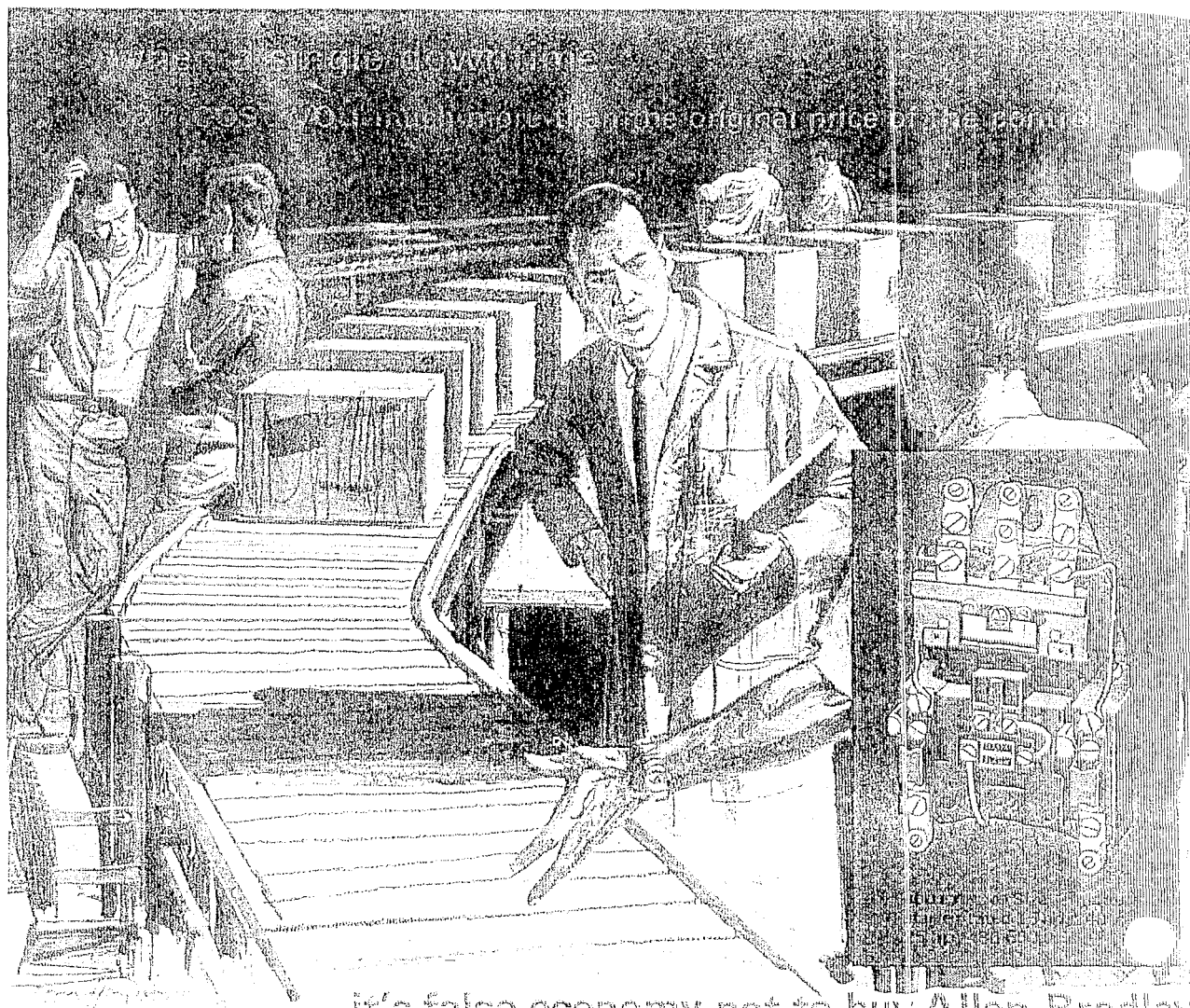


FILE NAME: Trade Publications (TR)

DATE: 1966 Sept 10

DOC#: TR010

DOCUMENT DESCRIPTION: Trade Journal - Chemical Week



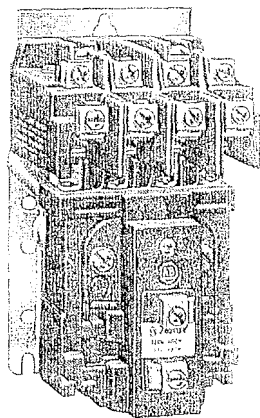
it's false economy not to buy Allen-Bradley

Have you ever stopped to consider the "cost per minute" when a control failure shuts down a production line? You can bet it's plenty—it will wipe out "savings" of those hoped-for savings from buying motor control at "cut prices."

Allen-Bradley—the quality control—features the time-proven A-B solenoid construction—with only one moving part—which simplicity of design is your guarantee of millions of trouble free operations. The weld-resistant silver alloy contacts of a special double break design assure long life and the utmost in control performance—with never a moment to be spent for maintenance. Coils are pressure molded—replaced free of cost to you if they should fail in service—regardless of atmospheric condition. The built-in air-gap in the magnets remains permanent—no matter what the frequency of service may be—"magnetic sticking" is out of question.

The Type BR relay is of the same general trouble free design as just described and is unusually versatile. All contacts are easily convertible—all it takes is a screwdriver and 30 seconds to change a pole from N.O. to N.C. or vice versa. Also, either one or two extra poles can be quickly added in the field and they are full rated and also convertible. Type BR relays can be furnished with overlapping contacts.

Your local Allen-Bradley appointed distributor carries in his stock a very wide selection of the Allen-Bradley control commonly used in your territory. He has been trained as a control specialist. Please contact him—he is excellently qualified to take care of your control needs. Allen-Bradley Co., 1349 S. First Street, Milwaukee, Wisconsin 53204. Export Office: 630 Third Ave., New York, N.Y., U.S.A. 10017.

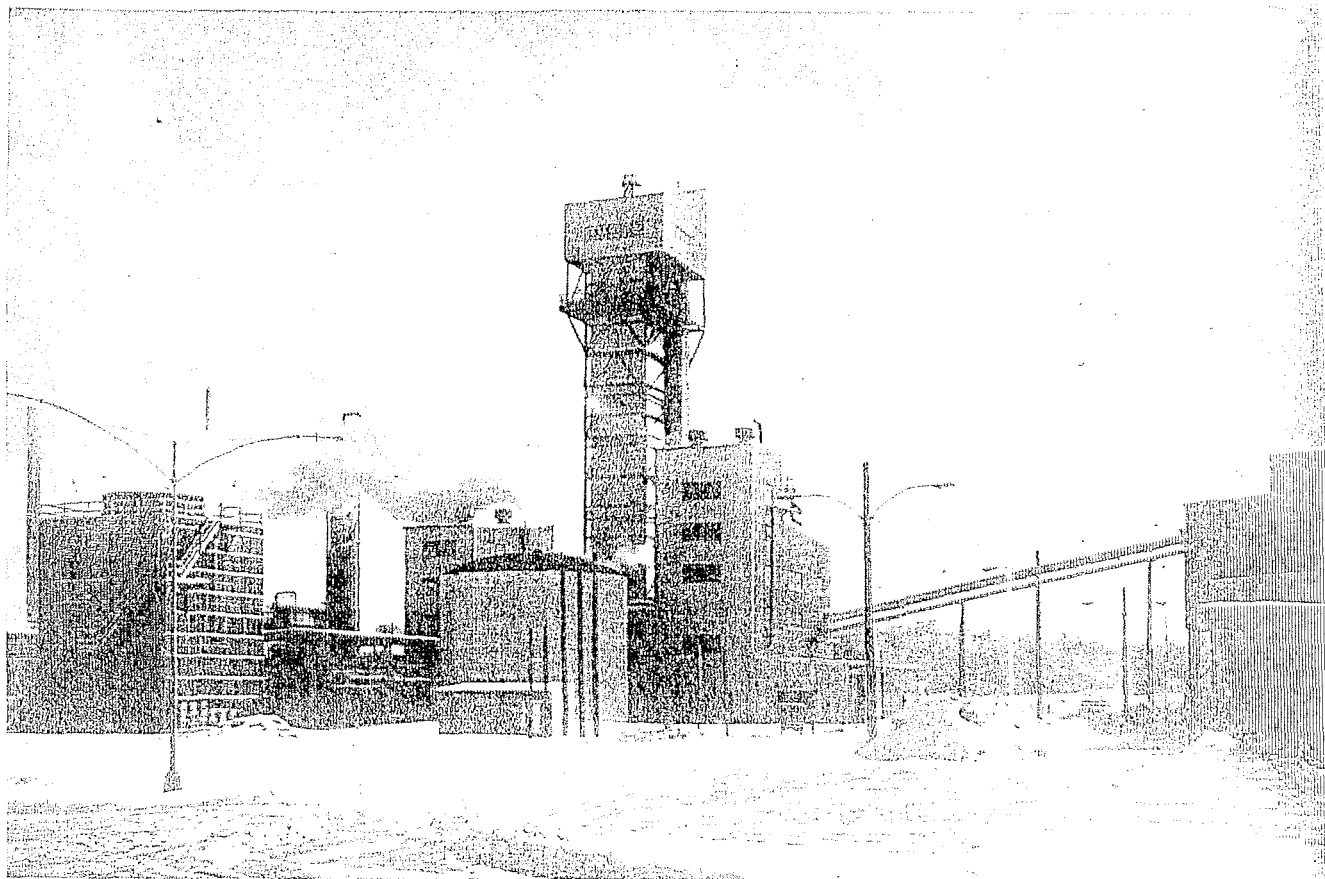


BULLETIN 700 Type BR 4-pole control relay with convertible contacts



ALLEN-BRADLEY
Member of NEMA
QUALITY MOTOR CONTROL

Highly Successful Startup At New Brunswick Development Corporation's Fertilizer Complex



Dorchester Cape,
New Brunswick
facility producing
high-quality
ammonium nitrate prills
and nitric acid
at design capacity
within three weeks
of initial process
light-off

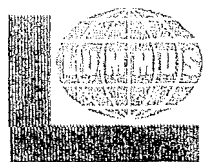
The fertilizer complex designed, engineered, procured and constructed by The Lummus Company Canada Limited for the New Brunswick Development Corporation of Fredericton, N. B., is on stream at Dorchester Cape, N. B.

The new complex, which includes a 150 tons per day nitric acid plant, a 190 tons per day ammonium nitrate plant, a nitrogen solution plant, an ammonia storage terminal, and auxiliary facilities, is the first of the installations to be completed in the development of the Westmorland Chemical Park under the sponsorship of the New Brunswick Development Corporation.

The ammonium nitrate plant manufactures both fertilizer (33.5% nitrogen) and explosion-grade prills. The nitric acid process used in this plant has a demonstrated overall ammonia efficiency of better than 95%. Fundy Chemical Corporation Limited is the operator of the new facilities.

For ammonia, ammonium nitrate, nitric acid, ammonium phosphates, nitric phosphates, urea and complex fertilizers—consult Lummus.

Lummus can put at your disposal close to 60 years of experience on more than 1,000 major projects throughout the world.

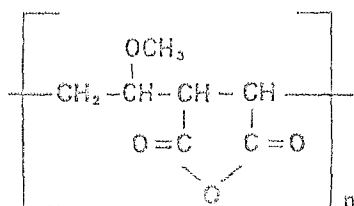


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an international engineering and construction organization. 385 Madison Ave., New York, N.Y. 10017.
Offices and subsidiaries: Newark, Washington, D.C., Chicago, Houston, Montreal, London, Paris, The Hague, Madrid, Milan, Bombay, Tokyo, Caracas, Munich. Engineering Development Center: Newark.

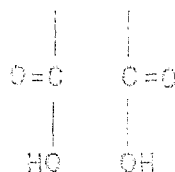
the water-soluble copolymer
with reactive functionality

GANTREZ[®] AN

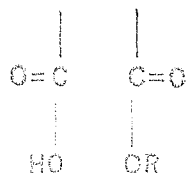


GAF's interpolymers of methyl vinyl ether and maleic anhydride, GANTREZ AN, offers an exceptionally wide range of formulating possibilities.

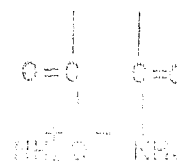
Reacted with water, GANTREZ AN forms a polymeric dibasic acid. In this state (or as the anhydride), it functions as a versatile thickener, tackifier, protective colloid, film former, etc.



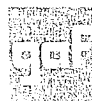
Reacted with alcohols, GANTREZ AN makes possible a wide range of polymeric esters having broad utility: partial or monoesters for pH controlled solubility (hair sprays, tablet coatings, spray-on bandages, industrial protective coatings); diesters and long-chained esters for oil solubility. With non-ionic surfactants, this polymer forms water-soluble partial esters useful as latex paint thickeners, pressure sensitive adhesives, textile sizes and finishes and stabilizers for surfactant systems.



Reacted with ammonia under anhydrous conditions, GANTREZ AN forms the mono amide/ammonium salt, which is of interest in paper coatings, photographic applications and print pastes. Under similar conditions substituted amides can be formed by reacting GANTREZ AN with primary and secondary amines.



Crosslinked with other polyfunctional compounds or used to form complexes with certain metal ions, it produces other useful products such as ceramic binders, protective coatings and corrosion inhibitors. In other words, GANTREZ AN is the key to solving old problems and creating new products for just about any industry. For technical data and samples, send the coupon to our Dyestuffs and Chemical Division. (And remember that you can rely on full technical assistance from GAF.)



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Dyestuffs and Chemical Division, Dept. CWT-010

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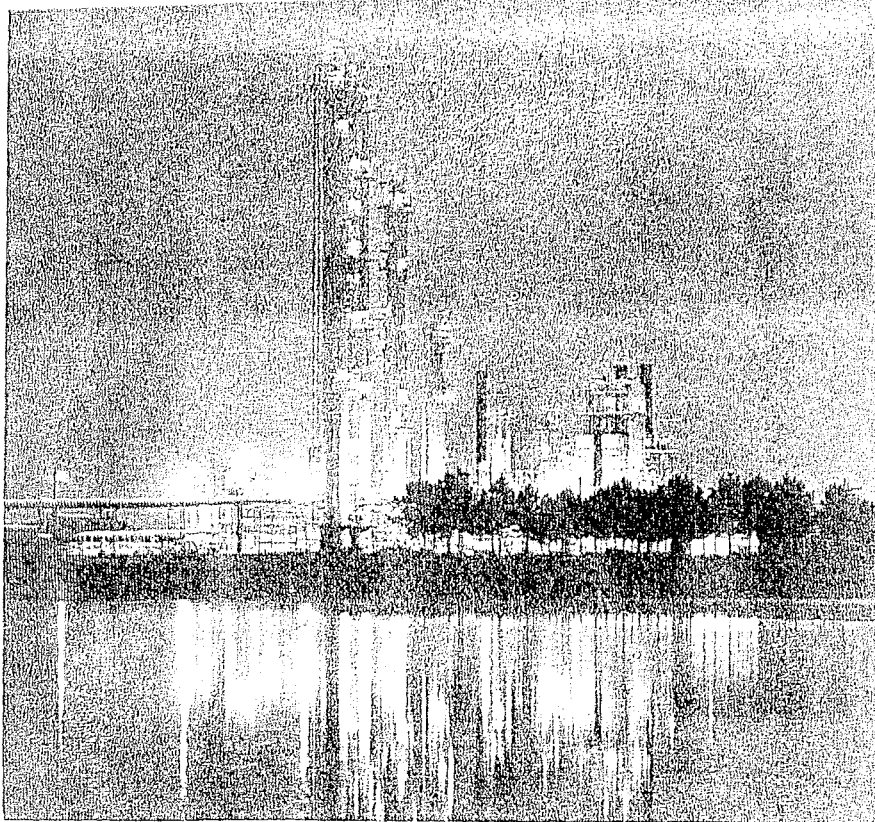
Name _____

Title _____

Company _____

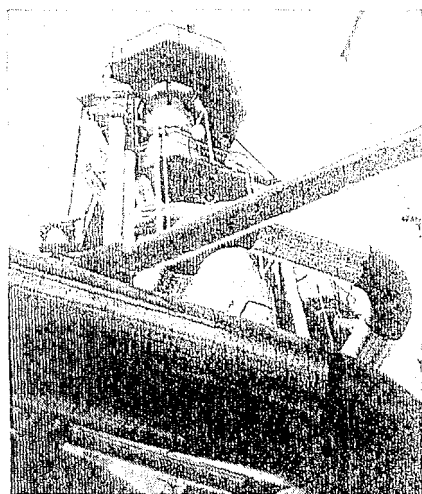
Address _____

City _____ State _____ Zip _____



New Hydrocarbon Cracking Plant for Olefin Production. Texas Eastman Company, a division of Eastman Kodak Company, called on Kellogg to handle design, engineering, and procurement for the multimillion-dollar project. Located on a 2,500-acre site near Longview, Texas, the plant is now in full operation, producing ethylene and co-products by cracking propane feedstock. Kellogg's steam pyrolysis process is used to produce the high-purity ethylene. Other products include polymer-grade propylene, light and heavy aromatic

distillates, and a hydrogen product. The olefins are feedstock to Texas Eastman polyolefin and chemical plants where plastics, low-molecular-weight waxes and resins, alcohols, aldehydes, and other chemicals are made. Kellogg is also completing a combined ethylene oxide-ethylene glycol plant at the same site. The new plant is one of nine olefin facilities Kellogg is now engineering and constructing in five countries; combined annual ethylene capacity — nearly 3 billion pounds.



