way in another year or so. A high density PE oil can by Gulf is also being observed carefully. It is vacuum formed from sheet. There is also increasing activity in thermoformed sheet for packaging, with the much-discussed margarine tub holding the center of attention.

Government drops bomb on vinyl industry ► Among the mysteries confronting today's professional economists' efforts to understand American industry, few can match the puzzle of how the Federal Trade Commission could imply that 1) there was lack of competition in the PVC business and that 2) even more plants should be built. Yet that is the conclusion that must be drawn from the FTC's reasoning as expressed in its consent order File #651 0643. That order terminates Continental Oil Co.'s joint venture with Stauffer Chemical for the production of vinyl chloride monomer and requires Continental to sell its Thompson-Apex Div. Thompson-Apex manufactures vinyl chloride, PVC resins, plastisols, vinyl compounds, plasticizers, garden hose, and other products. The FTC charged that these various operations "lessened the competition" in the PVC business.

Capacity of the PVC industry in 1965, which is the year which the FTC bases its charges on, has been estimated at over 2 billion lb./year; 1965 sales, according to the Tariff Commission, were about 1.856 billion pounds. Capacity in 1967 is estimated at well over 3 billion and 1967 sales are not likely to be over 2.1 billion pounds. During this period, prices in bag lots for general-purpose resin have dropped from an unsteady 15¢/lb. to as low as 11¢ and more recently to 12 or 13¢, and none of these prices was ever exactly firm. As is generally known, because of the low or non-profit situation in this industry, various plans for expansion or entry into the field have been curtailed or dropped.

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w exactly does the PVC industry shape up? ► Under terms of the consent order, Conoco is required to dispose of Thompson's Assonet, Mass. polymer plant and buy out Stauffer Chemical Co's. half interest in the 600-million-lb. vinyl chloride monomer plant which will soon be on stream. Conoco will be permitted to retain Thompson's PVC plant at Aberdeen, Miss. The rated capacity of the two combined Thompson PVC plants was estimated at 250 million lb. in 1965, evenly divided between them. Expansions of 30 million lb. for each had been planned for a later date. At that level, Thompson would probably have been the second or third largest producer in the U.S.

The other two large producers are B. F. Goodrich Chemical Co. and Union Carbide Corp. The three companies, plus any one of several 200-million-lb. plants, would have had a combined capacity that amounted to slightly over 1 billion pounds. This, the government says, is too much concentration, even though today's total capacity is rated at over 3 billion pounds. And more is coming in.

As far as can be ascertained, there are 19 companies, other than the ones mentioned above, that merchandise PVC. Three or four more are expected to enter the field soon. The 19 companies, with capacities ranging from 15 to 240 million lb., may have more than half the industry's capacity. (The government contends that the top 8 companies have 70% of the market.) But anyone in the industry knows that even if there were *only* those eight, the competition in the industry would be far from gentle. Besides, past ex-

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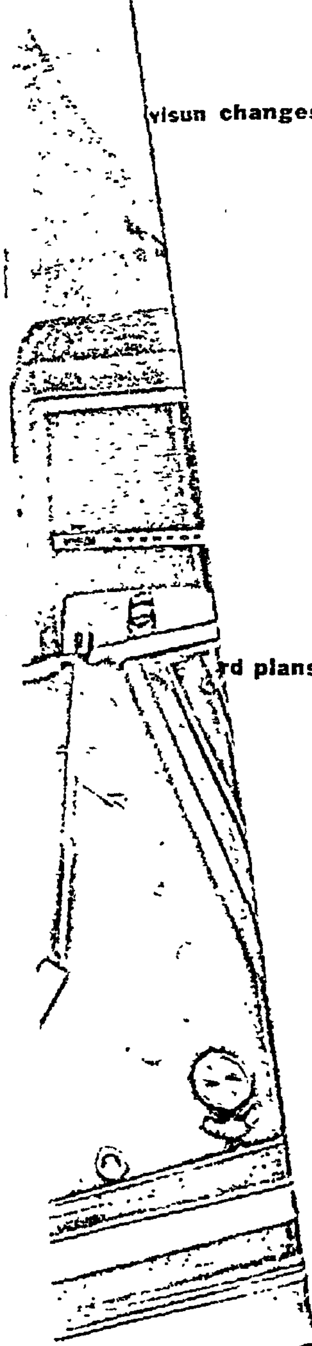
perience suggests the likelihood that the PVC industry will always have a large number of producers of varying size that will survive despite the presence of the giants

What is particularly curious is that the FTC came to its conclusion in the face of its own finding that there were (in 1965) 28 producers of PVC! Presumably their names come from the Tariff Commission which includes among companies reported as PVC producers Lasco Industries, Onyx Oils & Resins, Richardson Co., Poly Resins, Colab, Nyanza Inc., and National Starch. These firms may handle specialties that contain over 50% vinyl chloride but are not generally considered merchants of PVC in bulk.

