

Dissemination via the Instrument Manufacturers

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EXECUTIVE SUMMARY

One potentially valuable dissemination route for a wide range of information, which has previously received little attention, is that afforded by the small instrument manufacturers and/or distributors. Yet this route offers a potentially large and focused audience, and one which is different from that contacted using more traditional routes. Improving the success of disseminating information via this channel, thereby offers the opportunity of promoting materials measurement as a technology, and hence of helping UK industry, especially the SMEs, in terms of innovation and competitiveness.

It is the objective of this document to raise awareness of this particular dissemination route, and to suggest ways in which it can be used more effectively, and in a planned way, to maximise the benefits to the UK industries.

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1 INTRODUCTION

Other documents (e.g. Reference 1) have highlighted the variety of routes which can be used for dissemination of DTI-sponsored work, their advantages and disadvantages, and their limitations etc. Many of these have been used fruitfully in a number of projects. But one dissemination route that has previously received little attention is that afforded by the **small instrument manufacturers and/or distributors**. Yet they offer access to a potentially large audience, an audience which is focused, and which in many instances can reap the benefits of the technology/information relatively quickly. Just as importantly it will largely be a different audience from that contacted using other more traditional dissemination vehicles. If used efficiently this route can be employed to disseminate almost any output (in whatever form) from any R&D programme which is relevant to the industry or market sector(s) served by the instrument makers.

It must be recognised that whilst this particular route may be primarily aimed at the dissemination of information of immediate practical relevance to that specific part of the industry, its application for wider, perhaps more peripheral information, should not be underestimated. Such a wider opportunity can provide significant benefits, for example, the generation of projects supported directly by industry, and indications of what the industry needs (and its timing), in terms of future R&D projects and deliverables.

R&D programmes generate a diverse range of outputs, many of which are suitable for dissemination via the instrument makers/distributors. These might include:

- the availability, use, and applicability of a new measuring instrument, be it a new discrete piece of equipment or an attachment to existing equipment
- indications of how existing equipment can be modified for particular measurements and applications (Reference 2).
- new measurement methods relevant to the industries served by the instrument makers
- Best Practices relevant to the industries served by the instrument makers
- R&D activities which will provide information to the industry in the longer term
- the availability of support, advice and practical trouble-shooting services, help lines, etc

more general activities of interest to those industries

2 ADVANTAGES OFFERED BY INSTRUMENT MAKERS

Use of the instrument makers as dissemination vehicles does offer a number of advantages, the most significant of which is access to a wider and previously untapped audience. Other advantages of using the instrument makers include:

- (a) they have, hopefully, been kept aware of any instrumental development, or possibly have been involved as a partner in the development project. Hence they will already be thinking in terms of commercialisation and marketing which inevitably involves awareness raising in, and dissemination to, the industry.
- (b) they have a knowledge of the existing and likely markets for the instruments and hence who might benefit from the new instrument/attachment and/or any associated procedural information.
- (c) they may have information and views on the wider applicability (into other industries or market sectors) of the instrument, and hence able to identify a wider audience.
- (d) they have a detailed knowledge of “who is doing what” at the moment e.g. who is using which instruments, and hence who is likely to be interested in upgrades, modifications, new test methods, Best Practices etc.
- (e) they may have some knowledge of test houses (e.g. who is using which test house, and hence who might be interested in the new equipment, methods or other information) and how test houses can be used for dissemination purposes

3 SUPPORT REQUIRED BY THE INSTRUMENT MAKERS

In order to make the most effective use of the instrument makers for dissemination purposes, ***they must be supported by a co-ordinated activity*** aimed at awareness raising and a provision of a wider perspective. This activity should comprise a suite of actions, the blend of which will depend on the nature of the dissemination e.g. information, measurement methods, Best Practices, or instrumental hardware. The co-ordination can most efficiently be achieved by working closely with the instrument maker or distributor from an early stage - he will be able to gauge the necessary timing, potential recipients, etc, and use of his existing infrastructure will be essential. But it does require close contact and priming by NPL.

It is important to realise that for the process to work effectively, *contact with the instrument maker should be made as early as possible*, with the co-operation being maintained throughout the project lifetime and possibly beyond. Such co-operation can be enhanced in a number of ways e.g. by inviting the instrument maker to be a partner in relevant projects, by inviting the instrument maker to be a member of the appropriate IAG, by discussing aspects of engineering and manufacturability involved in any instrumental development, by soliciting feedback on market requirements (see Reference 2 for further details) etc.