Giant Record Breaker. This 90-foot high-ammonia-production converter weighs one million pounds, has steel walls that are 5 inches thick, and produces a record 1,000 T/D of ammonia by combining hydrogen and

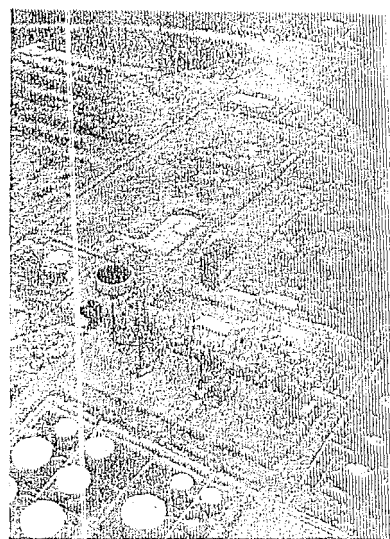
nitrogen gases over a catalyst at a pressure of roughly 2,000 psi.

The huge reactor is part of a unique plant designed and built by Kellogg at Yazoo City, Mississippi, for Coastal Chemical Corporation. The plant is the first of its size of completely single-train design. Using but one reforming furnace, ammonia converter, and compressor train, it represents a major advance in economical ammonia production.

Kellogg's new large plant design and ability to quality-engineer giant pieces of equipment, such as this converter, have made possible the manufacture of ammonia at the lowest cost per ton. As a result, Kellogg is currently designing over one-half of the free world's new large ammonia plant capacity. Combined output of these plants will exceed 7 million tons per year.

KELLOGG SCOPI

Worldwide Engineering and Construction



Grass Roots Refinery on Stream Record Time. The new 25,000 BPD refinery of Amoco Australia Pty. Limited was in full operation just 2 weeks after Kellogg complete construction.

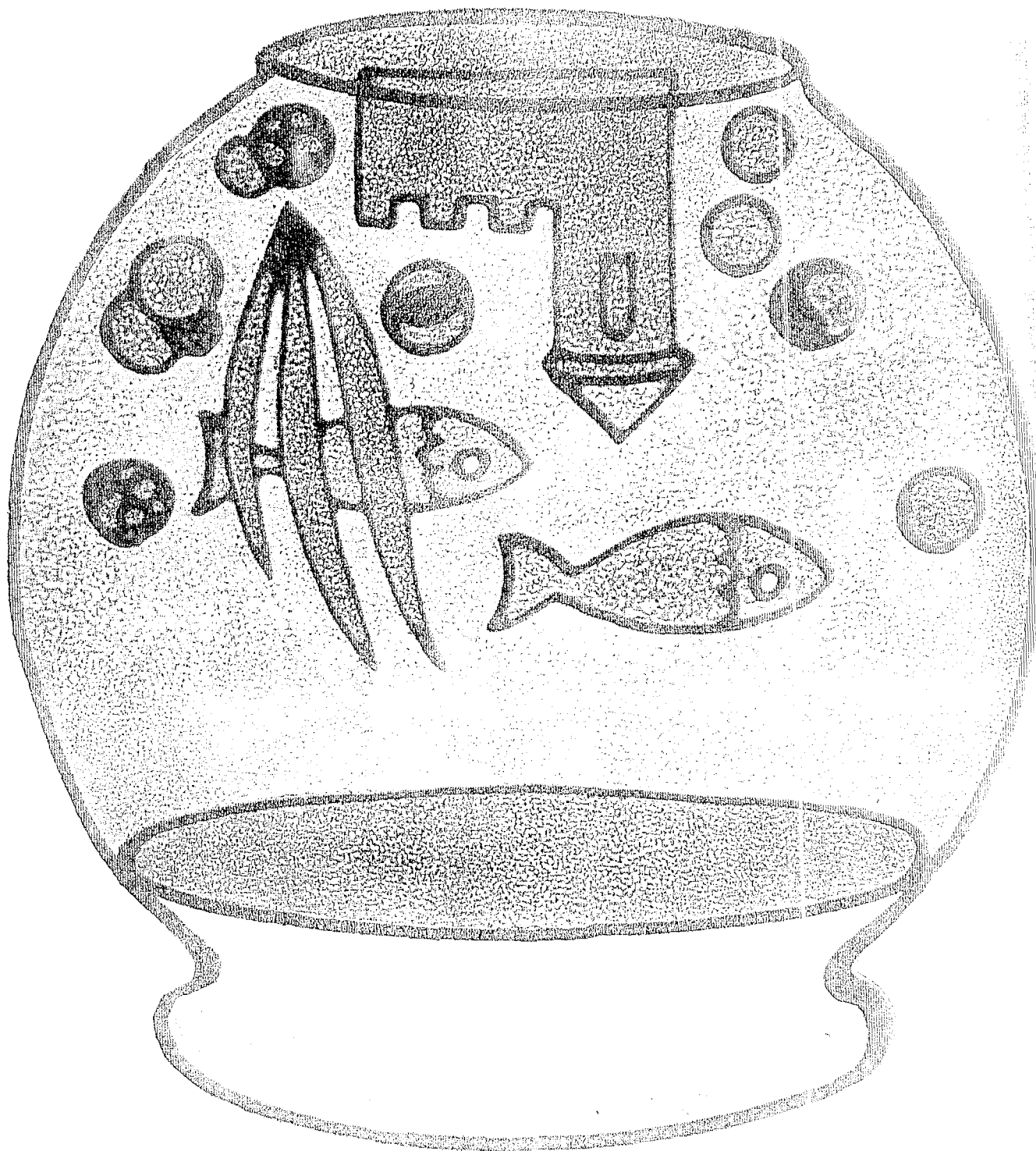
A 25,000 BPD Crude and 10,000 BPD Kellogg Fluid Catalytic Cracking unit, together with Ultraformer and Ultraformer units combine to produce premium and regular gasolines, fuel and diesel oils, kerosenes, jet fuel, LPG, and asphalt, all for domestic consumption. Included in the complex are a tanker ferry, crude storage tank farm, the process units, a utility plant, blending facilities, product storage, workshops, laboratory, and administration buildings.

The M. W. Kellogg Company carried out complete process engineering; design for the multimillion-dollar refinery, while Kellogg Overseas Corporation, the Company's affiliate in Sydney, handled all procurement and construction. Across Australia, refineries of Kellogg design now account for almost a third of the continent's total refining capacity.

*Licensed by Standard Oil Company (Indiana)



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To gel mineral oil, kerosene, gasoline, acetone, methylene chloride.

To suspend core washes, powdered metals, paper-making fibers, graphite.

To body rubber, polyurethane, vinyl adhesives.

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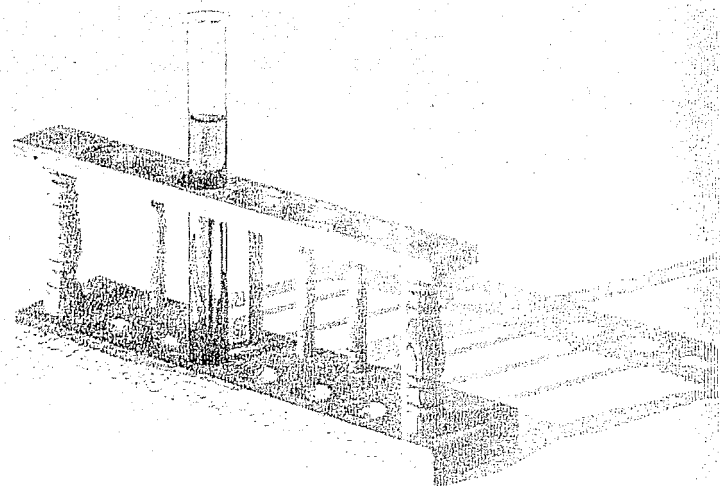
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Water-Soluble Resins



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NEW YORK

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It only costs you \$10 a day.

That's about the price of a conventional accounting machine. But this is the NCR 395-300. It does everything an accounting machine does, and some surprising things computers usually handle.

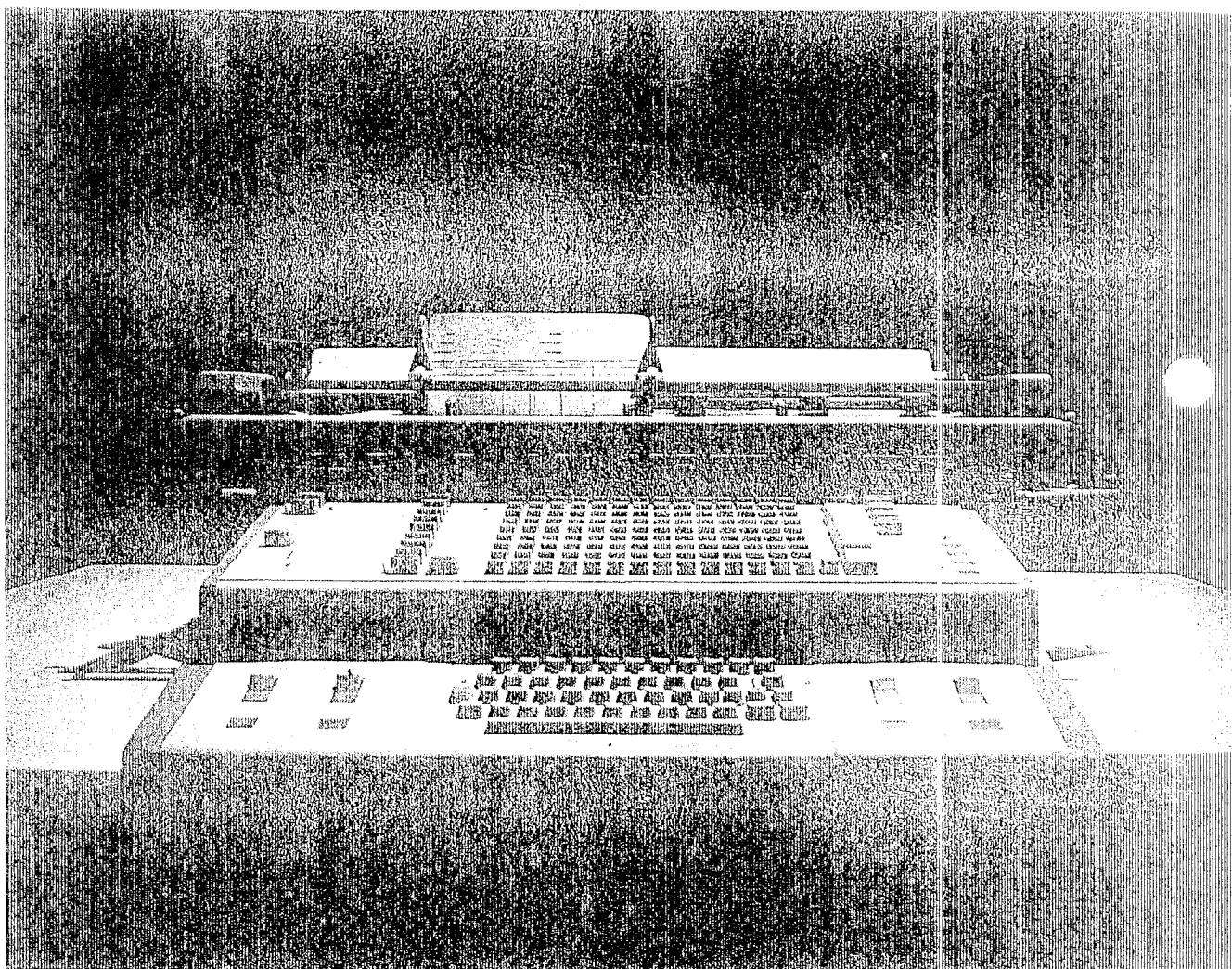
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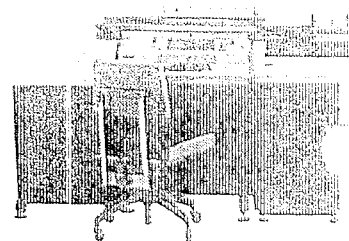
withholding, regular and overtime earnings. Then print a labor efficiency report for you.

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phone . . . as a satellite for the central computer.

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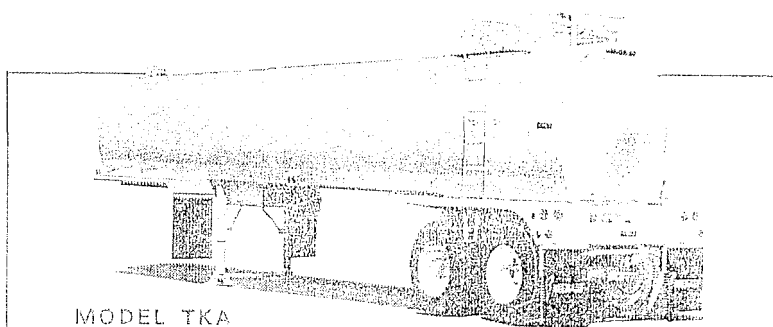
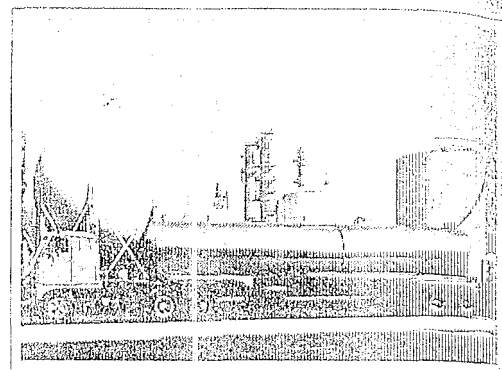
THE NATIONAL CASH REGISTER COMPANY, DAYTON, OHIO 45409

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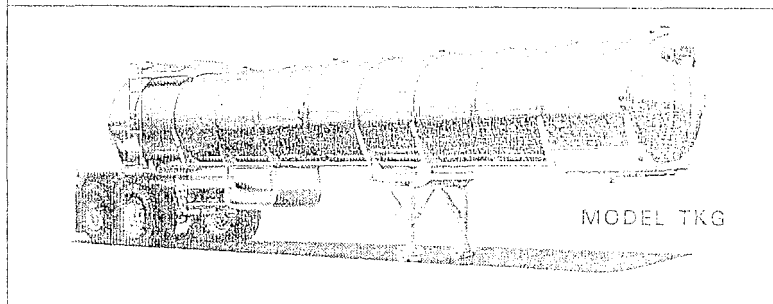
You name it—FRUEHAUF has a stainless steel chemical tank-trailer to move it swiftly, economically.

