

ExIS Newsletter, March 2011

Preamble

The breaking news in this issue of ExIS newsletter is the approval of the Grimm EDM 180 instrument in Sweden and the seminar organised to present this instrument. Deliveries of Dekati ELPI+™ and Pegasor PPS-M instruments have started. In this newsletter, we also provide an extensive list of product news from our partners.

Headlines

Grimm EDM 180 approval in Sweden

The Grimm EDM 180 instrument is now approved for measurement of PM₁₀ and PM_{2,5} particles in ambient air. This instrument provides real-time measurements compared to the reference method, which is based on gravimetric measurement on sample filters. Thus, a significant simplification of the measurements is enabled and additional data on smaller particles can be provided. On March 24, Grimm and ExIS organize a [seminar](#) (free of charge) to present this instrument. [Seminar registration](#).

IONER

In co-operation with Dekati, ExIS now represents the Spanish Instrument manufacturer IONER in the Nordic countries. ExIS represents IONER in Denmark and Norway and Dekati is responsible for Finland and Sweden.

First deliveries of the Pegasor PPS-M sensor

The first deliveries of the Pegasor PPS-M instrument have been made.

Product news from Control Sistem

Control Sistem has launched an updated driving robot for chassis dynamometer testing, DREAMS, and adds an option for the Micro-PSS to comply with the US EPA 40 CFR 1065 regulation.

Product news from Dekati

The first deliveries of the new Dekati ELPI+™ instrument have started. More accessories are in the pipeline. Good results with the DMM instrument have been achieved in the PEMS measurement programme on particle emissions.

Product news from Grimm Aerosol

The Grimm Nanocheck instrument for measuring nanoparticles has been improved with 8 channels of size distribution and extended size range. Starting last year, new LabView-based software is step-by-step being introduced for Grimm instruments.

Product news from Matter Aerosol

The DiSCmini, which is now launched, is a handheld instrument for measuring nanoparticles. The size range is from 10 to about 500 nm. A couple of improvements and price cuts on the rotating disk dilution system are introduced.

Product news from Topas

A new optical particle size spectrometer from Topas, LAP 322, offers an extended range (0,2 to 40

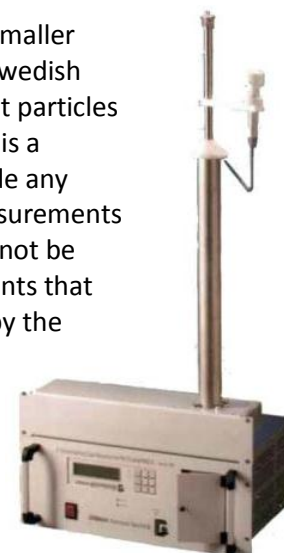
µm) compared to the previous instrument. A new dilution system for very high dilution ratios (from 1:100 to 1:100 000) is introduced. For measurement in blow-by gases from engines, Topas offers the PAP 612, an optical instrument, and GMS 141, a gravimetric measurement system for engine blow-by gas measurements.

Conferences, exhibitions and workshops

The next event this spring will be the Grimm [seminar](#) about the EDM 180 instrument. An update on other conferences and exhibitions during 2011 is also provided.

Grimm EDM 180 approval in Sweden as an equivalent method of measuring PM₁₀ and PM_{2,5}

So called “reference methods” for sampling and measurement of particles smaller than 10 and 2,5 micrometres respectively (PM₁₀ and PM_{2,5}) according to Swedish and EN/ISO standards (SS-EN 12341:1998 and SS-ISO 10473:2000) imply that particles pass through a selective inlet and are collected on a filter for weighing. This is a labour-intensive and complicated method that, in addition, does not provide any opportunity for real-time measurements. In order to achieve real-time measurements of PM₁₀ and PM_{2,5} (and other size classes), gravimetric measurements cannot be made but other measurement principles must be used. Therefore, instruments that do not use the reference method are classified as an “equivalent method” by the Swedish Environmental Protection Agency (SEPA). In order to obtain an approval for an instrument as equivalent method, comprehensive correlation measurements and documentation of the results are necessary.



