

# On Her Majesty's Service

WASC 594-599

Inclusi

WASC 594-599

Museum

~~ITEM VOIT~~

WASC 599

Mintech Explosives centre  
opens up to the press.

Electronics Weekly.

21 June 1968

# Mintech explosives centre opens up to the press

THE Ministry of Technology's Explosive Research and Development Establishment at Waltham Abbey was open to the press last week for the first time since it was set up in 1945. This move appears to be part of a welcome change in attitude by Mintech.

The establishment occupies a site originally used for the manufacture of gunpowder as far back as the 16th century. Now very little of their work is said to be on the "secrets" list and only 20 per cent devoted to explosives.

Work on liquid and solid propellants accounts for 50 per cent of their effort and now the remaining 30 per cent is

absorbed by two materials groups working on the physics, chemistry and applications of polymer and the development of fibre-reinforced materials.

The R & D work on the composite materials is aimed at improving the physical properties of metals and plastics by the addition of needle crystals and fibres.

Their main efforts are concentrated on experimenting with refined asbestos fibres and silicon carbide whiskers in different plastics and light alloys.

A way has been found to separate the asbestos out into single fibres and ERDE say that fibres are becoming available that are weight for weight ten times stronger than the strong-

est alloy thus opening up the field for reinforcing metals and plastics.

The tensile strength of polypropylene is not greatly affected by the addition of asbestos fibre but a 15 per cent addition of asbestos fibre to ABS plastic improves its tensile strength by about three times and a 10 per cent addition to nylon 66 doubles its tensile strength.

As yet no asbestos reinforced plastics are available on the market and there are still some long term tests to be finalised. All the short term tests are said to have been completed fairly satisfactorily though the impact strength still has a few weaknesses that are being wor-

ked on.

Some accelerated tests are being conducted to try and finalise this asbestos fibre thermoplastic material and when complete this should be an area in which Britain leads the world.

It is to be hoped that the development will be taken up in this country and that this initial lead will not be lost.

It is estimated that asbestos fibre is sixpence a pound cheaper than glass fibre and ERDE give the projectal prices of fibre per pound as carbon fibre and silicon carbide whiskers at between £1 and £2, glass fibre at between three and four shillings and asbestos fibre at between two and three shillings.

## Only source

At present ERDE are the only source of supply of graded asbestos fibre but are willing to answer any queries on the subject.

As would be expected, electronics find extensive application in the course of ERDE's work and there is a strong back-up facility on the establishment.

Although primarily intended to provide a service to the other laboratories, the electronics section, or more correctly, the Instrumentation Section, has a number of potentially important developments to its credit.

Some of these are already common knowledge and have been exhibited at Basle and the Physics Exhibition in London.

One particularly interesting item, the application of which is wider than one would at first imagine, is a distance measuring unit.

Designed for use with vessels where explosive materials are being mixed, it continuously monitors the blade position with respect to the mixer wall using an external probe.

## Explosion risk

In a mixer containing highly external viscous materials there is a danger of blade distortion which in extreme cases, especially where the clearance is very small, can cause the blade to strike the wall.

Apart from damaging the plant, in certain cases there is the risk of explosion. Obviously there are possibilities in a number of industries for this device, especially in petrochemicals.

One great advantage is its ability to operate through the walls of metal containers. This makes it potentially useful in say gas turbines and other rotating machine applications.

Over small distances, such as an inch, it can detect changes of the order of tenths of a thousandth of an inch, but even at distances of say ten inches it can still detect movements of about a thousandth of an inch. Not much imagination is required to see its possibilities.