Choosing from Fruehauf's complete line of Stainless Steel Chemical Tankers is the easiest way to solve your specialized liquid hauling problems—and at the lowest possible cost. Just state your requirements: insulated or non-insulated—single or multi compartments—for regulated or non-regulated commodities—pressure or non-pressure service. Stainless steel's high resistance to corrosion means low maintenance costs. Fruehauf's four basic models are pictured below. See your local Fruehauf Branch for details, or write to: Fruehauf Division, Fruehauf Corporation, 10948 Harper Avenue, Detroit, Michigan 48232.



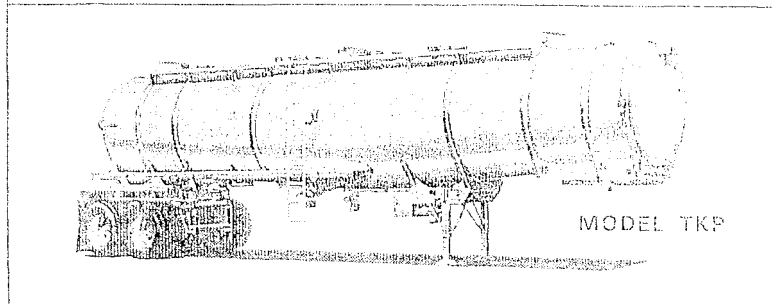
MODEL TKA

MODEL TKA—specially designed for dangerous and corrosive liquid chemicals, this single-compartment unit features 2" of Ultrafine insulation and nine thermal panels for steam or hot water heating when hauling such commodities as phenol.



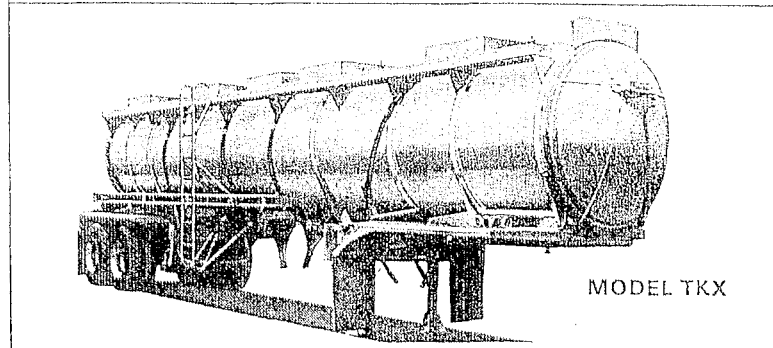
MODEL TKG

MODEL TKG—for hauling non-regulated products such as acetic acid, glycerol, urea and fuel oil. Readily convertible to handle jet fuel, solvents, paint strippers and other flammable products. Single compartment model shown.



MODEL TKP

MODEL TKP—a 4-compartment model with heavy gauge, deep dished bulkheads, this unit is designated for pressures to 25 p.s.i.g. With proper emergency valves, venting and pressure relief equipment it's ideal for regulated products like naphtha, alcohols and acetones.



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LETTERS

Basis for believing

TO THE EDITOR: Concerning the article titled "A More Businesslike Socialism" (*Aug. 6, p. 50*), I am surprised that your . . . authoritative publication takes seriously the "worker's management" propaganda of the Yugoslav government, as evidenced by your statement, "Unlike Western companies (Yugoslav) units will be directed by councils representing the plants' workers."

The system of the fictitious "worker's management" was introduced in the Yugoslav industry in 1952, but industrial units have always remained in the hands, and under the direction of, the government. The "worker's councils" are powerless in directing the affairs of their factories. . . . The decisions of the government are implemented through the plant's director. The council's task, much like the National Assembly's, is merely to formally "approve" the measure so that the document of approval can later be shown to visiting Westerners as "proof" of the "democratization" of Yugoslav communism and its "evolution" toward free enterprise. . . .

May I also point out . . . the following statement by Aleksander Rankovic to the Central Committee of CPY at the time of his dismissal: "Comrades, I do not think that I can be accused of any kind of nationalism or chauvinism. Whenever I have seen this and whenever I was able, I raised this question. . . ." As chief of secret police, Rankovic certainly was in a position to raise this question quite effectively.

DANIEL STEVENS
Chicago

The CW article in question is based on the best available on-the-scene information; a report from our correspondent in Belgrade, plus reporting in such journals as the Economist and the New York Times.—Ed.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 West 42nd St., New York, N.Y. 10036.

MEETINGS

American Chemical Society, public meeting, New York Hilton Hotel, New York, Sept. 11-16.

Technical Assn. of the Pulp and Paper Industry, 21st plastics-paper conference, Commodore Hotel, New York, Sept. 21; 17th testing conference, paper & paperboard, Golden Triangle Hotel, Norfolk, Va., Sept. 27-29.

Society of Cosmetic Chemists, annual seminar, Americana Hotel, New York, Sept. 20-21.

Chemical Marketing Research Assn., Greentier Hotel, White Sulphur Springs, W.Va., Sept. 29-Oct. 1.

American Oil Chemists' Society, 4th fall meeting, Bellevue-Stratford Hotel, Philadelphia, Oct. 3-5.

National Bureau of Standards, Institute for Materials Research, first materials-research symposium, Gaithersburg, Md., Oct. 3-7.

Assn. of Official Analytical Chemists, annual meeting, Twin Bridges Marriott Motor Hotel, Washington, D.C., Oct. 10-13.

Technicon International symposium on automation in analytical chemistry, Sheraton-Hilton Hotel, New York, Oct. 17-19.

Drug, Chemical & Allied Trades Assn., annual meeting, Hollywood Bldg., Hollywood, Fla., Oct. 20-22.

Commercial Chemical Development Assn., discussion of packaging, Dear Hotel, Chicago, Oct. 26-28.

National Assn. of Purchasing Agents, Chemical Group, annual fall conference, Continental Plaza Hotel, Chicago, Oct. 27.

Society of Engineering Science, four technical meeting, North Carolina State University, Raleigh, Oct. 31-Nov. 2.

American Society for Metals, national congress and exposition, McCormick Place, Chicago, Oct. 31-Nov. 3.

Parental Drug Assn., annual convention, Statler-Hilton Hotel, New York, Nov. 1-4.

Fertilizer Industry round-table conference, Mayflower Hotel, Washington, D.C., Nov. 2-4.

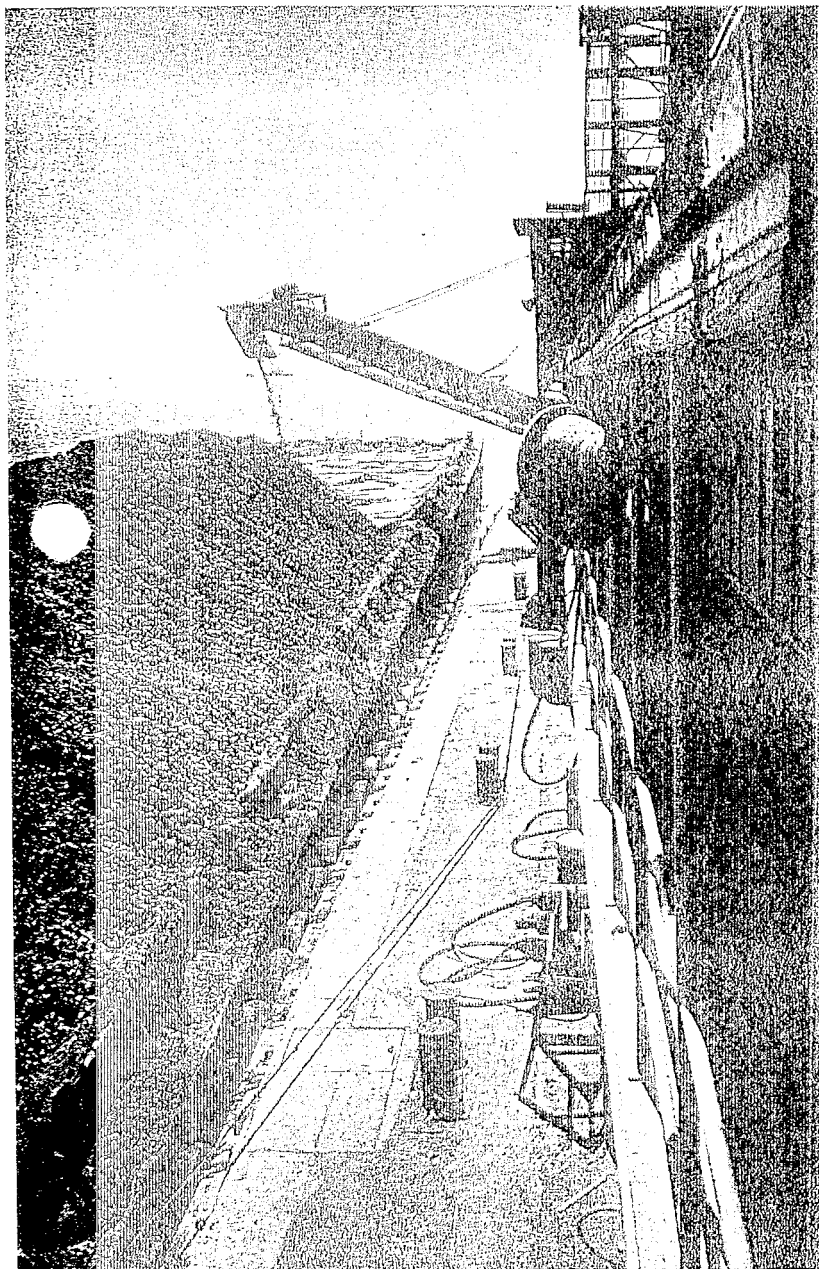
The Society of the Plastics Industry, 11th plastics film, sheeting and coat fabrics conference, Waldorf-Astoria Hotel, New York, Nov. 9-10; conference on cellular plastics in transportation, Edgewater Leach Hotel, Chicago, Nov. 15-17.

The Franklin Institute Research Laboratories, fourth annual symposium on the organic-solid state, Philadelphia, Nov. 14.

General Atomic Division of General Dynamics Corp., and Air Force Office of Scientific Research, fundamentals of gas surface interactions, San Diego, Calif., Dec. 14-16.

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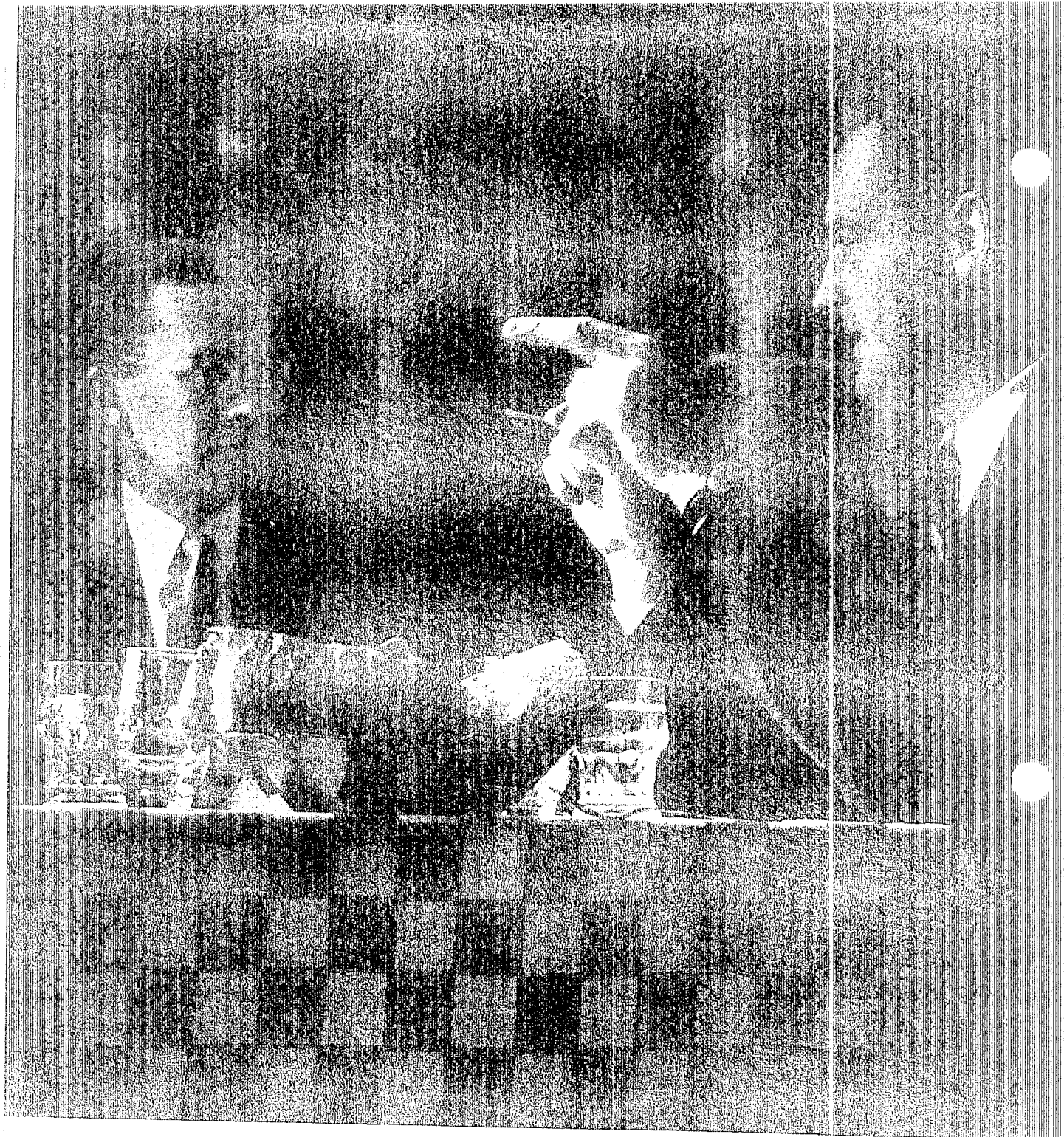
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Before use, they take up 1/5 the storage space that would be required for paper bags. And they fill fast—up to 17 50-lb. bags per minute. How's that? You'd buy our plastic bags but you don't have a sealer? Let us explain our trial installation program. Just call or write Owens-Illinois, Bag Sales, Toledo, Ohio and ask our representative to contact you.

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Humble's research and engineering affiliate in Florham Park, N.J.

Although approvals by other California regulatory agencies await further engineering details, the company says it foresees no serious obstacles and is proceeding with site preparation and contract awarding. The huge refinery (about 70,000-bbls./day capacity) will turn out fuel products, chiefly gasoline, jet and diesel fuels.

Blaw-Knox gets the contract to engineer and build Pittsburgh Plate Glass' proposed 18,000-tons/year titanium dioxide pigment plant at the latter's chemical division's complex at Natrium, W.Va. Initial production from the plant is scheduled for early '68. Rutile, raw material for the pigment, will come from a new mining and refining operation under construction in Sierra Leone, Africa, by Sherbro Minerals, Ltd. PPG has an 80% interest in Sherbro.

Foremost Dairies is making another offer to buy McKesson & Robbins stock from shareholders, following a breakdown in merger talks that have been going on for months. Foremost's chairman and chief executive officer, Rudolph Drews, says his company will pay \$53/share for up to 550,000 shares of McKesson stock. McKesson closed late last week on the New York Stock Exchange at \$46.25.

Last February, Foremost bid \$51/share in attempt to pick up 1 million shares of the big drug distributor, managed to reach only 75% of its goal in the face of bitter McKesson opposition, including a suit in federal court (*CW Business Newsletter*, Feb. 5). The suit was dropped and merger talks started. In addition to the 750,000 shares taken in the February offer, Foremost also holds about 1 million shares acquired from Glen Alden Corp., which tried unsuccessfully last year to wrest control of McKesson. With 40% of McKesson stock in hand, Foremost hopes the new offer will give it majority interest. The Federal Trade Commission, though, has questioned the company's holdings on antitrust grounds, and there is some feeling that FTC may be contemplating divestiture proceedings against Foremost.