The supporting activities may include:

Presentations - to instrument user groups, external meetings, and conferences (often in association with the instrument makers or distributors), emphasising the rationale behind the development, how it works, and the advantages and applications, illustrating with case histories.

Exhibitions - contributions and support for the instrument maker’s stand, not only with information intimately associated with their instruments, but also wider aspects of NPL work.

- **Case Studies** - demonstrating commercial success through good measurement practice, in which the benefits of the NPL work to particular companies are highlighted. Typical are those generated for Competing Precisely and for the GDP1 programme, of a simple format for wide distribution.

Trade Journals - short items illustrating particular developments of interest to the industry, or longer items emphasising the underpinning science etc.

- **Instrument Makers Marketing Literature** - short items generated specifically for inclusion in the companies existing marketing literature e.g. in newsletters and fact sheets.
- **NPL Literature** - simply using the regular mailings of the instrument maker in order to distribute relevant NPL-generated literature e.g. newsletters, fact sheets and case histories.

4 BENEFITS FOR THE INSTRUMENT MAKER

There are significant potential benefits for the instrument makers in co-operating in dissemination exercises, and it is sensible to ensure that the instrument makers are aware of them. Such benefits include:

- the ability to identify a wider range of applications of their instruments, leading to increased sales
- the ability to promote a better and wider appreciation by potential users of the usefulness of the measurement data (in terms of process and quality control, data interpretation etc), leading to increased instrument sales.
- generating a higher credibility in the general market place of both the instrument maker and its measuring instruments, through a better understanding of the under-pinning science, calibration issues, data interpretation etc
- availing themselves of the opportunity of using NPL as a scientific/technical support function when interfacing with customers
- providing support for its marketing exercises (see Section 5)

5 EXAMPLES OF DISSEMINATION VIA AN INSTRUMENT MAKER

In a few instances some success has already been achieved by co-operation with the instrument makers. However, in all cases, the full potential has not been realised, and every effort should be made in the future, where appropriate, to maximise the benefits of this particular dissemination route. It is useful to outline a few case histories.

5.1 CONCOAT

CONCOAT is a UK Company involved in the electronics industry for over 20 years, principally in pcb reliability by the application of conformal coatings. It is the European manufacturer for Humiseal conformal coatings that are utilised by the majority of major electronics companies throughout Europe. CONCOAT also provides a range of application equipment, cleaning systems for both pcbs and precision components, and equipment for monitoring the cleanliness of cleaned units and for assessing their subsequent reliability.

As part of the MMP programme, NPL has undertaken several tasks aimed at developing new, improved methods for predicting the reliability of electronic equipment by measuring the effect of contamination on the Surface Insulation Resistance (SIR) of printed circuit assemblies. The output from this work is currently being considered by the relevant standards bodies. In a separate but closely parallel exercise, CONCOAT has developed a new instrument, the AutoSIR, for measuring SIR and hence testing the reliability of the product. It is compliant with the new methods proposed by NPL.

Although the output of the NPL work is constantly disseminated via a number of routes, in particular via meetings of the SSTC and the regular distribution of the Microelectronic News, co-operation with CONCOAT offered a wider, and possibly more pertinent, audience. Its knowledge of the market and of those companies with a potential interest in measuring the reliability of their electronic assemblies, made CONCOAT an ideal vehicle for wider dissemination of the NPL work. The co-operation has been enhanced by CONCOAT's membership of the relevant IAG, and by its early appreciation of the direction and implications of the NPL work.

The CONCOAT co-operation has focused on several areas. First, it included summary items of the NPL work in its publication CONCOAT NEWS. Second, it sent details (and in some cases actual copies), of relevant NPL reports to many of its existing/potential customers. In addition, in the wider global context, CONCOAT has described and promulgated the NPL work at international meetings and exhibitions. Of particular importance here has been the input to various sub-committees, working groups etc of IPC, the premier US standards generating organisation - many parts of the UK industry follow IPC standard procedures.

Such close co-operation with this particular instrument maker has additional advantages. In the context of future work, it has been able to make valuable suggestions about the direction and objectives of such work, and to suggest potential partners previously unknown to NPL.

