

FULMER

**contract research in
materials technology**

NEWS

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YARSLEY SUPPLY PLASTIC FOR ECLIPSE EXPERIMENTS



Courtesy BAC

Viewers watching "The Sky at Night" programme on the 11th July will have seen Dr. J. Beckman from the Department of Physics, Queen Mary College, London, discussing his experiments on board Concorde during the recent eclipse of the sun.

The apparatus, a far-infra red interferometer was used to study the radiation from the chromosphere — the thin layer round the sun, which is its coolest part. Lenses used in this equipment were made from "TPX" plastic blocks moulded by Yarsley Laboratories.

Yarsley have developed a technique for compression moulding transparent blocks of this material up to 8in. dia-

meter and one inch thick; a novel development for this ICI plastic used mostly for industrial, medical, and household products.

Because of the unique transmission properties of TPX in the far infra-red, several groups of workers are currently investigating possible applications for this material.

Blocks and sheets of TPX plastic together with information about its physical properties and cost can be obtained from D. Mugridge.

The picture shows the equipment being assembled inside Concorde ready for this historic experiment, which provisional results indicate was a success.

Projects Portfolio

As a result of requests from Fulmer sponsors a Projects Portfolio has been compiled. This document contains approximately 25 single and multi-client projects, many of which are in progress but still open to Sponsorship.

The Portfolio contains three main categories, namely, Development Programmes, Testing Programmes, and Technical and Marketing Surveys.

More information, including a copy of the Portfolio may be obtained from the Development Group.

Fulmer goes East

Since Yarsley Research Laboratories, now a division of Fulmer, announced their collaborative agreement with the Japanese Company D.J.K. last August, there has been an increasing number of enquiries from Japan seeking both technical and commercial information about products being marketed in various European industries.

In many cases, surveys commissioned by Japanese firms are expected to lead to licensed manufacture and sales, thus enabling British and European companies to exploit their know-how by way of royalty income — one of the important but lesser known contributions to invisible exports.

Newsletter readers who would like to interest Japanese companies in their products and services are invited to contact M.A.P. Dewey or W. Flavell who will be visiting Japan during September and October.

QTM-SEM Interface

By special arrangement with Metals Research the latest attachments for the Quantimet 720 image analysing computer are installed on the Fulmer equipment. The most recent advance is a direct connection with the Scanning Electron Microscope. Operations of the Quantimet 720 system, such as particle size distribution, area fraction measurement, shape factor and orientation are therefore considerably extended. The maximum direct magnification of the image is increased from 2,000 to 100,000 times, and the resolution improved to $\sim 200 \text{ \AA}$. The depth of field is greatly increased, so allowing rough surfaces to be analysed with greater accuracy. Another use of the interfaced system is in conditions where phases have similar light densities, a problem which can be overcome by scanning with the EDAX or crystal spectrometer attachments for selected features.

Fulmer Materials Optimiser

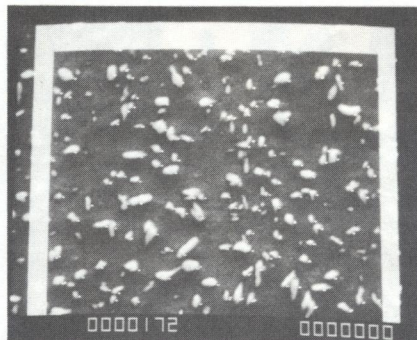
Sufficient support for this new Materials Information System has now been obtained and work is under way to produce the Fulmer Materials Optimiser by 1st May 1974. Additional sponsors can be accepted up to 30th September 1973. Please contact N.A. Waterman for further details.

Superplasticity again

The Fulmer/Interplan review of industrial opportunities for superplastic metals has been completed. The results have been published in four volumes which may be purchased complete or separately.

A debriefing meeting for subscribers is planned at Fulmer on 22nd October followed on 23rd October, by a presentation of superplastic materials and discussion of new projects for superplasticity.

Please contact J.A. Cooley for further information.



The picture shown has been taken directly on the normal SEM screen by using the Quantimet 720 link.

The fine particles in an iron-based superplastic alloy have been revealed by deeply etching the surface. Although the image magnification is only $\times 2000$, the field depth required would make optical analysis impossible. For more information contact D.S. Bagley.

Polymer Analysis

Polymers and other organic materials have been characterised for many years by the odour obtained from burning small samples of the unknown substance. With simple polymers and in the hands of an experienced worker this is a useful method, but with the increasing complexity of polymer formulations a more comprehensive analytical method is required.

Yarsley Testing Laboratories have now

Consulting Scientists Register

Following the excellent response to the publication last year of the Register of Consulting Scientists and Contract Research Organisations, a second edition is now in preparation. Already over one hundred new entries have been received and it is intended to publish the new edition before the end of the year.

The Register is priced at £5.00, plus 25p postage and packing, but provided the second edition is ordered and paid for before publication, a substantial reduction is available to entrants in the new edition and to those who purchased the first edition direct.

Anyone interested in being listed in the Register or wishing to order the new edition in advance should apply to the Hon. Registrar, E.A.G. Liddiard.

refined this method for polymer evaluation by the instrumentation of this original principle. In this new equipment test material is heated in an instrumented pyrolysis unit and the products sampled by infra-red and gas chromatography. The equipment, which has been used for polymer characterisation at YTL for some time, is now to be offered as a routine analytical service to industry. For further information please contact J.A. Mead.

Stress Analysis Service by X-rays

Residual and in-service stresses are a major cause of premature failures in components and structures. These stresses, which can arise from metal working, welding, heat treatment, applied loading or service conditions, can be measured non-destructively by X-ray diffraction. Fulmer, in conjunction with the University of Surrey, is now offering this as a service to Industry.

Components up to four inches (10cm) diameter are examined with the special stress analysis attachment on the X-ray diffractometer at the University of Surrey. Important examples of the type

of components which have been examined are ball bearing cages and brass plumbing fittings. For larger components or fixed structures, stresses are measured with portable X-ray equipment developed at Fulmer. This unique field service complements the existing strain gauging and computer-aided stress analysis service. Important applications are the analysis of stresses in large welded structures, pressure vessels, valves and autoclaves.

For further information, including details of a seminar to be held on November 22nd, please contact J.K.R. Page or N.A. Waterman.

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