G. D. Searle & Co. is acquiring Fermco Laboratories from Harshaw Chemical (Cleveland). Acquisition of the Chicago-based Fermco's assets, patents and name (for an undisclosed amount) becomes effective Oct. 1. Fermco is a basic producer of enzymes by fermentation, biochemicals and diagnostic reagents; its activities will be consolidated into Searle facilities in Skokie, Ill.

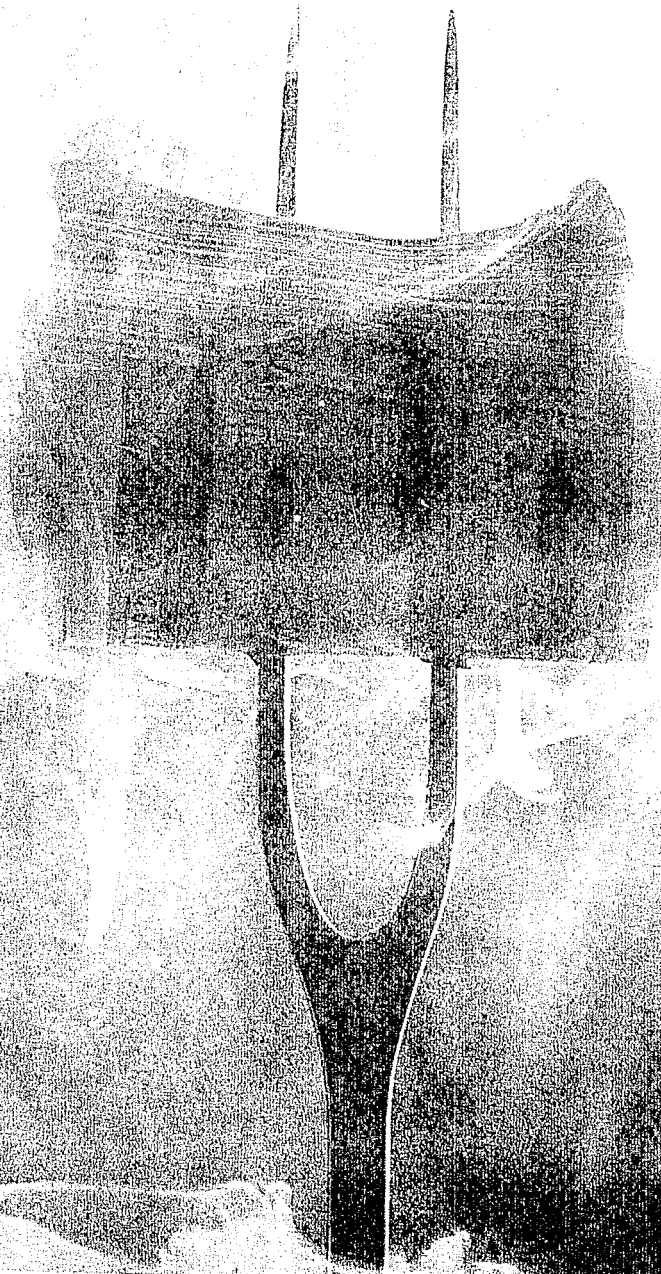
The Justice Dept. will crack down on U.S. companies trying to boost profits by "absorbing" tariff cuts resulting from the "Kennedy Round" of GATT talks in Geneva. Several firms, unidentified by Justice, that have been working out deals to this end with foreign producers have been warned of the antitrust implications.

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the U.S. has outrun the ability of some domestic industries to meet it. Examples in the field of chemicals: phthalic anhydride, sulfur, formaldehyde, phosphoric acid. Civilian demand is at a record high; and, of course, defense requirements have been rising as the U.S. escalates its military effort in Vietnam. One reason exports haven't grown at a faster rate during the past year or so is that domestic demand has absorbed nearly all U.S. output, leaving relatively little merchandise for overseas shipments.

The Federal Reserve Board already has moved to curb demand by making money tight and costly. But still there is intense pressure on the Administration to slow things down by fiscal policy measures. The worsening U.S. trade position can only add to that pressure.

Dollar Deficit Widens: A particularly galling aspect of the trade situation—from the Administration's viewpoint—is the harm it is doing to the U.S.

balance-of-payments position. There already is concern among the nation's money managers that the direct costs of the war in Vietnam will push the U.S. payments deficit from last year's \$1.3 billion to as high as \$2 billion in '66. With the trade surplus shrinking, this could be even worse.

The war, of course, has forced U.S. industry to go overseas for some of the materials needed to meet defense needs. And the extreme tightness in the money market has left commercial banks with comparatively little funds for overseas borrowers—including those who want the money to pay for goods from the U.S. At midyear, commercial bank loans to foreigners totaled nearly \$100 million less than at the end of '65. U.S. bankers confirm that foreign customers are not getting all the money they want.

Expediting Exports: The Administration has already started to carry out two plans to help reverse the trade-surplus trend. One is the proposed

new set of regulations covering the tax treatment of goods shipped by U.S. company to its foreign subsidiaries (*CW*, Aug. 13, p. 31). The Treasury Dept. figures the haphazard way in which such transactions have been taxed up to now may have discouraged such exports. Because parent-to-subsidiary shipments account for 25% of U.S. exports, any improvement in this area could be important.

Even more promising is a scheme by the Export-Import Bank to provide more funds for overseas lending by commercial banks (*CW*, *Washington Newsletter*, Aug. 27). Under this program, a bank could borrow from Ex-Im for up to one year an amount equal to 50% of its holdings of eligible export credit documents.

Still, there is little likelihood of any sizable widening of the trade balance this year. That won't come, government specialists concede, until either the super-boom at home or the war in Vietnam comes to an end.

Chemical trade: potent force in U.S. balance of payments

SITC No.	Commodity groups	IMPORTS		EXPORTS		BALANCE OF TRADE	
		First-half 1966	Change from '65	First-half 1966	Change from '65	First-half '66	First-half '65
512	Organic chemicals	\$105.8	+ 40.9%	\$343.4	+ 5.0%	+\$251.9	+\$237.6
513	Elements, oxides, halides	73.8	+ 38.5	79.0	+ 3.3	+ 23.1	+ 5.2
514	Other inorganics	25.5	+ 31.0	55.9	+14.4	+ 29.4	+ 33.5
515	Radioactive materials	22.3	— 16.4	25.4	+31.6	— 22.9	— 2.9
521	Crude chemicals from coal, oil, natural gas	5.3	+ 35.7	14.0	— 4.1	+ 10.6	+ 8.6
531	Synthetic organic dyestuffs, indigo, lakes	19.1	+ 51.0	17.5	+13.8	+ 2.8	— 1.6
532	Dyeing and tanning extracts	6.6	+ 25.9	1.3	+34.4	— 4.1	— 2.1
533	Pigments, paints, varnishes	2.5	+ 20.7	33.0	+15.4	+ 26.5	+ 30.5
541	Pharmaceutical products	38.4	+ 68.4	132.1	+11.0	+ 96.2	+ 93.7
551	Essential oils, flavors	22.9	— 22.2	20.3	+13.2	— 11.6	— 1.7
553	Cosmetics and toiletries	5.3	+ 9.4	12.9	+20.7	+ 5.8	+ 7.5
554	Soaps, detergents, polishing preparations	2.7	+ 31.7	33.6	+22.4	+ 25.4	+ 30.9
561	Processed fertilizers	75.1	+ 19.9	93.8	+41.0	+ 4.0	+ 18.7
571	Explosives, pyrotechnics	9.9	+123.2	11.2	+16.3	+ 5.2	+ 1.3
581	Plastics and resins	29.2	+ 64.9	240.6	+19.4	+ 183.7	+ 111.4
599	Other chemical products (pesticides, starches, adhesives, waxes, etc.)	31.9	+ 22.2	201.2	+26.2	+ 133.4	+ 159.3
5	CHEMICALS	482.2	+ 30.8	1,315.3	+15.0	+ 774.8	+ 833.1
231.2	Synthetic rubber	11.2	+ 19.4	87.9	+ 9.5	+ 70.9	+ 76.7
266	Synthetic and cellulosic fibers	37.1	+ 75.7	25.0	— 1.2	— 4.2	— 12.1
271	Crude fertilizers	2.3	+ 48.5	40.6	+27.6	— 30.3	+ 38.3
274.1,3	Sulfur	13.9	+ 2.7	40.7	+42.9	— 14.9	+ 26.8

Product groups with improved balance of trade are in color (Dollar figures in millions. Source: U.S. Dept. of Commerce)



Conoco's McCollum: Carrying out his big oil-gas-coal-chemical merger.

Selling Subsidiaries

Next week Chairman L. F. McCollum of Continental Oil expects to carry out his long-delayed merger with Consolidation Coal Co. Shareholders last week voted almost unanimous approval of the transaction — Consol by 99.4%, Conoco by 99.2%.

Conoco will thereby add Pitt-Consol Chemical Co. (Newark, N.J.) to its expanding chemical operations. Pitt-Consol, major producer of cresol and cresylic acids, will be run as part of Conoco's new Consolidation Coal subsidiary.

But Consol's 50% stock holdings in two other chemical process ventures are to be sold off. Its stake in National Potash Co. and in Mountaineer Carbon Co. will be offered to the other parent companies — Freeport Sulphur Co. and Standard Oil Co. of Ohio, respectively. Asked about conjecture that Consol would offer those shares to its own stockholders, in the event that Freeport and Sohio were unwilling to buy, a Consol spokesman told *CW* they will "definitely not" be offered.

While Sohio would not comment on possible acquisition of Consol's half of Mountaineer, a Freeport spokesman acknowledges that his company would be the "logical candidate" for the potash stock. Trade sources, on the other hand, say both Freeport and Sohio are "negotiating" with Consol and will continue to do so. These sources predict that those transactions will be wrapped up soon.

Preparing Antitrust Appeal

General Dynamics calls divestiture order 'unjustified'; U.S. lauds reciprocity ruling

General Dynamics Corp. (New York) lawyers are studying last week's federal district court decision ordering the company to divest its Liquid Carbonic Division (Chicago). GD calls the decision unjustified, says it has "every intention of contesting it vigorously."

In a 98-page decision, the court ruled that GD's '57 acquisition of Liquid Carbonic violates Section 7 of the Clayton Antitrust Act (which deals with lessening of competition and creation of monopolies) and Section 1 of the Sherman Act (which deals with restraint of trade). GD was given 60 days by Judge John Cannella to submit a plan for divestiture.

The decision is based on a '62 suit filed by the Justice Dept., alleging that GD used its buying power and its authority to award defense subcontracts to coerce other companies to purchase carbon dioxide and other industrial gases from Liquid Carbonic. Justice contended that GD's special sales and trade relations programs were actually restrictive agreements with suppliers and contractors. The suit sought to make GD discontinue the programs and also forbid it from acquiring any other carbon dioxide producing companies (*CW*, Nov. 17, '62, p. 45).

One key point of the government's argument was rejected by Judge Cannella. This was the charge that GD's agreements with suppliers were illegal because the company had, either by "leverage" or "mutual patronage," persuaded the suppliers to buy from Liquid Carbonic. It was the first time a court had been asked to rule on a "reciprocity" question.

Lessening of Competition? In the opinion, Judge Cannella found that reciprocity, whether coercive in nature or based on mutual patronage, is an anticompetitive practice.

Question: Did the reciprocity made possible by the General Dynamics-Liquid Carbonic merger give rise to the probability that a substantial lessening of competition would occur?

The court found that at the time of merger both parties had the intent to use GD's purchasing power to

secure sales for Liquid Carbonic.

'Not-So-Subtle Hints': The opinion made it clear that the supply contract contained no express terms requiring reciprocal dealing. But Judge Cannella listed several instances in which officials dropped not-so-subtle hints to its carbon-dioxide-consuming suppliers. Among them: Raytheon, T. S. Siron Electronics, Shell Oil, Standard Oil of California, Sylvania Electric Products and Midland-Ross.

The judge said such "back scratching" was "inimical to a competitive economic society." However, he said the government had proved that agreements accounted for only \$17,225 in purchases from Liquid Carbonic, and this wasn't enough to violate the Sherman act.

Justice Dept. officials were "wounded" with the decision, and on "slightly disturbed" by Cannella's refusal to outlaw the agreements themselves. In their view, the judge was putting "a heavy burden of proof on the government, but they felt that future prosecution could be adjusted as reciprocal agreements would be held illegal. If this happens, it would seriously threaten the now-common practice of "you-buy-from-me, I'll-buy-from-you" mutual patronage.

History of Litigation: In '48 the Federal Trade Commission issued a cease-and-desist order against Liquid Carbonic, prohibiting it from price fixing, predatory pricing to eliminate competitors, and dividing territories with competitors. Also in '48 the Justice Dept. filed suit charging that Liquid Carbonic conspired to restrain trade in the carbon dioxide market.

At the time of its acquisition Liquid Carbonic held 35-40% of the carbon dioxide market. It was the largest domestic producer and distributor of gaseous, liquid and solid CO₂. Its '56 sales totaled \$35 million—about \$18 million from carbon dioxide. Since the acquisition General Dynamics has not made public the division's financial results.

The company acquired Liquid Carbonic through an exchange of stock, valued at about \$58 million.

Taking Giant Steps

Two chemical process companies took giant steps toward diversifying into the oceanography field last week, and two paper companies with combined sales of nearly \$1 billion/year reached a tentative agreement to merge.

(1) Bendix Corp. (Detroit) expanded its oceanic activities by acquiring for an undisclosed amount of stock Marine Advisers (La Jolla, Calif.), producer of oceanographic instruments for petroleum and utility companies, state and federal agencies, and firms engaged in scientific programs.

(2) Fluor Corp. (Los Angeles) and B. L. McFarland and Associates (Fort Worth and Midland, Tex.), a group of five companies involved in offshore and onshore drilling operations, have agreed to merge, subject to stockholders' approval. The McFarland group operates five offshore drilling rigs in the Gulf of Mexico.

(3) A tentative agreement to merge has been reached by U.S. Plywood Corp. (New York) and Champion Papers, Inc. (Hamilton, O.). It is subject to both directors' and stockholders' approval. The corporate identities of both companies will be preserved.

Reducing Gas Rates

The Federal Power Commission has ordered El Paso Natural Gas Co. and Transwestern Pipeline Co. to reduce by \$17 million/year the price of natural gas in the southern California market.

The rate cut stems from the July 26 decision in which FPC turned down the application of Gulf Pacific Pipeline Co. (a Tennessee subsidiary) to supply gas to the Los Angeles area (CH, Aug. 6, p. 20). Gulf Pacific last week filed for a rehearing.

El Paso and Transwestern were told they would have to lower their rates to reflect the lower costs resulting from the bigger deliveries possible in the expanded system. At the same time, FPC said it would conduct further proceedings to decide if customers should get additional benefits resulting from more liberal depreciation allowances.

FPC has given the companies 45 days to show cause why the reduction should not take place.

Sources of airborne asbestos

Asbestos-lined ducts used in centrally air-conditioned buildings.

Asbestos ducts and insulation in home central-heating plants.

Motor vehicle brake linings and clutch plates.

Auto undercoatings.

Asbestos ceiling and floor tiles.

Asbestos shingles and sidings.

Construction and demolition

Fitting, cutting, and removing asbestos-filled wallboards and floorings, piping and insulation.

Incineration of asbestos-filled scrap.

Improperly filtered effluent from asbestos processing plants.

Asbestos: Awaiting 'Trial'

The asbestos industry—whose end products are valued at more than \$500 million/year—may be in for a shake-up. It could come in the form of federal legislation limiting the use of asbestos, because asbestos has been accused—though not yet “convicted”—as a significant health hazard. Probable contender for asbestos markets: plastics.

Recent studies have convinced U.S. Public Health Service specialists and other medical authorities that about 40% of all Americans have mild, chronic cases of asbestosis, even though most of them never worked directly with asbestos.