Our partner Grimm Aerosol in Germany has developed an instrument, “Environmental Dust Monitor” (EDM 180 and similar instruments in this family), which previously has obtained approvals for measurement of air quality in several countries in Europe and North America. Based on an assessment conducted by the Reference Laboratory for urban air at the Department of Applied Environmental Science at the Stockholm University, the Swedish EPA is now recommending the EDM 180 as an equivalent method to the reference method for control of environmental quality norms for ambient air according to NFS 2010:8.

In order to introduce this measurement technology to the users, ExIS will organise a seminar in Älvsjö on March 24. The seminar is free of charge. Read more about this seminar and [register](#) under the section about [conferences, exhibitions and workshops](#) below.

[Recommended instruments \(in Swedish\)](#)

[Recommendation from Swedish EPA \(in Swedish\)](#)

[EDM 180 brochure](#)

[EDM Catalogue](#)

[Invitation to the Grimm PM₁₀ & PM_{2,5} seminar](#)

IONER

IONER (ION Explorer by Ramem) is a Spanish company who provides advanced equipment for particle measurements. ExIS now represents IONER in Denmark and Norway. IONER is represented by Dekati Ltd in Sweden. The product portfolio of IONER includes optic instruments, electrometers, control equipment, chargers and aerosol generators.

One very specific instrument from IONER is the X2 “sniffer” instrument ION-DMA instrument for detecting Volatile Organic Compounds (VOCs).

[IONER home page](#)



First deliveries of the Pegasor PPS-M sensor

During the autumn 2010, ExIS has demonstrated the PPS-M sensor at many laboratories. The high sensitivity and unrivalled fast response was two of the features appreciated most during demonstrations. At end of 2010 and early 2011, the first deliveries of the PPS-M sensor to end customers were made. Other orders are in the pipeline. On Continental Europe, the PPS-M sensor has been even more successful.

For those of you who are interested, we will continue with demonstration during spring 2011. Contact us on [e-mail](#) or phone (+46-73 944 34 01) to schedule a demonstration.

Several accessories are in the pipeline. Most important is probably the external dilution. Dilution is useful for high concentrations and to extend the time between cleaning in on-board applications. Other versions of the PPS-M sensor for, e.g. smokestack applications and occupational environment will follow later.



Product news from Control Sistem

Updated driving robot – DREAMS

The driving robot, DREAMS (Driving Robot EASY Movable System), for chassis dynamometer testing from Control Sistem has been updated in the 02.1 version. Most of the new features are in the software, enabling better control of the driving style with improvements also of the user friendliness. Many smaller mechanical improvements have also been made. Note that a couple of videos showing the DREAMS in operation are now available from the Control Sistem website.

[DREAMS brochure](#)

[More DREAMS documentation at Control Sistem home page](#)



Micro-PSS now compliant with US EPA 40 CFR 1065

We are now proud to inform you that the Micro-PSS can now be ordered in a version that is fully-compliant with the US EPA 40 CFR 1065 regulation. This feature is very important for manufacturers of marine engines, which implies that Micro-PSS can now be used for EPA certification. Micro-PSS is the only system available for practical use in on-site measurements.

We have previously updated you on the progress in developing the Micro-PSS for future EU regulations for on-board measurements. We will update you on the latest test results conducted at JRC and other laboratories in our future newsletters.

[Micro-PSS brochure](#)

[Micro-PSS description](#)



Product news from Dekati

First deliveries of ELPI+

The first deliveries of the new ELPI+™ instrument from Dekati are now made or in progress and, among them, two instruments for customers in Sweden.

Most of the accessories for the “classic” ELPI™ are also available for the new ELPI+™ and new or modified accessories are in development. Improved sintered collection plates and a heated impactor setup are next items. Scheduled software improvements are: data inversion (providing increased number of size channels via interpolation) and automatic particle density measurement. A much appreciated feature for the automotive industry is communication with the test cell host computer via the AK protocol.

The ELPI+™ is based on the same operating principle as the previous ELPI™ instrument and can be divided into three major parts: particle charging, size classification in a cascade impactor and electrical detection with sensitive electrometers. The result is particle number concentration and size distribution in real-time (up to 10Hz).

More information about ELPI+™ is available in the following documents.

