processes of catalysis and charged particle bombardment.

In a further series of experiments Chaikin sought to prevent polymer formation by finding suitable inhibitors to the reaction. Using a modification of a Bell Telephone Laboratories frictional polymer apparatus in which a loaded palladium stylus was caused to rub against a palladium plate in an atmosphere of benzene vapour, it was found that tetraethyl lead inhibited polymer formation although tetraethyl tin, dimethyl mercury and tetraphenyl lead were ineffective. Perhaps a more interesting result was obtained with a number of organic compounds containing iodine. Methylene iodide, propyl iodide, *n*-butyl iodide and iodobenzene, as well as iodine itself, inhibited polymer formation; iodoform and *p*-diiodobenzene did not, but their lack of effect is possibly due to their low vapour pressure.

This inhibiting activity is attributed to the involvement of free radicals in the polymer forming reaction—a possibility envisaged by Hermance and Egan—since the successful compounds are known to be substances which terminate free radical chains and may well interfere in the course of the polymer reaction.

It is possible to speculate a little further on the usefulness of iodine compounds in this way, bearing in mind the recent studies of R. S. Owens, R. W. Roberts and their collaborators (4) at the General Electric Research Laboratory, Schenectady, on the function of iodine compounds in lubrication. Here the mechanism involved appears to be the reaction of iodine with the wearing metal surface to form a metal diiodide, a lamellar solid having a low shear strength in one plane.

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Sulphur-modified Platinum Catalysts for Fuel Cells

A number of aspects of the present state of fuel cell development were reviewed at a recent meeting held in Essen under the auspices of the Deutsche Gesellschaft für Flugwissenschaften and the Wissenschaftliche Gesellschaft für Luft-und Raumfahrt. As has been noted on numerous occasions, platinum metal electrocatalysts continue to be widely studied in many different reaction systems.

In a paper by H. Binder, A. Köhling and G. Sandstede of the Battelle Institut, Frankfurt, interesting news was given of the modification of Raney-type platinum electrocatalysts by the adsorption of a mono-layer of sulphur in the form of hydrogen sulphide. This is easily adsorbed on to a platinum surface and remains stable up to high electrode potentials in aqueous acidic electrolytes; oxidation to sulphur dioxide does not take place below potentials of 600 mV. Such sulphur-modified platinum catalysts showed exceptional activities in the electrochemical oxidation of carbon monoxide and formic acid to carbon dioxide. The experiments were carried out in 3N sulphuric acid, and using carbon monoxide as fuel current densities of 200 mA/cm^2 at potentials around 250 mV and at temperatures of about 90°C were achieved. With formic acid these levels were attained at about 30°C. This was stated to be the first time that such current densities had been obtained with these fuels, since particularly strong polarisation with untreated platinum catalysts is generally observed.

Dr Ph. Dard of the Compagnie Française Thompson-Houston described a wide new range of fuel cell accessory components, including a high pressure hydrogen container made of glass fibre reinforced plastics. These components were developed for a range of about ten different fuel cell models intended for meteorological, television, aerospace and military applications; most of these will be fuelled by hydrogen and use an ion exchange membrane with platinum-catalysed electrodes on each side. Latest metal loadings have been as low as 8 to 10 mg/cm^2 of platinum, and complete fuel cells with outputs up to 12 kW have been constructed.

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