Unlike other airborne dust particles, asbestos fibers have the ability—almost as much as activated carbon—to absorb polycyclic hydrocarbons and arsenicals. Furthermore, says USPHS, in the past 30 years the asbestos-related cancer rate has increased sixfold.

The Inference: While the average asbestos worker is well protected, the man on the street is not. The 3x1-micron asbestos fibers in his lungs can come from a variety of sources (table, above).

And medical experts say there's no way to assess hydrocarbon content in those lung deposits.

American Cancer Society researchers feel certain there is a synergistic relationship among airborne asbestos, smoking and lung cancer. They reason that the nondegradable, hydrocarbon-soaked fibers may well be a constant source of lung irritation.

PHS officials think it may take them up to five years to establish asbestos' true role as an air pollutant. However Congress may act before the research is finished. Says Representative Robert Watkins (R., Pa.): “We've seen enough evidence already. Asbestos will never get a clean bill of health. With just a little more data we'll move for control—strict ones.”

Some form of asbestos control is in the offing, public health officials are certain. If only part of a larger clean-ambient-air program. However, there is the danger that Congress may enact rigorous controls on the quantity of asbestos that could be used.

In that case both Canada and U.S. asbestos products manufacturers would be hard hit. Of the five forms of asbestos mined today, chrysotile asbestos holds the predominant market position because of its insulating and processing qualities. Canada produces more than 80% of the chrysotile asbestos used in the U.S. In both countries, a number of serious dislocations would occur.

At present, there is no known material that could fill all of asbestos' strategic roles. On the other hand, should federal controls merely call for higher standards for binders and shieldings, that would spark a rise of new products, with plastics taking the lead.

Reason, say industry spokesmen, present polymer technology could easily turn up products to replace asbestos in most end-uses.

WASHINGTON Newsletter

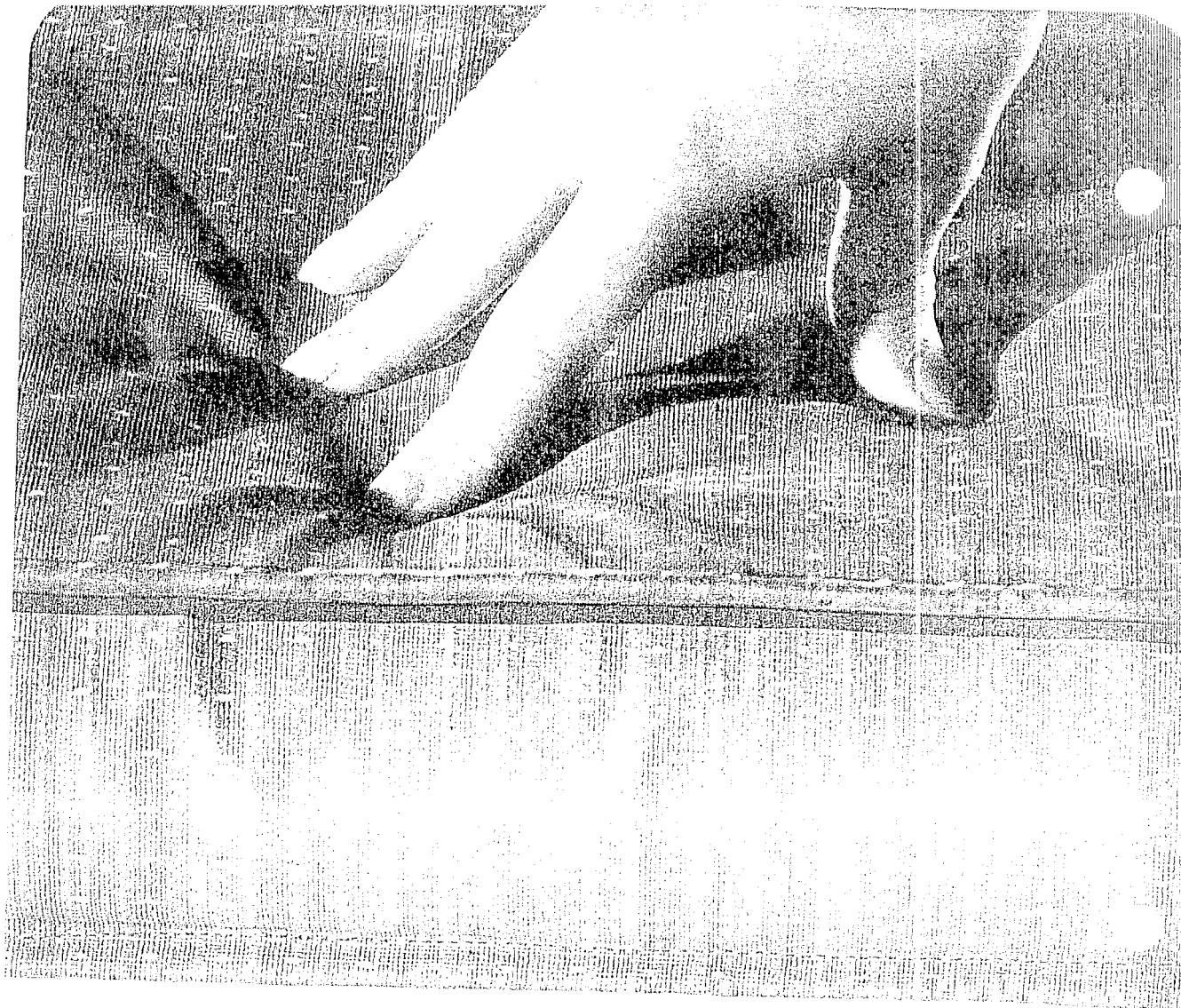
Gas pipeline safety bill now seems fairly certain of winning Congressional approval next year. The Senate Commerce Committee has opened hearings on a bill that would give the Federal Power Commission authority to set safety standards for pipelines, a move that interstate pipelines have resisted for years. There is no chance of the bill winning Congressional approval this year. But observers predict that it will be passed in '67.

Automotive air-pollution controls for large vehicles operating either on gasoline or diesel fuel are under consideration by federal officials. Controls so far are limited essentially to passenger cars and light commercial vehicles. They become effective as cars roll off the assembly line in the fall of '67. The Public Health Service now is seeking methods of setting standards for oxides of nitrogen, not now covered, and of extending carbon monoxide and exhaust hydrocarbon standards to trucks and buses—along with an initial round of controls on diesels. Under consideration are such possible solutions as catalytic mufflers and fuel additives. A proposal along these lines is expected early next year.

Doctors must get written consent from patients before trying any experimental drugs on them under new rules issued by Food & Drug Commissioner James L. Goodard. A consent requirement has been in the law since '62, but Goodard feels that some loopholes needed closing. A recent survey by the Pharmaceutical Manufacturers Assn. disclosed that 59% of physicians never comply and 30% do not always comply. The new rules limit exceptions to emergencies, cases where the patient can't communicate or understand the situation, or instances where the information would affect the patient's condition.

Project Mohole is being closed out. The National Science Foundation's \$127-million project had two objectives: (1) to drill a hole through the earth's crust to try to learn more about the earth's origin, (2) to reach the oil industry more about deep ocean drilling. But the House decided that the nation could do without the project and refused to bow to Senate efforts to retain the programs. The Science Foundation now has begun closing out its contract with Brown and Root Inc. (Houston), the prime contractor. The project has been replete with controversy since its conception in the mid-'50s. Original cost estimates have risen from \$15 million

The 25% nickel set-aside for military production, ordered by the government in August, has been extended through September by the Business & Defense Services Administration. There still is some disruption of the nickel market from the recent Canadian wildcat strike. If the disruption doesn't clear up by the end of September, BDSA undoubtedly will extend the set-aside again. (Also see *Market Newsletter*, p. 79.)



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ability. These are only a handful of the virtues an Admex plasticizer can build into a vinyl product.

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ADM CHEMICALS

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Sun lets contract for gasoline plant; Texaco markets automobile filters

Sun Oil Co. (Dallas) has contracted with Austin Rankin Corp. to design and construct \$1.5-million addition to its natural gasoline processing plant in Premont, Tex. Construction will begin in September.

Texaco (New York) is marketing its own brand of automotive filters at 40,000 Texaco retail outlets. The new filter line complies with requirements for nearly all American-made automobiles.

Monsanto triples sequestrant capacity; Carbide expands methyl isobutyl ketone

Monsanto Co. (St. Louis) will begin work immediately at its Everett, Mass., plant, to triple manufacturing capacity of Dequest, a phosphorus-based deflocculating and sequestering agent. The expansion, the second since the product's introduction in '64, will be completed by early fall.

Dequest is used for sequestering a wide range of metal ions—e.g., calcium, magnesium, copper, iron and aluminum. The product is also used in bottle washing, metal cleaning, rubber compounding, textile and food processing and for clay deflocculating.

Union Carbide will increase methyl isobutyl ketone capacity by more than 20 million lbs./year. The expansion will be completed in first-quarter '67. Cost and plant sites were not disclosed. Carbide says the increase is required to provide for the expanding needs of customers in the protective coatings, rubber, pharmaceutical and plastics industries.

Three companies offer debentures for financing expansion programs

Three chemical process companies have filed preliminary registration statements with the Securities & Exchange Commission for convertible subordinated debentures, proceeds of which will be used for capital expenditures programs.

(1) Standard Oil Co. (Indiana) has filed for \$175 million in debentures due Sept. 15, '91, with about \$150 million earmarked for expansions. The company's estimated '66 expenditures: \$460 million. Breakdown: production, 53%; manufacturing, 23%; marketing, 20%; transportation and other, 4%. Standard will complete construction this year of a 400-million-lbs./year dimethyl terephthalate and purified terephthalic acid plant at Decatur, Ala., and a 225-million-lbs./year para-xylene plant at Texas City, Tex. Also under construction at Texas City: a 1,500-tons/day anhydrous ammonia unit, scheduled for completion in '68.

(2) Aluminum Co. of America filed for a \$125-mil-

lion offering of convertible subordinated debentures due in '91. Through '68 Alcoa will spend \$780 million expanding and modernizing its facilities. Expansions now under way at Evansville, Ind., Badin, N.C., and Wenatchee, Wash., will increase the company's domestic primary aluminum production capacity to over 1.1 million tons/year.

Other expansions: an integrated aluminum complex and related power facilities at Surinam, South America; facilities to fabricate sheet, plate and foil (including a new foil mill at Lebanon, Pa.); and a caustic chlorine plant at Point Comfort, Tex.

(3) Mitron Research & Development Corp. (Waltham, Mass.) filed for a \$1-million offering of 6% convertible subordinated debentures due in '76. About one fourth of the proceeds will be used to further develop Mitron's titanium casting and molding processes and the company's ceramic fiber-cast metal composites process.

About \$100,000 will be used to discharge bank loans of Rode, Inc., a wholly owned subsidiary and \$50,000 as a loan to Rode for working capital. The balance will be used for general corporate purposes.

Allis-Chalmers supplies equipment to Airco; Hercules increasing methanol capacity

Allis-Chalmers has signed a \$1.7-million contract to supply equipment to Air Reduction Co.'s (New York) \$24-million complex in Haskock County, West Virginia. The complex—an air-separation plant and a welding wire plant—will utilize two Allis-Chalmers 17,000-hp. main air compression systems and a 10,000-hp. nitrogen cycle compressor.

Hercules (Wilmington, Del.) will increase methanol capacity at its Hercules, Calif. plant by about 15 million gal./year. The expansion, to be completed in late '66, is being made by conversion of ammonia production facilities. Work will begin immediately.

Consumer's Co-op changes name; Gardner, Almo build helium unit

Consumer's Cooperative Assn. (Kansas City) is changing its name to Farmland Industries effective Sept. 1. The new name is intended to be more descriptive of the company's activities and services, suggesting agricultural ownership and industrial character.

Gardner Cryogenics Corp. (Hightstown, N.J.) and Almo Chemical Co.—wholly owned subsidiary of Phillips Petroleum Co.—plan to construct a jointly owned helium extraction and liquefaction plant near Elkhart, Kan. Scheduled for completion in fall of '66, the plant will process 385,000 cu.ft./day of high-purity (99.95%) helium gas.

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other. Their quantity may be too small or large, production requirements (equipment or conditions) too highly specialized, they don't fit into current runs, they are underdeveloped, there is no time for them ... they just can't be accommodated.

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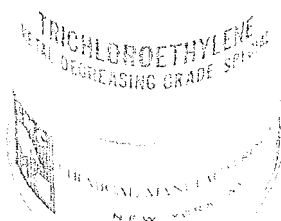
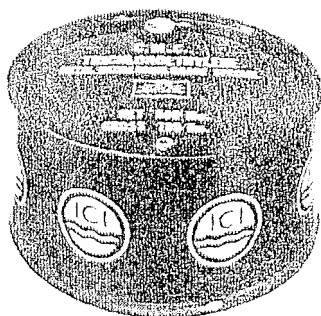
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moisture and steam resistance, properties not often found in other urethanes.

When impregnated with the urethane elastomer, the Corfam substrate becomes stronger and is no longer permeable.

Durability Tests: Du Pont's Engineering Test Center carried out tests with packing cups of Adiprene-impregnated Corfam on pistons that were reciprocated in cylinders containing mineral oil and water-oil emulsions to determine wear as it might be found in applications of hydraulic packing. In honed cylinders, Corfam packing outlasted other materials, such as impregnated leathers and neoprene-coated duck, and gave indications that rougher cylinder walls might be used, reducing the cylinder finishing operations.

In general, leather packings are limited to cylinders with 64-microinch roughness and rubber to those with 32-microinch roughness. Corfam outlasted other materials by as much as three to one in cylinders of 35-40-microinch roughness and as much as 17 to one in cylinders of 90-100-microinch roughness.

Moreover, the Corfam packing cups honed the cylinders, reduced the roughness as much as 25% after 1 million cycles. But Du Pont cautions that extensive field tests should be run to confirm the laboratory results.

The hydraulic cylinder tests were run at 3,000 psi., indicating that the Corfam seals can probably withstand higher dynamic pressures. And in static pressure tests, Corfam has withstood pressures above 5,000 psi. In general, Corfam is similar to other reinforced packings where the substrate prevents excessive extruding and blowing out at high pressures.

Less Drag: Most engineers express concern about "breakaway" force and friction when considering any new seal for rotating shafts. And often the seals must be coated to reduce friction, enabling shafts to be started without too much effort. Du Pont says that no problems have been encountered with Corfam seals that have been impregnated with Adiprene, which has a low coefficient of friction. It has also experimented with silicone coatings and suggests Teflon coatings could help keep operating temperature down in addition to reducing startup torque.

But Robert Phelps, Sr., president

of Phelps Packing & Rubber Co. Inc. (Baltimore), indicates that Adiprene-impregnated Corfam may be more than satisfactory. Phelps probably has sold more Corfam packing and seals for industrial applications than any other packing supplier makes hydraulic seals of 24.5-in. inside diameter for machines that cut large metal parts. These machines, which hold the work stationary, rotate the cutting wheel at high speed. Phelps had been using graphite-impregnated neoprene. But the Adiprene-impregnated Corfam seals produced for let drag.

Phelps adds that Corfam's tensile and tear strengths and good elongation properties have helped its use as diaphragms in 150-psi. air service, replacing nylon and neoprene.

Cost Savings: Cost comparison with other materials are difficult to make. For example, leather costs are rising, and very thick or very thin sheets of leather often cost more than sheets of intermediate thickness. Moreover, it is not possible to make direct comparisons of many seal materials because different thicknesses, depending on the material, may be needed for the same seal application.

Du Pont lists Adiprene-impregnated Corfam prices at \$3.05-1.50/sq.ft., depending on quantity and thicknesses ordered.

Corfam may cost more than twice as much as other sheet packings. However, Phelps Packing says that 50% more would be a better figure for most applications. And, when service life of Corfam may be 20 times longer, the higher initial cost may not be significant.