The effects of the ruling on the monomer picture ► In discussing the monomer situation, the FTC says that Thompson was the largest purchaser of vinyl chloride This may well be true, since 13 of the present PVC producers make their own monomer (and some even market their surplus). Looked at from another angle, it has been estimated that about 65% of the PVC currently produced comes from captive monomer, and the percentage is getting bigger all the time. The price of merchant monomer, now at around 8¢/lb., was 13.5¢/lb. not too many years ago. It is expected to go down considerably more when oxychlorination is firmly established in the industry and overcapacity continues to grow as time goes on. And yet the Government is concerned that the Conoco-Stauffer joint venture would reduce competition in monomer. The FTC complaint alleges that both companies would have probably gone into monomer production and that the joint venture would thus result in one plant less. The complaint further intimated that acquisition of the Thompson PVC plant would prevent Conoco's competitors from selling monomer to it. Come now, FTC.

Specifically the consent order requires that Conoco and Stauffer each assist one firm desiring to enter the vinyl monomer industry by making patents and know-how available to such a firm and also to purchase 20% of their monomer requirements for three years from such an entrant. Stauffer was given the option to construct its own monomer plant. Both companies were forbidden to make future acquisition of vinyl chloride monomer producers for the next 10 years, and Conoco was forbidden to acquire any PVC producers for the same period. Conoco was further required to make one-third of its monomer production available for the next five years to non-integrated PVC producers at the lowest price offered to any other customer. Since there are only eight or nine PVC producers who don't make monomer and all but two of them are among the smaller-volume users, Conoco may have a rough time finding a sales manager who would be enthusiastic about his assignment.

...e deeper implications of the ruling ► The Conoco-Stauffer affair casts long shadows over the future of mergers, diversification, etc. in the plastics industry. The effect will be especially telling in those cases where there are corporate relationships involving a complex network of activities. The Justice Department has frequently warned about bigness as much as about restraint of trade But who can tell which yardsticks are applicable? Both Conoco and Stauffer could probably have built 1-billion-lb. plants. and the Government would have had no objections. Bigness becomes objectionable when gotten through acquisition. It's generally agreed that companies like Du Pont, Union Carbide, Dow, Monsanto, etc., would run into government questioning if they tried to grow by acquisition, but they can get bigger simply by building more capacity. Conoco itself bought Consolidation Coal, the largest coal company in the U. S., and thus started a possible trend toward combines of huge "fuel" corporations. The plastics industry is deeply involved in all these combination activities because of a promising big-volume future and its versatility.



visun changes owners ► A switch of Avisun Corp. ownership from Sun Oil Co. to Amoco Chemicals Corp., a Standard Oil of Indiana subsidiary, for a reported $80 million has been announced, subject, of course, to government acquiescence. Avisun is a producer of polypropylene with a capacity said to be well over 100 million lb./year. Expansion to 200 million lb. is planned in 1968. This is the largest capacity announced by a PP producer, although Hercules Inc is believed to be approaching that figure. The company also produces PP film and color concentrates, and has an interest in a fiber producer.

The present management of Avisun will be retained. The president of Amoco is Herschel Cudd, who was the first president of Avisun and left several years ago to become vice-president of Standard (Indiana).

Avisun was originally set up in 1959 by Sun Oil and American Viscose Corp., which later sold its interest to Food Machinery Corp. In 1966, Sun acquired full ownership of Avisun by purchasing FMC's half interest.

Sun Oil had worked for many years on research in PP before it hooked up with American Viscose and claims many patents pertaining to it. Like several other oil companies, however, Sun has apparently become disenchanted with the plastics industry. It will spend its $80 million for more petroleum and gas development.

rd plans for a PP plant ► Amoco was organized in 1957 to handle the parent company's chemicals. Standard claims to have been the first to ask for a patent on PP. It is one of the five companies involved in an "interference suit" for a U. S. composition-of-matter patent on PP, and was a prominent contributor to the world-wide conference on stereospecific plastics at Notre Dame University under the aegis of Dr. Aiello in the middle 1950's. Polypropylene is a stereospecific plastic, but in those days, of course, it was barely in production.

Amoco is also involved in various other plastics operations. It has polystyrene polymer plants at Torrance, Cal; Media, Ill.; Willow Springs, Ill; and purchased the Ticonderoga PS plant in Leominster, Mass. some time ago. Its estimated total PS capacity is probably in excess of 100 million pounds. It also operates a 250-million-lb. styrene monomer plant and is adding a new 500-million-lb. monomer facility. In addition, the company claims to be the largest U. S. merchant producer of terephthalic acid (from which polyester textiles and film are produced) and a leading producer of isophthalic used in polyester for reinforced plastics and in plasticizers. Another of its products is trimellitic acid which can be used as an internal plasticizer for PVC. TMA also has excellent electrical properties.

At the other end of the integration spectrum, it is now said in the trade that Amoco is trying to buy Imco's bottle plant in Kansas City, which Rexall was ordered to dispose of in a consent order when it acquired Thatcher glass.

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