5.2 PORPOISE VISCOMETERS

Porpoise Viscometers is a UK company which manufactures instruments for measuring the viscosity of range of materials predominantly for, but not limited to, the polymer industry.

As part of the MMP programme NPL has been investigating methods for on-line measurement of rheological properties of polymers during processing. Extrusion is intimately dependent on such properties, and it is vital for the industry that the process can be optimised and controlled, in order to reap the benefits of reduced scrap, faster throughput, and increased product quality assurance. Traditionally such properties could only be measured using off-line techniques, and the results often lacked industrial credibility. Moreover, the off-line techniques, such as those used to measure the polymer industry's Melt Flow Index can be time consuming to perform, resulting in a significant delay between sampling and obtaining the required data. During this time delay there is potential for generating a large quantity of scrap material.

On-line techniques enable more frequent testing with faster feedback times and less operator time. NPL work, in collaboration with users and the instrument maker, has demonstrated the feasibility and validity of such on-line measurement methods for improving production efficiency.

The traditional route for the dissemination of such important information is via the relevant IAG, NPL newsletters and trade journals. However, the close co-operation of Porpoise Viscometers provided an additional option. Since the company was well aware of the developments at NPL, indeed it made a standard on-line rheometer available for industrial trials, it offered a new dissemination route, to an audience not previously addressed by NPL.

The activities of Porpoise Viscometers focused on generating and distributing an applications note to its customers illustrating the industrial trials undertaken. The note highlighted the benefits of using on-line rheometers on industrial extrusion plant using the Porpoise instrument and on injection machines using instrumented nozzles, designed and developed by NPL.

During the co-operation, Porpoise Viscometers were made aware of other activities regarding NPL's plastics work, but the wider opportunities for dissemination were not recognised.

5.3 MULTICORE SOLDERS

Multicore Solders, a UK company, is world leader in the development and manufacture of solders, chemicals and related products for the electronics industry. It also manufactures equipment for measuring parameters which are key to the soldering process (for example the solderability of boards and components) and to producing defect-free electronic assemblies.

As part of several programmes NPL has undertaken a series of tasks aimed at improving the understanding of the solderability test method and of its procedure, applications and limitations. Again the output of the NPL is constantly disseminated via a number of routes, including the IAG, meetings of the SSTC, and the regular distribution of the Microelectronic News. Multicore Solders has collaborated with NPL for several years. Indeed, it is a member of the IAG, has contributed to SSTC meetings, and was a partner in a European programme concerned with refining the solderability test method and its instrumental requirements. In this context it has always provided a route for the dissemination of relevant NPL-generated solderability information, especially by including information in its own marketing literature.

It is only very recently, however, that the possibility of using Multicore Solders as a dissemination vehicle for other information has been recognised. With its knowledge of the solder consumable market and of those electronics companies with potential interests in a wider spectrum of NPL work, Multicore Solders offers an ideal vehicle for wider dissemination. Currently wider dissemination activities are being discussed with this company, and some actions are already underway. For example, a Case Study describing both the development and operation of the solderability tester, and the test method, is being generated for wide distribution. It is important to recognise that since Multicore Solders is essentially a consumables supplier, it has a large customer base with which it makes constant and repeated contact, thus offering the possibility of a "drip-feed" dissemination to the industry.

6 IMPLEMENTATION

In order to maximise the potential for dissemination via the instrument makers, it is essential that the issue is approached in a planned way which is understood and which can be managed properly. *It is strongly recommended that this route for dissemination is considered as part of the dissemination strategy whenever new R&D projects are being formulated.* The main elements of any plan must include:

- a) Project Leaders should be made aware of this dissemination route, and of its potential and benefits, in order to decide its relevance regarding a particular proposed R&D project.
- b) The appropriateness of this dissemination route should be considered by the Project Leader when generating any R&D proposal, and by the reviewing function when evaluating that proposal.
- c) If this dissemination route is being considered, the instrument makers should be contacted for their views, suggestions and comments, as early as possible.
- d) If appropriate, and after consultation with the instrument makers, this dissemination route should be included in the detail/milestones of the R&D project proposal(s).
- e) If the instrument makers are to be involved in disseminating output from the measurement projects, the interaction and effectiveness of the co-operation must be monitored at all review stages of the project using both internal and independent monitors.

7 REFERENCES

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