But Corfam will not be the answer to all packing and seal problems. For example, Corfam has not been tested in many chemical environments, may not be superior to some of the rubber-coated and homogeneous-rubber materials already being used. And Teflon, despite cold-flow and permanent-set problems, has superior chemical and temperature resistance. Also, Corfam cannot be made into a braided packing, although sheet forms might replace braided packing in some applications.

Moreover, in many cases the expensive packing and seal materials do a satisfactory job. But where more durable packings and seals are needed, Corfam will rate a trial.

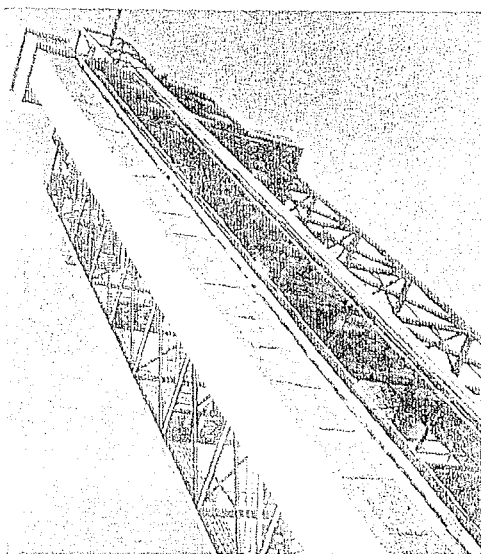


MAKING PACKAGES TALK—

Mattel Inc. scores another first in marketing: A Talking Package! Thanks to a new, super-tough polypropylene film from Hercules Incorporated, shoppers can reach into the side or back of the shrink-wrapped carton to operate the toy... see how it acts through the crystal-clear window... hear how it sounds... yet never touch the product.

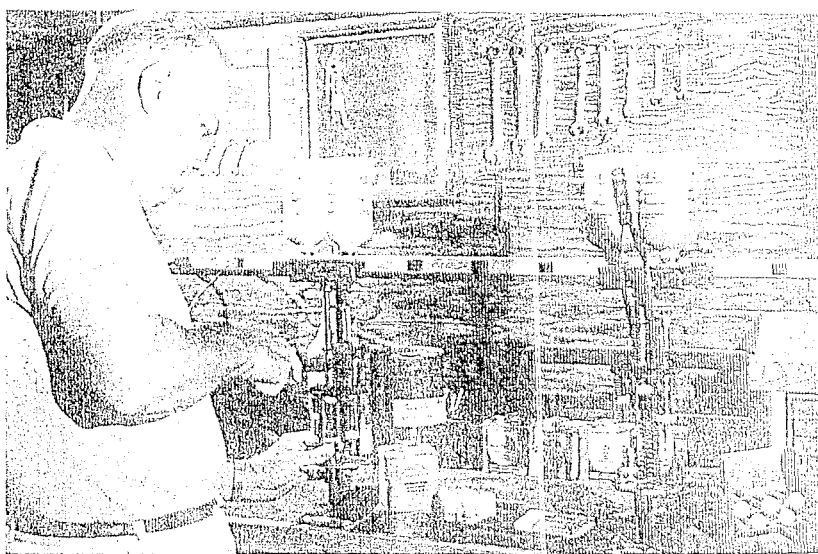
This new balanced polypropylene film for shrink wraps is called 180 gauge EC120. Made only by Hercules, it is three times thicker and three times stronger than conventional shrink films. It provides triple-strength seals, with puncture resistance that virtually eliminates film breakage in shipping and retailing.

Producers of many types of hard and soft goods have found that Hercules polypropylene shrink wraps, in all gauges or thicknesses, are the ideal solution to their packaging problems. Though many gauges, they can withstand unsealing and shrink equipment... yield tight, non-relaxing wraps... give uniform shrink without wrinkling.



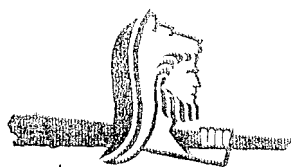
MEET DEMAND FOR NITROGEN—

This new 160-foot prilling tower is part of a multi-million-dollar expansion program at Hercules, California. With the addition of Herco-Prills® prilled ammonium nitrate, the complete line of Hercules fertilizers is now available on the West Coast. These include anhydrous and aqua ammonia, nitrogen solutions, HPC® ammonium nitrate-ammonia solutions and ammonium nitrate-ammonia/urea solutions, UN-32® and UN-28® urea ammonium nitrate solutions, and Nitroform® ureaform plant food.



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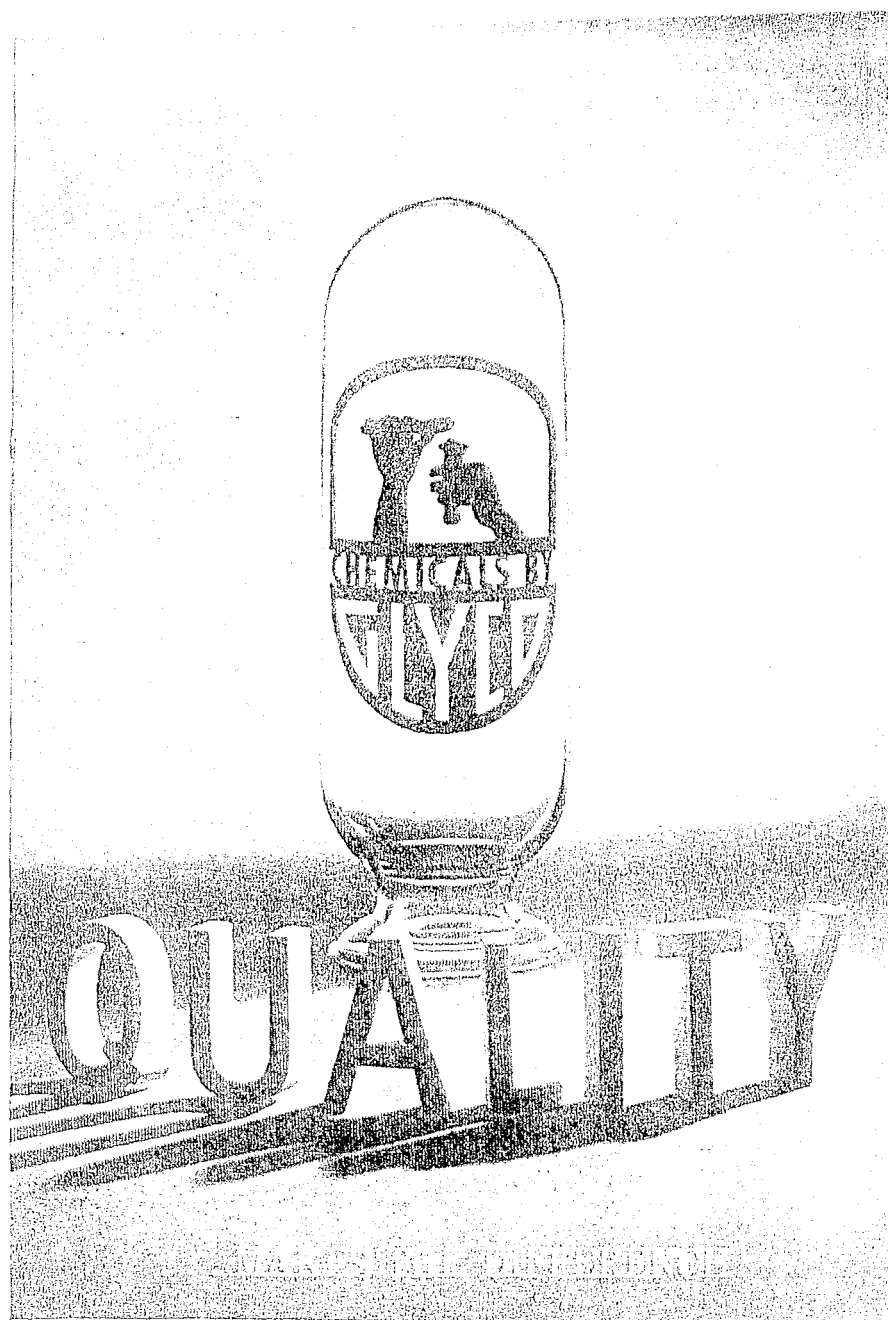
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RESEARCH

down to 0 F (e.g., in mineral beneficiation, petroleum processing and building). They are also highly soluble in a variety of solvents, including isopropyl alcohol, ethylene glycol, kerosene, mineral spirits, mineral oil.

The beta-amines have an electrostatic attraction to most natural and synthetic materials, displacing moisture from surfaces and coating them with a hydrophobic film.

They serve as effective emulsifiers for quick-breaking emulsions and are also able to kill microbes, algae, fungi. Oil- or water-soluble salts can also be formed (e.g., oleate or acetate, most of which are liquids at room temperature).

Derivatives: Three types of derivatives are planned, but many more are possible. Initially there will be dimethyl beta-amines (Armeen), quaternary beta-amines (Arquad) and ethoxylated beta-amines and diamines (Ethorn and Etioduomren).

The dimethyl compounds are prepared for use as reactive alkyl chemical intermediates, especially in the manufacture of quaternary ammonium salts, amine oxides and coordination compounds. They are more soluble than the corresponding tertiary alpha-amines and thus produce more concentrated reaction products.

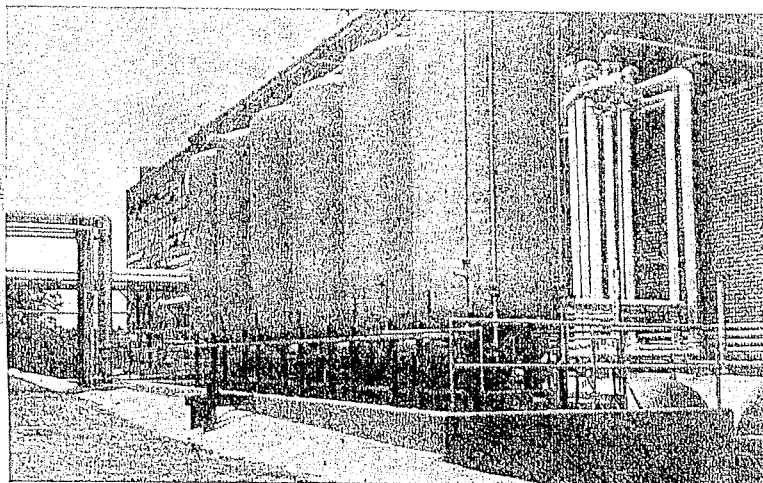
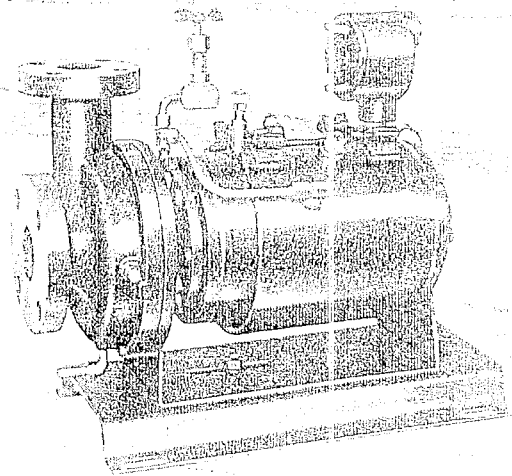
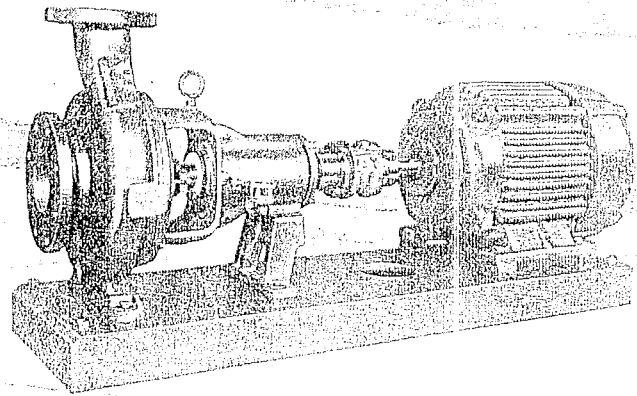
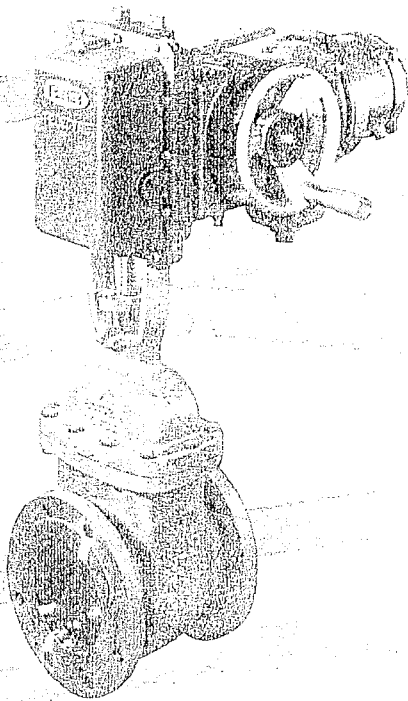
The quaternized and ethoxylated products are good emulsifiers for a wide variety of reactions. The quaternary amines are water soluble and are effective bactericides, fungicides and algicides. The ethoxylated amines are offered in a range of compositions to allow selection of the hydrophilic-lipophile balance best suited to a particular application.

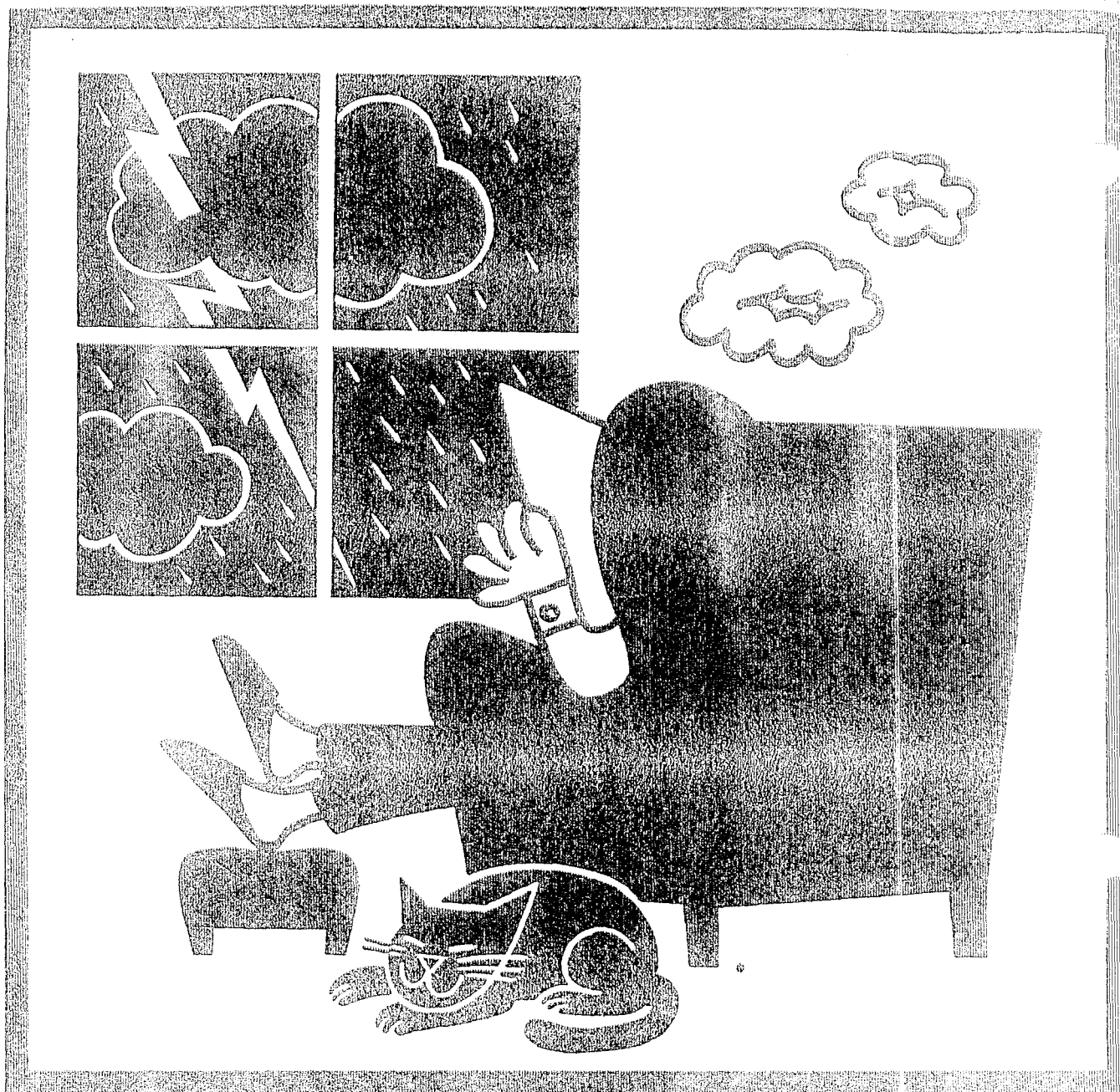
Delivered tank-car prices for a beta-amine are \$5.5-\$7.5/lb. Full figures for the derivatives are \$9.2/lb. for the dimethyl compounds, \$9.2-\$14.5/lb. for the quats and \$8.7-\$41.75/lb. for the ethoxylated products.