[ELPI+ brochure](#)

[Dekati newsletter about ELPI+](#)



Good results with DMM in PEMS PM programme at JRC

In-use emissions testing and Portable Emissions Measurement Systems (PEMS) are ultimately aiming at improved emission legislation. So far, the research programme led by the Joint Research Centre (JRC) laboratory of the European Commission has shown that the standard type approval procedures and test cycles do not necessarily reflect the real-world operation patterns and consequently the

related emissions. Within the framework of this programme, a number of instruments are currently tested.

Good results with the Dekati DMM-230b instrument have been shown in the preliminary third phase of testing. In fact, DMM had *best accuracy* against the gravimetric filter method out of all tested instruments, including AVL (against elemental carbon) and Horiba. This is fully in-line with previous test campaigns, for example, in Switzerland (EMPA) and in the E-66 programme in the USA (CRC), where DMM has also excelled against the competition. The main reason behind the success of the DMM instrument is that it measures *particle density* on line, a feature that no other instrument can match. After the successful results, JRC is now considering to purchase a DMM instrument with corresponding dilution system for measuring particles directly in the tailpipe.



A much appreciated feature for the automotive industry is the AK protocol that enables operating the DMM instrument directly from host computer in the test cell.

The documentation from the tests mentioned above is not available yet but we will keep you informed about the results as soon as we have them. In the meantime, we can hint you to results from the previously mentioned test campaigns.

[Dekati summary of EMPA PMP](#)

[EMPA PMP report](#)

[Dekati summary of CRC E-66](#)

[CRC E-66 report](#)

Product news from Grimm Aerosol

New Nanocheck # 1.321

An improved version of the Grimm Nanocheck instrument (# 1.321) has been launched. While the “standard” Nanocheck instrument (# 1.320) version has provided total number concentration, mean particle diameter and (optionally) active surface area, the new version will also provide 8 channels of size distribution. The size range has also been expanded towards 12,5 nm size particles (# 1.320: 25 nm). The concentration range is from 500 to $> 10^7$ particles/cm³. By combining the new Nanocheck with the Grimm optical spectrometer, both technologies provide a particle size spectrum from 12.5 nm to 32 µm in 39 different size ranges.



New software

Beginning last year, Grimm is now (step by step) updating software for their products. The new software is based on the LabView® software platform. Currently, new software is available for the Indoor Air Quality (IAQ) family of instruments and CPC/SMPS instruments, while new software for other instruments (e.g. EDM, FAPES etc.) will follow later. The new software offers several enhancements and is much more user friendly.

Product news from Topas

Improved LAP 322 spectrometer

The Topas LAP 322 particle size spectrometer is a further development of the proven LAP 321 instrument and replaces the latter mentioned one. The new LAP 322 has an extended measurement range; i.e. the lower limit is now 0,2 μm (0,3 μm for LAP 321) and the upper limit is 40 μm (30 μm for LAP 321). The maximum number of size channels is 128.



[LAP 322 brochure](#)

Dilution system for very high dilution ratios

The new dilution system HDS 561 provides a reliable and very high single stage dilution. Furthermore, it is adjustable, ranging from 1:100 to 1:100 000. It can be customized for flow rates from 2,8 to 100 l/min. The pressure drop is very low. This dilution system is particularly suited for clean room validation but will work also in many other applications.

Measurements in blow-by gases

For measurement of crank case blow-by gases from combustion engine, Topas offer both fully-equipped test rigs and instruments. Two new instruments have been added to their selection of blow-by instruments.

The PAP 612 is a combined in-line extinction and scattered-light photometer (ES) with double-running test sections and two wavelengths, which can operate in over or under-pressure. The device is primarily designed for investigations of crankcase ventilation systems on combustion engines. Due to its compact design, PAP 612 can even be used for on-board measurements.



GMS 141 is a gravimetric measurement system for measuring oil content in blow-by gases. The filter box can be heated to avoid condensation. The measuring device combines a simple and rugged assembly with an economic low-cost manual application and handling. Control is made via a web browser.

[HDS 561 brochure](#)

[GMS 141 brochure](#)

[PAP 612 brochure \(not yet available\)](#)

Product news from Matter Aerosol

DiSCmini

There is an increasing awareness of the correlation between nanoparticles and health effects. The "Diffusion Size Classifier" or from Matter Aerosol has been development for this application.

