filter Testing & ISO Standards

by Dr. Graham Rideal,
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Incorrect filter specification can result in expensive down times

Since its inauguration over 40 years ago, the Filtration Society has been organising technical meetings to review the most recent developments in all areas of filtration. Initially, the conferences were held in the UK, but as the technology of filtration rapidly expanded internationally, it became necessary to establish sub-groups or chapters in many other countries. Today there are members of the Society in 26 countries.

It soon became apparent that even bigger conferences were required to cover the new discipline, formerly embodied within Engineering or Physics/Chemical professional organisations. So a few years after the formation of the Filtration Society, Filtech was born, which now presents almost 200 papers over 3 days and is usually held in Germany every other year. There is also a World Congress, which circulates internationally and is held every 4 to 5 years.

Focussed seminars

The concept of one-day seminars introduced by the Filtration Society soon became very popular because they dealt very succinctly with highly relevant subjects. For example, the last two years featured topics such as New Developments in Filter Media, the Latest Filtration Technologies, Environmental Issues and Increasing Profits by Improving Efficiency, and one of the most popular: Filter Testing related seminars.

One day seminars within the USA have also been very successfully organized by the various chapters of the American Filtration and Separation Society. In addition the AFSS itself also organises two major events every year that also draw significant numbers of international visitors.

Pore size - would you believe it!

Of all the speciality subjects featured, the most popular for the Filtration Society has been on Filter Testing, especially when held in conjunction with an exhibition. This is hardly surprising given some of the non scientific hyperbole spouted by some salesmen in an attempt to clinch a deal; one of the worst example of which was the recommendation

to one client to buy 40 micron wire mesh and wrap it round twice to produce a 20 micron pore size filter tube. Unbelievable, but true!

By way of balance, it must be said that the technical background of salesmen today has never been higher. Having first class data on filtration performance can only assist in helping them sell quality filtration products.

The cost of getting it wrong

Another, even more commercially disastrous error was in the selection of inappropriate sand screens in offshore oil rigs. It costs about \$20 million to drill up to 10 kilometres under the seabed to reach the oil seams. If the stainless steel mesh designed to prevent the pumping of sand through the pipelines has apertures that are too small, the system irreversibly blocks or 'plugs'. Seven oil rigs in the South China Sea systematically plugged at a cost of \$140 million.

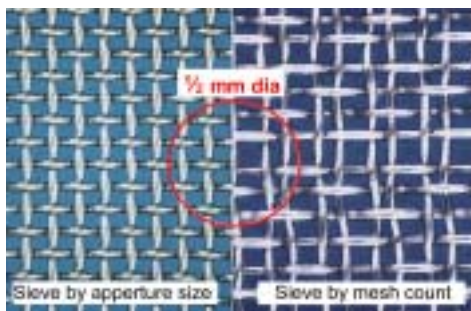
Sometimes there have been problems of overoptimistic labelling of filters. For example, one air filter had been historically labelled as 5 microns without any real scientific back up. As the ISO standard was being updated, more advanced methods of pore size determinations could be applied. When challenged with a new range of precision glass microspheres recently, the 5 micron air filter was found to have pore sizes up to 140 microns. This has caused enormous problems in writing new ISO standards.

Filter testing and ISO standards

For all the above reasons, and many more besides no doubt, the last 4 or 5 years has seen great interest expressed in the Filtration Society's

series of one-day Filter Testing Conferences and Exhibitions.

The last meeting, held in Runcorn in the UK in 2004 attracted over 100 delegates from 7 countries who heard 9 lectures and 10 poster presentations of 5 minutes. It was notable that, such was the interest in the subject that over 40% of the delegates were not members of the Filtration Society. The 24 stand exhibition was also a great success as it gave delegates hands-on experience with many of the new technologies.



Two wire meshes with the same wire count or mesh number – large variation in aperture sizes (Courtesy of G Bopp)



Whitehouse Scientific sieve calibration beads give NIST traceability



Challenge testing of filter media using the Gilsonic filter tester

The high concentration of 'Testing specific' papers equalled that of any major international conference, including the World Congress. It is hardly surprising therefore that Dr Christophe Peuchot of IFTS France along with several other European contributors regard the conference as 'the foremost of its kind in Europe'.

The Filtration Society is fortunate in that the council is comprised of many experts in the field who also are instrumental in the writing of new ISO standards. It seemed fitting therefore that the next one-day 'Testing' conference should be aligned to new and developing ISO standards.

Main lectures

In the next conference in October this year, equal emphasis will be placed on liquid and air filtration and the meeting will begin with reviews of the relevant ISO standards by Christophe Peuchot of IFTS



A new air filter tester revealed 140 micron pores in a nominal 5 micron filter

(France) and Steve Smith of Parker from the UK.

The remaining four sessions will deal with Aerosol Testing, Challenge Testing, Pore Metrology and a Poster Session.

Two very interesting lectures will then be given by German presenters, the first from Martin Schmidt of Palas will describe the latest developments in measuring pore sizes down to the submicron region based on precision laser technology measuring systems.

Christian Peters of Topas will similarly discuss Aerosol testing but will extend the presentation to include specially designed test rigs to comply with a number of ISO test methods.

Both the above presentations can be described as challenge test methods in that a cloud of particles or oil droplets is generated above the filters and drawn through by an air flow across the filter. Particle size measurements before and after passing the filter are then used to measure the pore sizes.

The Aerosol challenge test method is an extension of a much more traditional form of challenge testing. In its original form, challenge testing involved the presentation of particles to a filter either as a dilute suspension or as a dust cloud. It can therefore be used both in liquid and air systems.

Ron Buxton of Particle Technology (UK) will discuss the preparation and use of test dusts in filter testing from laboratory scale to large scale applications such as military vehicles where poor filter selection can cause helicopters to drop out of the sky and tanks to grind to a halt in minutes when used in desert conditions.



A pore size distribution instrument from PMI

Although not in the same life or death category of importance, Whitehouse Scientific will address the development of new challenge test microspheres that have solved the commercially disastrous consequences of using the wrong sand screens in oil extraction from the sea bed. The new high speed sonic method has been extended to measure pore size distribution as well as cut points and is currently being written into a number of new standards.

In the final session, Patrice Hellibaut of PMI will present the latest innovations in Porometry and Porosymmetry where variations on the original bubble point method now reveal details not only on pore size distribution but information on the shape of the pores.



Thrust. Are you using the fastest vehicle for filter

Poster success

In addition to the main speakers, the 5 minute poster presentations have become a very popular feature of the 'Testing' series of conferences. This year there are some exciting posters including Nanosight and CPS who specialise in nanoparticle measurement, GT Vision and Carl Zeiss will describe their filter paper contaminant measurement systems and precision filter meshes will be discussed by G Bopp and Tecan. For full details of the latest posters to be submitted, see www.filtsoc.com.

The bound notes given free to all the delegates have proved to be a very useful reference source. They can also be purchased by anyone unable to attend the event.

The exhibition as usual very well supported. At this stage there are only a few table top displays left.

The venue

Last but not least is the venue – the Coventry Transport Museum, which is readily accessible by car, train or 'plane. Nominated in several categories this award winning venue will give delegates free access to vehicles from the very early cars at the turn of last century to 'Thrust' the world's first supersonic land speed record holder. All meals and refreshments are included in the registration fee.