Single-drum prices would average about 8-9¢/lb. higher. The company says these are commercial development prices and indicates that large volume production may reduce them further.

Armour's willingness to put this new line in competition with its own standard line of amines backs up its contention that the beta-amines will be an important new offering.

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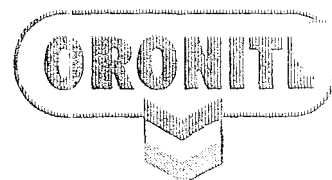
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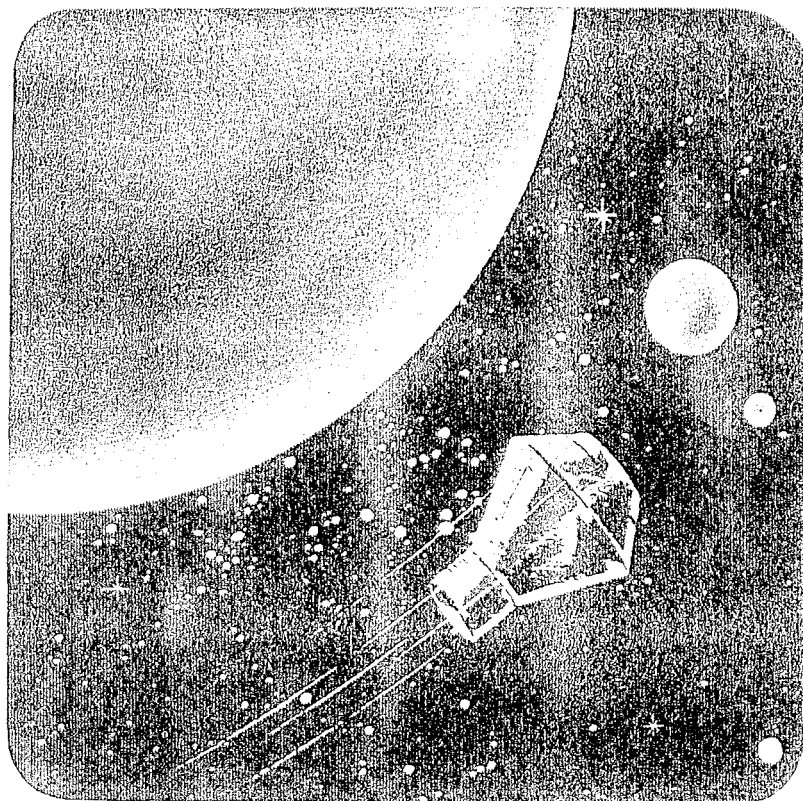
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W-4

been known for some time, Osipow and Rosenblatt say in their patent specification that they are the first to use water-free transparent emulsions in a chemical reaction—i.e., the fatty acids of the tallow fats react with sugar dissolved in propylene glycol.

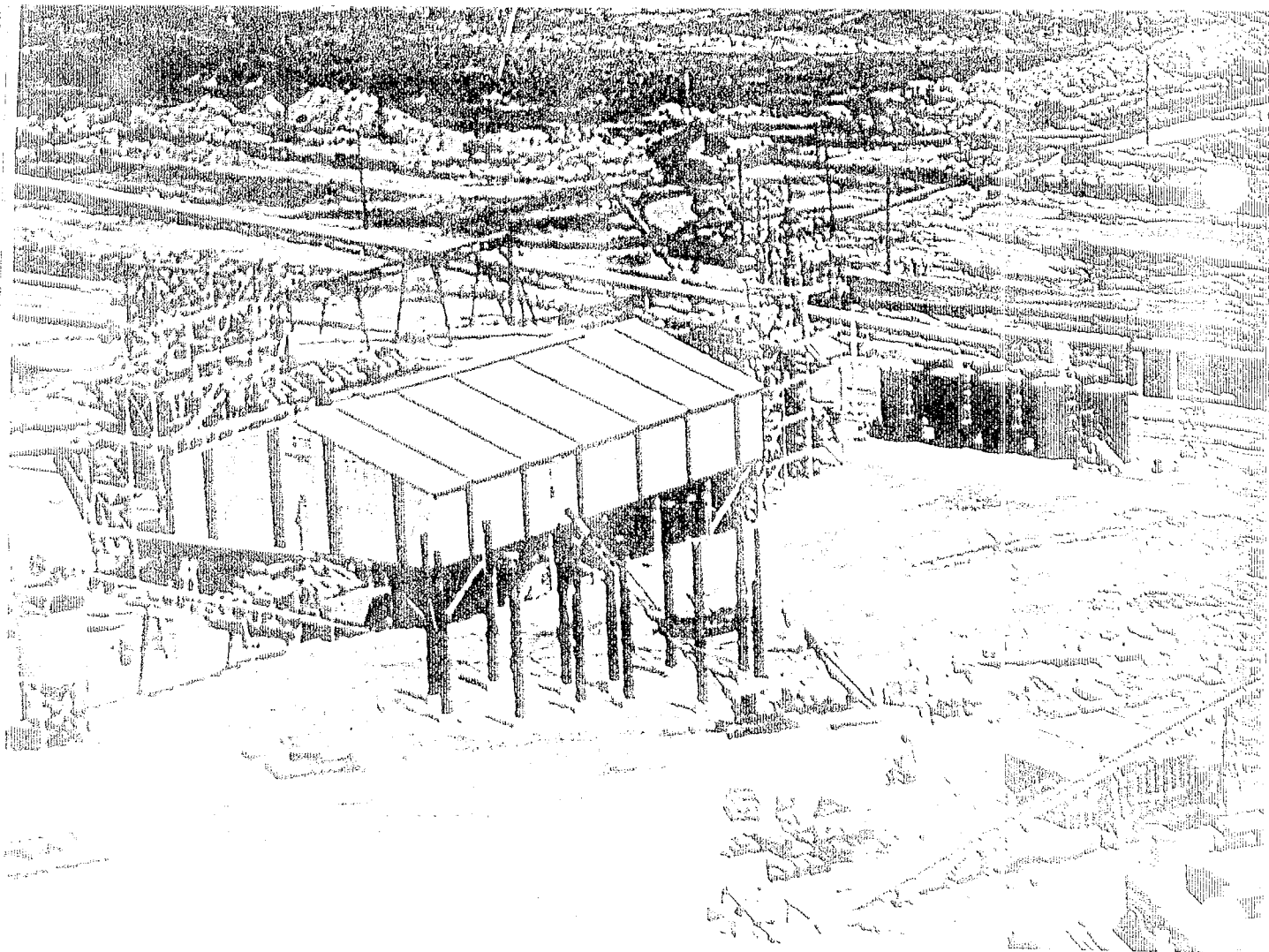
Another important factor in the Osipow-Rosenblatt process: the sucrose ester formed by the reaction between the fatty ester and the sugar is usually a surfactant with emulsifier properties. Thus the product of the reaction can form additional soap micelles, which also act to incorporate the dispersed fatty ester into a transparent emulsion. The patent application says that this is observable: a temporarily turbid emulsion will become transparent as the reaction takes place.

In adapting their process for food and cosmetic applications, Osipow and Rosenblatt suggest potassium or sodium soaps of fatty acids. These soaps are inexpensive and nontoxic; they can be removed by the use of ion exchange resins; and they can be converted by acidification of fatty acids that have entirely different solubility characteristics than those of the soaps.

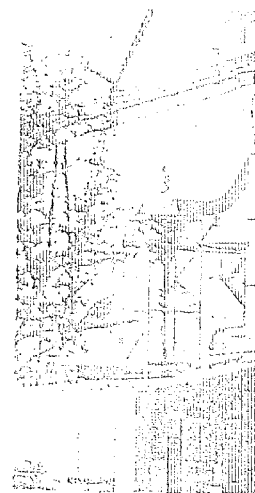
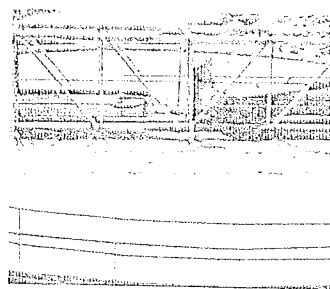
Distillation Reaction: According to examples in the patent application, the State of Nebraska's new process could most readily be expanded from laboratory to plant scale by means of a batch-type distillation tower operating out of a reaction kettle. The soap, tallowate and sugar are mixed with propylene glycol to form the transparent emulsion, and then the propylene glycol is vacuum distilled out of the mixture.

Osipow and Rosenblatt theorize that the actual formation of the sugar ester occurs during the distillation of the last 10% of the propylene glycol. Hence it is necessary to distill out all of the propylene glycol to obtain good yields. Once the propylene glycol is removed, the starting soap may be separated from the sucrose ester product by conventional extraction.

In one patent example, propylene glycol (63.6 wt.%) is used to form a transparent emulsion containing sodium oleate (8.4 wt.%), sucrose (21.7 wt.%) and methyl stearate (6.4 wt.%). The transparent emulsion is formed by stirring and heating to about 270 F. Then the system is put under vacuum, and the propylene glycol distilled out



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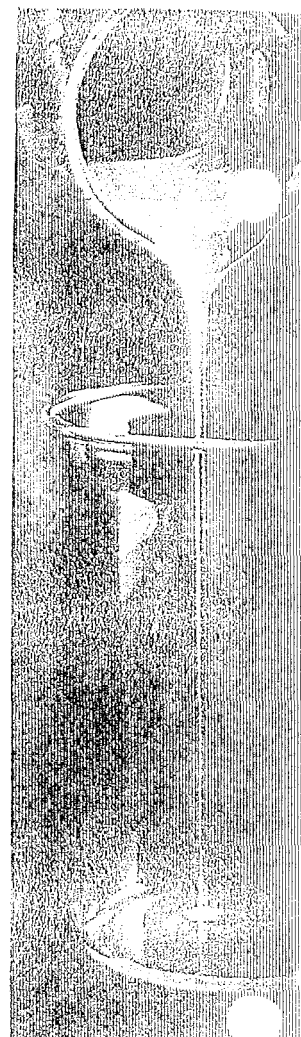
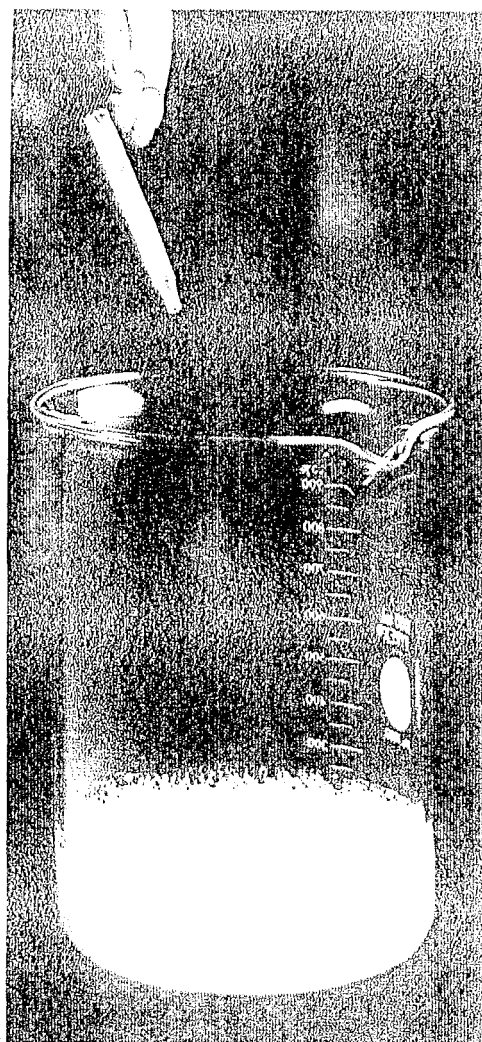
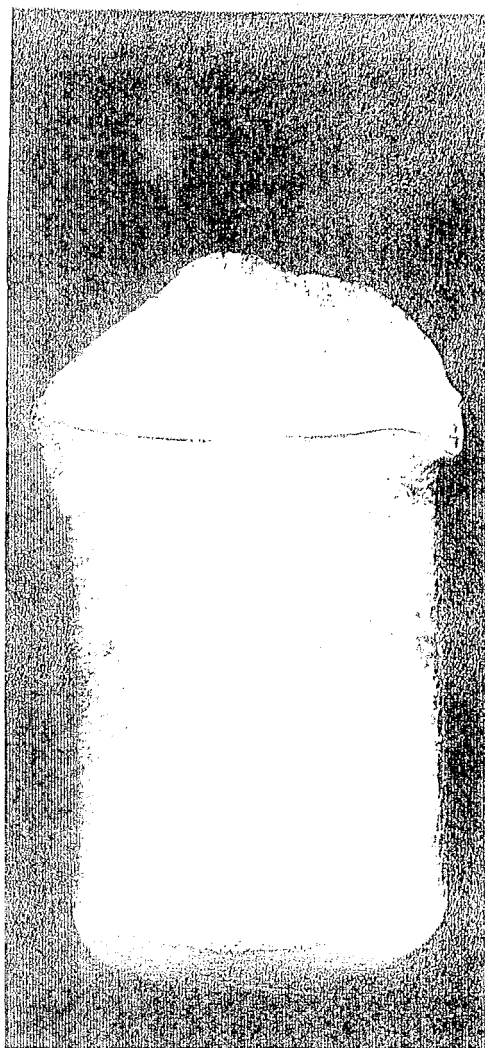
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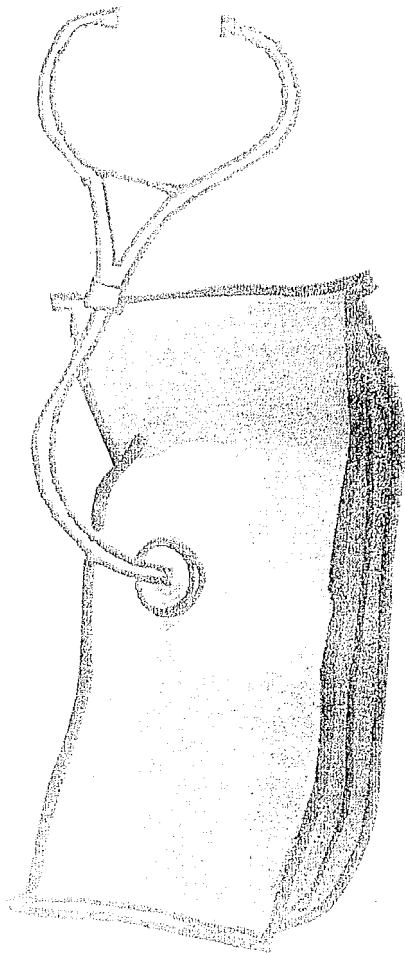
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ENGINEERING

LAS products is being carried out by the Public Health Dept. in New York's Suffolk County Center at Riverhead, near the eastern tip of Long Island. A number of commercial products are being observed under typical household conditions to discover: if the detergents are broken down; whether they can alter the effectiveness of waste disposal systems; and whether lack of syndet biodegradability can lead to contamination of water supplies.