DiSCmini is a portable sensor for the measurement of particle number and average diameter with a time resolution of up to 1s (1Hz). The simultaneous capture of number concentration and particle size allows the specification of other characteristic parameters, such as the particles surface (Lung

Deposited Surface Area, LDSA). This technology is not only available in a handheld version but also as a robust desktop unit (DiSC). In both versions, the battery life of is up to 8 hours, data can be recorded on a memory card and transferred to an external computer via USB cable. DiSCmini is particularly efficient for personal exposure monitoring in working environment with exposure to e.g. diesel soot, welding fumes and industrial nanomaterials.

The DiSCmini is based on the electrical charging of the aerosols. Positive air ions generated in a corona discharge are mixed with the aerosol. The charged particles are then detected in two stages by electrometers. The first detector stage is a pile of steel grids, small particles will preferably deposit on it by diffusion. The second stage is a high efficiency particle filter which captures all the other particles. The mean particle size can be obtained by analysis of the two currents measured on the stages. The size range is from 10 to about 500 nm.



MD19-3E rotating disk diluter

The new block/disk materials for the rotating disk dilution systems introduced almost two years ago drastically decreased the downtime between maintenance. We would now also remind our current and new customers about the calibration and maintenance package that is available at an affordable price (please ask for a quotation). The yearly package includes the exchange of all the consumables and a new calibration. The calibration & maintenance package can be ordered on new equipment or for any instrument in use. It should allow the customer to run the instrument for 12 months or 1 000 hours without worrying about exchanging consumables. The downtime due to calibration is also overcome.

For customers in the automotive industry, we can now also provide the much appreciated feature of enabling communication with the host computer in the test cell via the AK protocol.

A drastic price reduction of the cyclone has been possible due to changes in supply chain and production methods. Likewise, the cost of the filter for the ASET (Active Dilution Air supply with Evaporation Tube) has been reduced.

Conferences, exhibitions and workshops

Grimm seminar about ambient air measurements of PM₁₀ and PM_{2,5}

The "Environmental Dust Monitor" (EDM 180 and similar instruments in this family) from Grimm Aerosol has been approved as an "equivalent method" to the gravimetric method for measuring PM₁₀ and PM_{2,5} in ambient air quality by the Swedish Environmental Protection Agency (SEPA).

Together with Grimm we will organize a seminar on March 24 to present this measurement system. Main lecturer will be Wolfgang Brunnhuber, who is responsible for this product field at Grimm. The seminar is free of charge but we would like you to register to facilitate easier planning for the seminar. An invitation with a detailed programme and registration is available via the links below.

[Invitation to the Grimm PM₁₀ & PM_{2,5} seminar \(in Swedish\)](#)

[Seminar registration.](#)

Grimm webinars in 2011

We would like to hint you towards an interesting way of user training on Grimm products. This is Grimm's Web Seminars, or "webinars". Webinars is a very cost-effective way for collecting information compared to "normal" seminars, since no travel costs are involved. You will find information at the Grimm homepage about these webinars. The last webinar was held on February 23 and was about the new software (1.377) for Nanocheck and optical spectrometers. More webinars will be posted later on the website with relatively short notice, so please check frequently. You will need to install Skype on your computer to follow a webinar. Registration at the Grimm home page is also required. Participation in Grimm webinars is free of charge.

[Grimm webinars, schedule](#)

[Grimm training](#)

Automotive Testing

Our partner Control Sistem will exhibit products at the Automotive Testing Expo Europe 2011 in a booth together with the German distributor of Control Sistem products, MS4 - Analysentechnik GmbH. Maybe we will meet there.

[Automotive Testing Expo Europe 2011](#)

ETH Nanoparticle Conference

The 15th ETH-conference on Combustion Generated Nanoparticles will be held in Zurich, June 26-29. A number of our partners (e.g. Dekati, Grimm, Matter etc.) will participate there in the Exhibition and some of them will also contribute with presentations and posters. Mark this conference in your calendar already now.

[ETH Nanoparticle conference](#)

NOSA 2011

The Nordic Aerosol Conference, NOSA, will be held November 10-11, 2011, in Tampere, Finland. This will be an excellent opportunity to also visit Dekati premises.

Together with Dekati and other Dekati distributors worldwide, we will organise an event at Dekati in conjunction with NOSA 2011. We will provide more information on this topic later.

[NOSA 2011 invitation](#)

You are always welcome with questions and we are happy to send you our newsletter.

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