REVIEW AND ANNOUNCEMENTS

Materials of Construction for the Process Industry. By S. L. Chawla. (Chemical Engineering Education Davelopment Centre, IIT, Madras), 1980. Pp. iii + 296. Price : Rs. 80.

Selection of materials for engineering construction is an important task that chemical engineers have to perform frequently in their professional life. This calls for familiarity with a wide variety of materials in several aspects, especially their physical and mechanical properties, corrosion resistance and fabrication characteristics, besides cost and economic availability. Since the introductory texts in engineering materials science provide only a basic understanding of the nature and behaviour of materials, there is need for specialised books on materials to cater to such needs of chemical engineers. While there are already a few books on Materials of Construction, such as those by Rumford, Evans and Wackenbach, the present book, to this reviewer's knowledge, is the first by an Indian author. With its coverage of Indian perspective with regard to costs, standards, and environments, the book written by an expert well conversed with the Indian scene, has a special value for Indian students and practising engineers.

The book contains seventeen chapters of which the first, and in fact the biggest, one deals with the material-envirohment interaction, *i.e.*, corrosion and passivity an aspect which is most important in the selection of materials for application in chemical industries. Discussions on iron and steels with particular emphasis on their fabrication characteristics, corrosion resistance and applications in chemical industry constitute the next four chapters. This is followed by five chapters dealing, respectively, with nickel and high nickel alloys, semi-precious metals (titanium, zirconium and tantalum), copper and copper alloys, aluminium and its alloys, and lead. Among non-metallic materials, glass, polymeric materials, rubbers, and carbon and graphite are given separate, but comparatively brief, treatment in four subsequent chapters. Since iron and alloys are the most widely used materials of construction for chemical plant and machinery, their protection is of prime importance to chemical engineers. In this context, the two informative and fairly detailed chapters dealing with protective coatings and corrosion-resistant linings are especially useful. An added attraction of the book is the last chapter which discusses the various considerations involved in the selection of materials for chemical plant and process equipment. The two appendices giving costs of materials of construction in a tabular form, and corrosion rate expressions will be found useful by practising engineers.

The author and the Chemical Engineering Education Development Centre, Madras deserve appreciation for bringing out a valuable and much-needed book.

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PROCESSING OF OILSEEDS, OILS, BYPRODUCTS AND DERIVED PRODUCTS: TECHNO-ECONOMIC ASPECTS

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A symposium on "Processing of Oilseeds, Oils, Byproducts and Derived Products : Techno-Economic Aspects" was held on the occasion of the 36th Annual Convention of the Oil Technologists' Association of India on 14th and 15th February, 1981 at the Regional Research Laboratory, Hyderabad. The subjects dealt in the technical sessions were "oil and fat resources", "utilisation of byproducts of oilseeds and oil industry, possible substitution of some petroleum products", "scope for minimising the dependence of surface coatings industry on petroleum based products", and "processing of oilseeds, oils and derived products". There was a panel discussion on "modernisation of equipment and machinery". Fifty-one research papers were also presented covering a wide variety of problems such as composition, fat formation during seed maturation, varietal variations, storage, processing, derivatives, vegetable oils as substitutes for petroleum products, and agricultural wastes as boiler fuel. The following recommendations were made.

Production of major oilseeds such as groundnut and mustard must receive more attention. Research on production of soybean and sunflower seed should also be strengthened. Adequate inputs such as

fertilizers, pesticides and good quality seeds should be provided. Sequential cropping in high rain fall areas and crop substitution should be practised. Oilseed crops should be extended to non-traditional areas. With the advent of newer varieties of traditional oilseeds, varietal differences with respect to seed characteristics and composition should be investigated.

From the considerable wealth of information that has accumulated on less-known minor oilseeds, some selected oilseeds should be chosen for either cultivation or afforestation. The oils obtained from these oilseeds can be used either as edible oils, or as raw materials for oleochemicals or in surface coating and soap industries. A variety of new useful products can be prepared by taking advantage of the functional groups present in fatty acids; some of them could be substitutes for petroleum based products. Research on these lines should be strenghthed.

Oil cakes and deoiled meals which contain toxic constituents, (*e.g.*, aflatoxins, thioglucosides, gossypol, allergens) should be detoxified for use in compounded animal feeds and for human consumption. R & D efforts should be made for utilisation of leaves and stems of the oilseed plants for the manufacture of particle board, paper and organic chemicals, hulls for chemicals and power generation, starch for alcohol, and inedible proteins for detergents, adhesives and fibres.

Intensive R & D efforts should be made in designing and standardization of equipment and machinery to reduce the processing costs and improve the product in quality and yield. Efforts should be made for effluent treatment to minimise pollution. Technology needs to be developed indigeneously for the recovery of palm oil and palm kernel oil. Interesterification may be regarded as an alternative industrial process to hydrogenation for producing vanaspati-like fats and margarines.

The raw materials used in the surface coating industries are mainly petroleum based and there is an urgent need to reduce the consumption of such materials. This can be achieved by improvements or innovations in the methods of application, utilisation of newer derivatives of renewable sources of raw materials like oils, fats, rosin and cashew nut shell liquid and by development of water-based and powder coatings.

AWARD OF GOLD MEDAL

Dr. S. P. Sychanthavong is the recipient of the Gold Medal for his paper "On the Absence of Stromatolites in Delhi System: A Likely Explanation" presented at the VIII Indian Colloquium on Micropaleontology and Stratigraphy, held at Baroda during February 1980. The medal has been renamed by the Society as 'Professor Sambe Gowda Gold Medal' in memory of the late Professor S. Sambe Gowda. Geology Department, Bangalore University.

PALYNOLOGICAL SOCIETY OF INDIA

The third Indian Palynological Conference is proposed to be held at the Haryana Agricultural University, Hissar, from 21st to 23rd September, 1981, under the auspices of the Palynological Society of India. The intending participants may contact Dr. T. M, Varghese, Professor and Head, Department of Botany. of the University, for further information.

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