

temperatures of -3 to $+10^{\circ}\text{C}$, air temperatures of -50 to $+20^{\circ}\text{C}$ and scouring by sea ice. A proprietary thermosetting plastic incorporating a glass filler was to serve as a combined anode mounting and primary dielectric shield. Two platinised titanium strips were arranged on each anode mounting plate, the current density in the strip being about 200 A/m^2 and the system capacity being in excess of 2000 A . Two anode mounting plates were used for each assembly and four assemblies were used on each of the four major faces of the rig, with another two on each of the four corner faces. This distribution provided a uniform level of protection on all parts of the submerged steel structure, including the central filled core. High purity zinc was used for the twenty-four reference electrodes and the necessary DC electricity was provided by twelve power supplies.

Summary and Conclusions

Following many years of proven success in preventing the corrosion of ships' hulls, an impressed current system employing platinised

titanium anodes has now been used to protect cathodically a steel caisson rig working in the Arctic Ocean, north of Canada. The experience gained during the installation and running of this system can be expected to result in further use of similar systems as the search for oil and gas deposits extends into even more hostile environments.

Acknowledgement

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References

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Homogeneous Catalyst Research Kit

Homogeneous catalysts play an important part in many industrial processes, and contribute to the production of over 21 million tonnes of organic products. Their industrial use is mainly related to large volume commodity chemicals where the activity and selectivity achieved with rhodium catalysts is notable in, for example, hydroformylation and carbonylation reactions. Homogeneous platinum group metal catalysts are now finding increasing application in industrial research and development laboratories for the synthesis of fine chemicals and pharmaceuticals.

In order to assist organic chemists to select catalysts which are amenable to process scale-up, Johnson Matthey are now offering a Homogeneous Catalyst Kit which comprises ten platinum group metal complexes and five phosphines. The use of

these enables a variety of catalytic transformations to be carried out on a laboratory scale, including: allylic alkylation, aryl-alkene coupling, carbonylation, heterocycle formation, hydrogenation and isomerisation.

The kit includes traditional catalysts, such as Wilkinson's Catalyst, which have been widely utilised in research laboratories, together with newer catalysts which enable more selective hydrogenations to be carried out and which also permit carbon-carbon coupling reactions. The catalysts are reasonably robust and are stable under normal laboratory conditions.

The Johnson Matthey Homogeneous Catalyst Kit is now available and further information about it can be obtained by writing to the Johnson Matthey office at Orchard Road, Royston, England, or to the European Associate Houses.