all four stacks have been equipped with catalyst units and are all completely clear.

Hydrocarbon and Organic Vapour Abatement

Unburned hydrocarbons and carbon monoxide, as well as a wide variety of organic solvents, present even broader air contamination problems than do the nitric acid tail gases. These include the effluents from engines, industrial paint baking ovens, printing presses, wire enamelling, solvent cleaning operations, solvent storage tanks, and from chemical reactions such as the manufacture of ethylene and ethylene oxide.

Miller and Wilhoyte (1) have recently compared the relative effectiveness of platinised spherical pellets, metal foils and ceramic honeycomb. The data reported cover hourly space velocities from 30,000 to 175,000 and temperatures from 150° to 450°C. Toluene and *n*-heptane were used as an experimental pollutants in concentrations up to 10 per cent of that corresponding to the lower explosive limit. This work clearly demonstrates the high catalytic efficiency and low resistance to gas flow of the honeycomb catalysts.

Matthey Bishop THT catalysts were evaluated and have been found to be effective for completely oxidising these organic contaminants. Other solvents such as xylene, methyl ethyl ketone and alcohols are also easily oxidised.

The chemical industry provides a large and diverse market for catalytic atmospheric pollution control systems. The production of floor tiles, asphalt, rubber, petrochemicals, wax, varnish, insecticides, comprise only a few of the industries where odour and smoke abatement problems may be effectively and economically controlled by the use of platinum honeycomb catalysts.

Hydrogen-Oxygen Recombination

In nuclear power installations, intense radiation causes the decomposition of water and the gradual rise in concentration of a hydrogen/oxygen mixture in a closed loop system. Safety considerations require that this should be prevented by continuously passing the gas through a hydrogen-oxygen recombiner. Platinum honeycomb catalyst has been found to be very effective for this conversion. Pellet beds have been used in the past for this purpose but their high pressure drop and the formation of fine dust in the presence of steam make them unattractive by comparison with the new platinum honeycomb catalyst.

Reference

1 A Study of Catalyst Support Systems for Fume Abatement of Hydrocarbon Solvents, M. R. Miller and A. J. Wilhoyte, E. I. du Pont de Nemours & Company Inc., Industrial and Biochemical Department, Wilmington, Delaware

Self-heating in Platinum Resistance Thermometry

Routine measurements of temperatures between −200 and +850°C are carried out with high accuracy using platinum resistance thermometers. However, the measuring current itself causes heating in the platinum element by an amount proportional to the square of the current. Measurements requiring extreme accuracy or those where the measuring current is larger than the usual few milliamperes thus require correction for the self-heating effect.

Dr W. Diehl, of Degussa, Hanau, has now shown (*ETZ-B*, 1967, **19**, (22), 637–640) that the self-heating coefficient can be calculated by applying results of his tests on sealed platinum resistance elements. These tests measured the self-heating effect of such elements in still air, still water and running water. Using a test current of 3 milliamperes, results then were correct to within 0.008 to 0.024°C in still water and to within 0.06 to 0.11°C in still air at 20°C. Self-heating due to other currents can be calculated from the self-heating coefficients in the tables which Dr Diehl has produced.

None the less, for the greatest accuracy, it is recommended that the platinum element should have the lowest possible resistance and that its self-heating coefficient should be determined under conditions similar to those which it will meet in practice.

F. J. S.