Solvent Extraction in South Africa

THE Union has become a large producer of vegetable oil seeds, mainly ground-nuts, sunflower, and maize germ, for which the main farming areas are the Transvaal and Orange Free State.

A number of oil mills have followed overseas practice and decided to instal modern solvent-extraction equipment in order to obtain maximum yields of oil and ensure efficient extraction of the cake.

The solvent extraction plants are mainly located at the larger Transvaal oil mills, and the capacity of plants on the Reef that are already operating or on order is approaching 300 tons of oil cake daily. The usual practice is first to run the oil seed through conventional screw presses and then charge the first pressed cake to the extractors although, in some cases, especially if the oil content of the seed is not high, it is crushed, flaked, and then extracted directly.

These extraction plants include both continuous and batch systems of operation. Thus the American firm of V. D. Anderson has supplied two major continuous units while the Belgian firm Extraction Continue De Smet has also booked orders for two plants of the continuous type, which has attained rapid post-war prominence. Rand chemical engineering firms have reached the point of being able to supply semi-continuous extraction units fabricated in Johannesburg, the largest of which to date, supplied by Vital Ltd., has a capacity of some 50 tons per day.

The solvent extraction process is particularly suited to the treatment of maize germ of relatively low oil content, and several firms of maize millers have concentrated on this aspect. In addition to the main edible oil seeds, at least one firm is solvent-extracting castor oil from beans grown in the Transvaal. The oil is popular for preparing dehydrated castor oil, which is widely used in the Union's paint and leather-cloth industries.

OIL seed processors at the coast are also wide-awake to these new developments, and one Cape Town factory has installed a battery of vertical batch extractors with a capacity of some 30 tons a day. This plant, which is now reaching the production stage, was supplied by the German firm of Harburger Eisen und Bronzewerke.

The policy of installing solvent-extraction units has been encouraged in certain cases by the use of selected cake after extraction, chiefly ground-nut, to fortify brown bread, sponsored by the Department of Nutrition and widely sold to the lower-income groups. The extracted oil cake is used in conjunction with other fortifying ingredients, such as milk powder, fat, and calcium carbonate. Experiments with soya meal have also proved successful, especially in mealie meal, one of the chief native foodstuffs.

The fish-meal industry is also paying close attention to the possibilities of solvent extraction, and a large pilot plant capable of processing several tons daily is producing a completely oil-free fish meal. This plant is located at Simonstown and is sponsored by several members of the fish-meal and oil industry. Initial results of this extraction process are encouraging, and after further treatment a deodorized meal has been produced which is now undergoing large scale tests as a protein-rich fortifying agent for bread, soups, and other foodstuffs.

The big advantage of this meal, derived from the plentiful supplies of fish, such as the pilchard, is the exceptional protein content (more than 80%) while it is relatively cheap so that fortified products can be sold at prices which suit the native population, for whom they are primarily intended, to combat malnutrition and disease.

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The U. S. Department of Labor's Bureau of Labor Statistics in cooperation with the Office of Naval Research has published the results of a study showing that scientists move from one part of the country to another more readily than other occupational groups. The report, entitled "Occupational Mobility of Scientists," is a study of chemists, biologists, and physicists with Ph.D. degrees. It states that four out of five of the scientists in this study have held jobs in at least two states and that more than two-fifths of them have worked in three or more states.

Glyco Products Company Inc., 26 Court street, Brooklyn 2, N. Y., has prepared a new cosmetic and drug manual containing the latest formulas for many commercial products. Sections are devoted to emulsion techniques and cosmetic raw materials. A chart of specifications giving chemical, physical, and solubility data on polyhydric alcohol fatty acid esters is included.

Meetings

The latest progress in recent developments in synthetic detergents, jet engine fuels, and chemical advances against the diseases of farm animals will be reported at the 125th national meeting of the American Chemical Society, March 24 to April 1, 1954, at the Municipal Auditorium, Kansas City, Mo. Important improvements in silicone paints, current trends in the manufacture and use of pesticides, and the status of chlorophyll also will be discussed in some of the 697 papers to be presented.

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The 16th session of the semi-annual X-ray Diffraction School will be held at the plant of North American Philips Company Inc., 750 South Fulton avenue, Mount Vernon, N. Y., during the week of April 19-23, 1954. Basic subjects to be covered by prominent educators and scientists will include X-ray diffraction, diffractometry, and spectrography.

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The 16th annual American Power conference will be held March 24-26, 1954, at the Hotel Sherman, Chicago, Ill. The conference is sponsored by Illinois Institute of Technology in cooperation with 14 other universities and nine professional engineering societies.

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The 9th Purdue Industrial Waste Conference will be held May 10-12, 1954, in the Purdue Memorial Union. Approximately 50 papers will be presented on subjects dealing with industrial wastes and their treatment.

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The British Industries Fair, annual show window of new trade products, will be held this year in London and Birmingham, May 3-14, 1954. Two thousand exhibitors representing nearly 100 different industries will demonstrate to home and overseas buyers a cross-section of British production including scientific and optical instruments.

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Achema XI, the world's largest chemical plant and apparatus exhibition and congress, will be held in Frankfurt am Main, Germany, May 14-22, 1955. The exposition will occupy 11 permanent buildings on the fair grounds in Frankfurt, with over 500,000 square feet of space in the exhibition halls. Additional information may be obtained from the Chicago Section of the American Chemical Society, 86 E. Randolph street, Chicago 1, Ill.

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The 8th National Chemical Exposition will be held October 12-15, 1954, at the Chicago Coliseum. The exposition and its accompanying programs will revolve around the theme, "The Chemical Industry in Everyday Living."

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The Midwest Research Institute is sponsoring a seminar "Operations Research in Business and Industry" on April 8-9, 1954, Kansas City, Mo. The rapidly growing method of applying techniques of the physical sciences to solve problems of business and industry will be discussed.

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The 23rd annual meeting of the Inter-Society Color Council will be held March 24, 1954, at the Statler hotel, New York City.

Promotion of Karl J. Brunings and Ernest M. Weber to the respective posts of director of chemical research and development and director of biochemical research and development at CHARLES PFIZER AND COMPANY INC., New York City, has been announced. Both scientists previously held the title of associate director in their respective departments.

This company has also appointed Duncan E. Hutcheon, Gerard Van Halsema, and Tom J. McBride to its Brooklyn research staff.

William J. Cort and Roger Macdonald have been named development coordinators in the Chemical Division of KOPPERS COMPANY INC., Pittsburgh, Pa. Their duties will include guiding laboratory and pilot plant development work at the various plants of the Chemical Division and the preparation of technical programs to be carried out by plant personnel.

ARMOUR RESEARCH FOUNDATION of the Illinois Institute of Technology, Chicago, Ill., has developed a nuclear spectrometer which makes it possible to analyze minute samples of substances ranging from chemicals to metallic alloys. It enables scientists to detect and measure materials in amounts far below the limits of other methods.

Raymond A. Erickson has been appointed supervisor of chemical engineering at Armour Research Foundation.