

(Continued from page 212A)

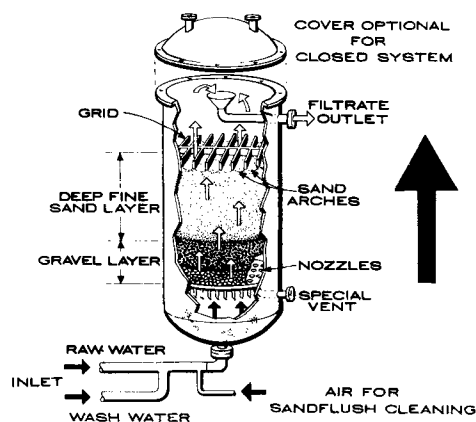


FIG. 2. The De Laval Immediumfilter. Immediumfilter is the registered trademark of Industriele Maatschappij Activit N. V., Amsterdam N., Netherlands.

enters the bottom of the filter, passes thru gravel and fine sand layer, held in place by grid, and exits at the top. The whole sand bed serves as a dirt retention zone. The top fine grain sand is the final polishing zone. This unit offers large dirt holding capacity, long filter cycles, and may be readily cleaned by flow of raw water and air thru an expanded bed to dislodge the dirt.

### Solvent Extraction Plants

At solvent extraction plants, there is frequently a degumming or miscella refining operation. Since the miscella soapstock and filter bleach clay are usually added to the meal in the desolventizer-toaster of solvent extractor, miscella refineries do not have the pollution problems associated with conventional refinery installations.

Average waste water flows were sampled at two solvent plants, with miscella refinery and conventional degumming operation. Typical analyses of composite waste water appear in Table IV. The refinery operation definitely increases impurities in the waste water. There is increase in organic and suspended solids, fat content and BOD figures.

TABLE IV  
Chemical Analyses of Waste Water: Values in ppm

Components	Solvent plant miscella refinery	Solvent plant degumming operation
Total solids	1820	417
Suspended solids	570	127
Organic solids	740	203
Fat	232	Trace
BOD	462	67
pH	6.3	7
After chemical treatment and centrifugation		
Fat	None	None
Suspended solids	None	None
BOD	<50	<15

At a seed mill, with solvent extraction plant, the usage of fresh water is high, 50-70 gal/min for a 750 ton/day installation. This represents 75,000-100,000 gal of water per day. When such a plant is situated in a western area of the United States, where fresh water supply is limited, the treatment of solvent plant waste waters has real merit. Water can be recovered for reuse as cooling water to reduce fresh water demands.

It has been found that the waste water from a solvent plant can be chemically treated with coagulant in 90-100 ppm dosage, followed by polyelectrolyte at 1 ppm, and centrifugation in a PX Separator, to give a clear effluent. By treatment and centrifugation of this waste water, a clear water phase with no fat or suspended solids is recovered, and there is 78-90% BOD reduction. The precipitated solids, that may be concentrated and removed by centrifuge, are principally protein. This concentrated protein slurry may be added to desolventizer-toaster. In the area where this study was made, the well water had higher total solids content than the clarified process water.

### REFERENCES

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[Received February 28, 1969]

## Newest Detergency Concepts to be Heard at Chicago Congress

Eminent scientists will speak at a Symposium on "Basic Aspects of Detergency" on September 29 at the 10th World Congress in Chicago. Recent concern for pollution, the environment and ecology has focused continuing attention on the influence of various detergents. There have been recommendations from various sources to eliminate certain detergent components which allegedly contribute to pollution. It is, however, essential to know and understand the chemistry and physics of cleaning quite thoroughly if cleaners are to be developed which are both effective and environmentally safe. The planned Symposium is to provide a review and up-dating of key properties involved in detergency and will be basic to many aspects of the cleaning process.

The Symposium has been organized by M. E. Ginn of the Masury-Columbia Company (formerly of Armour-Dial Inc.). Titles and speakers will include:

1. "Recent Advances in Detergency Theory," by A. M. Schwartz, Gillette Research Institute.

2. "Gel Filtration of Surfactants," by Toshio Nakagawa, Shionogi Research Laboratory, Shionogi & Co., Ltd.
3. "The Association of Surfactants Into Liquid Crystal Systems and Its Influence on Solubilization and Emulsification Phenomena," by Stig Friberg, Swedish Institute for Surface Chemistry.
4. "Interactions of Colloidal Particles With Complex Ions and Polymers," Egon Matijevic, Institute of Colloid and Surface Science, Clarkson College of Technology.
5. "Statistical Analysis of Detergency Tests With a Natural Soil," J. R. Trowbridge, Colgate-Palmolive Research Center.

The Symposium is part of a Joint Meeting, September 28-October 1, 1970 between the International Society for Fat Research and the American Oil Chemists' Society at the Conrad Hilton Hotel in Chicago. The international flavor of the meeting should enhance an exchange of differing points of view.