Some industry observers are expecting dramatic disclosures from the Suffolk work. But, because of the complexity of the waste it's likely that the Suffolk studies will not provide any specific data for or against any products.

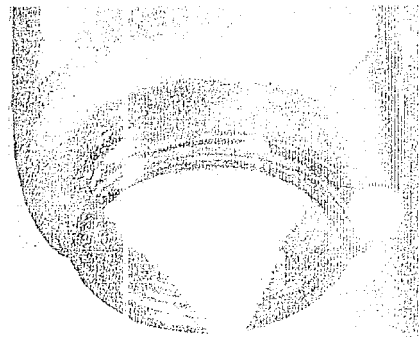
So the future of sugar tallowate detergents seems tied to the work now being done to make the products and processes commercially attractive.

Wet-Acid Purifier

Toyo Soda Manufacturing Co., Ltd., has developed a new solvent process for concentrating and purifying wet-process phosphoric acid. The firm now has this technique in operation and is offering it for license. The process makes an acid that is about 85% wt. % phosphoric acid (H_3PO_4) and is claimed to be pure enough for processing to food additives, detergents, etc. Thus, it appears that the route is a competitor of the conventional furnace process.

So called furnace acid is widely used in the U.S., primarily to make sodium phosphates in detergents and capacity for phosphorus furnaces continues to grow at over 10%/year, although the furnace process is fundamentally more expensive than the wet process used in making fertilizer-grade phosphorus acid.

The additional expense of the furnace method stems primarily from the cost of electric power (about 5,240 kwh/ton of phosphorus pentoxide), of carbon (0.60 tons/ton) and of silica (1.27 tons/ton). However, the high purity of the acid—which results from burning the elemental phosphorus produced in the furnace and then hydrolizing this phosphorus pentoxide to the acid—gives furnace acid an edge over wet-process acid in nonfertilizer applications. And since the phosphorus fur-



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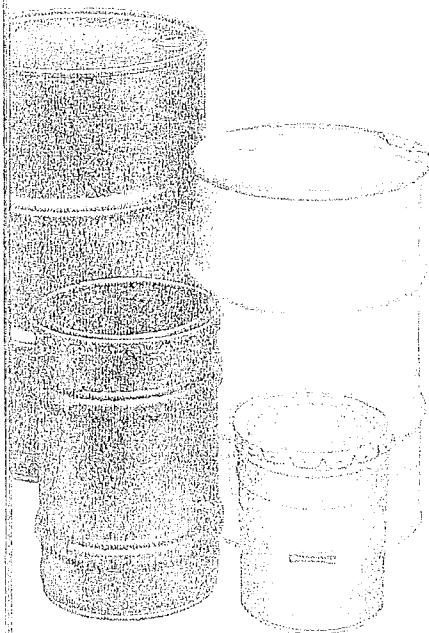
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naces must operate at full capacity for optimum economy; the furnace acid actually competes with wet-process acid in fertilizers.

Solvent Solutions: The key to Toyo Soda's new route is a parallel solvent recovery system that lets it extract phosphoric acid from the unconcentrated "green acid" (31.7 wt. % H_3PO_4) produced by the conventional wet process.

Although Toyo Soda has not disclosed its solvent—it says the process is proprietary—the company is known to have licensed from Israel Mining Industries the extraction techniques covered in U.S. patent 2,880,063. IMI uses aliphatic alcohols as solvents for extracting phosphoric acid from solutions of calcium chloride.

According to flowsheets released by Toyo Soda, its solvent is used to separate two grades of phosphoric acid—a fertilizer grade and a food grade—and is recovered from dilute solutions of solvent and phosphoric acid in water.

In the overall process, crude wet-process acid is first dehydrated to settle out impurities brought over from the wet-process plant.

Then the clarified acid is fed into the first stage of extraction, where it is brought into contact with the recycling solvent.

Here, the solvent contains the bulk of the phosphoric acid. At the same time, some of the solvent also dissolves in the crude water and acid.

Solution of solvent in acid. Crude acid is sent to a solvent recovery system believed to employ activated carbon and the recovered solvent is recycled as the final grade acid is sent on to processing for fertilizer uses.

Meanwhile, the extract of phosphoric acid in solvent is washed with pure water. This results in a clarified solution of phosphoric acid and solvent in the water. And this solution can be treated in the parallel recovery system to separate solvent for recycle from a purified acid, which is then evaporated and finally purified to the food-grade product. Over-all yields of purified and crude acid are on the order of 97%.

Although investment costs are not revealed, operating costs appear to be nominal.

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for a \$3.4-million, 6,000-tons/year unit. Nippon Carbide Industries Co., Inc., will build a 15,000-tons/year plant for an unidentified Korean firm. A fourth Japanese chemical company, to be chosen by the Japanese trading firm Toshoku Ltd., will build a \$3.7-million, 10,000-tons/year plant for Samchok Industry Co.

Because South Korea has no naphtha-cracking center, the first three companies will use their own carbide processes. The fourth will take a petrochemical route using a combination of ethane dichloride and acetylene methods.

Canadian mining venture to include Japanese capital

Nippon Mining Co. has received approval from the Japanese government to enter a joint venture to develop copper and molybdenum deposits in southern British Columbia, Canada. Borings are being taken by the Canadian interests; results will be disclosed next March. Nippon Mining would invest \$170,000 for 15% of the company's initial capital stock. The remainder would be owned by Canadian mining interests.

Euratom facing sizable deficit in fast-reactor research program

The Euratom Commission has informed the European Economic Community's Council of Ministers that its research program for fast reactors will have a \$7-million deficit by the end of '67. The deficit will be entirely in the French and German operations. The Belgian and Dutch research activities are minor. Italy has dropped one project and has worked out no new program.

EEC recommends that the French and German gaps be closed by turning over a \$3.5-million surplus from earlier programs and getting the remainder of funds from the two governments.

EEC capital-goods market strong in France and Italy

Capital-goods makers selling to France and Italy should find business brisker this year than last, but producers marketing in West Germany will encounter a slowdown. That's the gist of the Common Market's first semiannual investment survey. Its next study will include Belgium and Luxembourg but not the Netherlands. The biggest shift in investment plans has been in Italy, where spending dropped in '64 and '65, but will be up 10-20% this year. French industrial investment after two years of stagnation, is expected to rise 4%

this year. In West Germany, however, while investment will continue rising this year, the increase will be at a slower rate—6% this year, compared with a rise of 16% in '65. Reduced profit margins and tighter credit and capital are blamed.

The Common Market has also published the guidelines under which exclusive distributor agreements will be permitted by EEC's antitrust department. Effect of the regulation will be a sweeping one-shot authorization of some 25,000 of the 32,000 agreements that have been certified to the Euratom commission, with the remainder to be determined case by case. Some of the contracts may be rewritten so they will come under the exempt category. Qualifying for exemption will be exclusive dealer agreements containing prohibitions against carrying competing products or prospecting for customers outside an exclusive sales territory, and an obligation to use certain trademarks. No automatic approval will be granted agreements containing export prohibitions, agreements on trademarks, or provisions that won't hamper exports.

Border Chemicals to build U.K. acrylonitrile plant

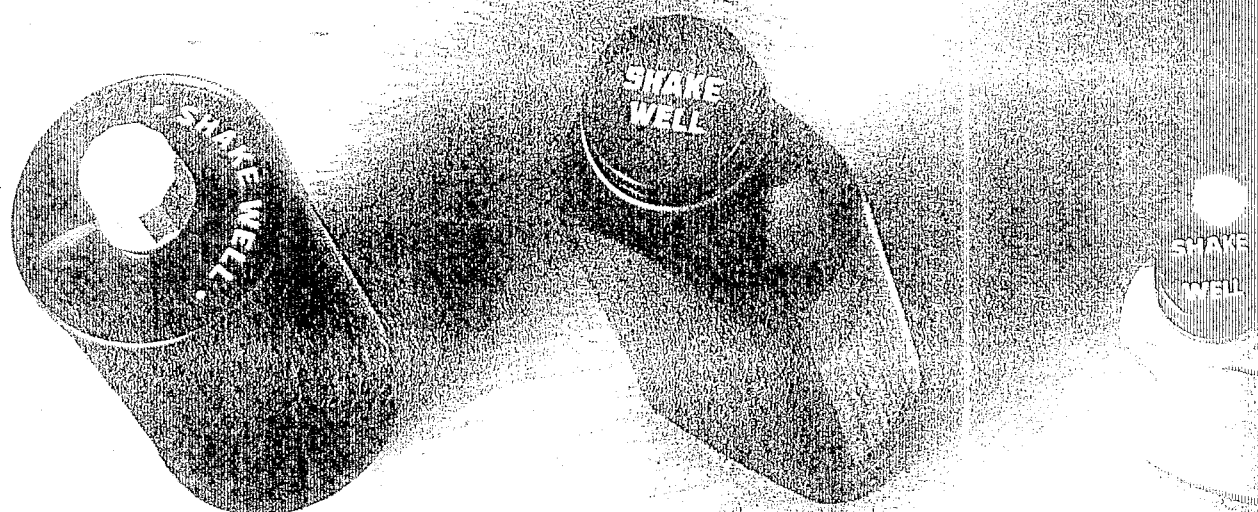
Border Chemicals Ltd. will build a new acrylonitrile plant in Britain, expanding its capacity to 100,000-120,000 long tons/year at Orangemouth. The company—owned jointly by British Petroleum Chemicals Co. Ltd., and Imperial Chemical Industries—will build the unit alongside its recently commissioned 40,000-lt./year acrylonitrile plant. Cost of the new project is expected to exceed \$17 million; completion is set for early '69.

The company's rapid step-up of capacity stems from inability of the initial Border plant, the first in Britain, to keep up with soaring demand. About 15 million worth of acrylonitrile will be imported this year, and imports may rise to \$20 million by '68. Border now sell acrylonitrile to Courtaulds and Chemstrand.

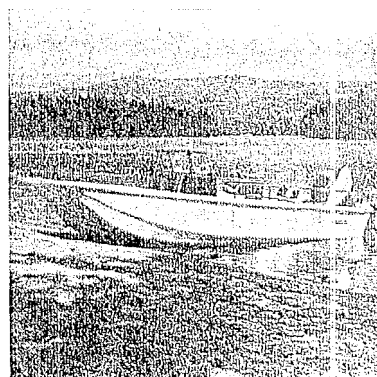
South American oil firms discuss joint petrochemicals

State-owned oil companies of Venezuela, Colombia, Chile, Ecuador and Peru will meet to discuss programs for joint petrochemical industries. The meeting, at Caracas, follows a conference in Bogota last month of the presidents of Venezuela, Colombia and Chile and representatives of Peru and Ecuador. The presidents of the countries' central banks have discussed reciprocal credit agreements.

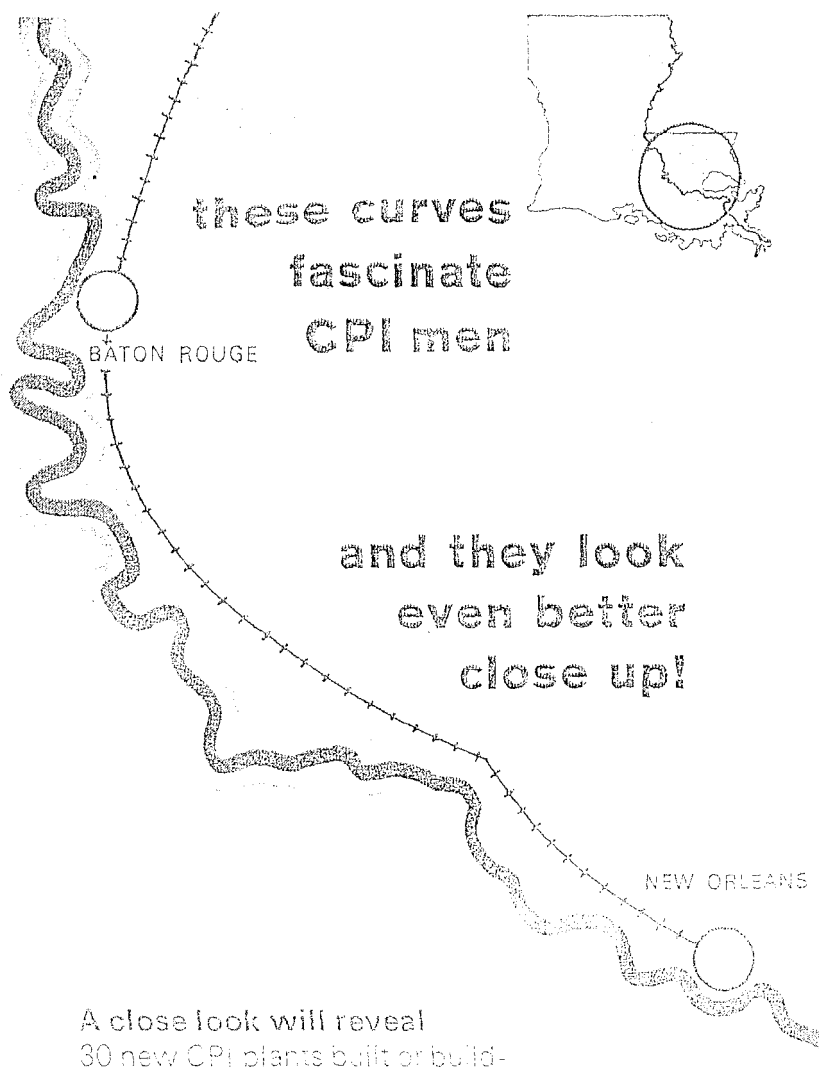
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INTERNATIONAL

A Good Year for Fertilizer in Canada

Unless the rail strike interferes with the shipments of wheat now being harvested in the Western provinces, Canadian growers should have a good year. And this means increased fertilizer sales next spring.

Canada expects a record 750-million-bu. wheat crop this year, and has firm export sales of 500 million bu. — including 112 million to U.S.S.R., 90 million to Red China and 250 million to traditional markets (e.g., Britain).

Fertilizer consumption by grain farmers had been estimated at \$500,000 tons for '66, but a harvest shortage during last spring probably will keep the figure at \$500,000 tons. Fertilizer demand has been rising at 20% annual rate for five years — from 137,000 tons in '60 (in 1960, the trient content: 21,700 tons of nitrogen, 44,300 tons of phosphoric acid to 463,800 tons in '65 (64,200 tons of nitrogen, 135,200 tons of phosphoric acid). Early season estimates for Manitoba, up 38%, to 143,000 tons; Saskatchewan, up 25%, to 17,000 tons; Alberta, up 23%, to 31,000 tons.

Three new ammonium phosphate plants went onstream last fall: Westco Co-operative Fertilizers Ltd.'s unit at Calgary, Alta.; Sherritt Gordon Mining Co.'s plant at Fort Saskatchewan, Alta.; and Cominco's plant at Regina, Sask. But the additional capacity (385,000 tons of fertilizer, including some co-op ammonium nitrate) did not result in any oversupply.

Much fertilizer output in Western provinces is for export to the U.S. Also, Sherritt Gordon's production was limited by defective equipment in its new ammonia plant.

Price Cutting: Both Cominco and Sherritt Gordon complained in the midyear reports that reduction in selling price hurt earnings. Said Sherritt Gordon: 'Our fertilizer marketing arrangements with the grain companies have worked very satisfactorily, and by the end of the fertilizer year our in-

They'll Do It Every Time

By Jimmy Hatlo



INTERNATIONAL

no prospect of fertilizer sales increasing to the level of 1.6 million tons '75" unless there were some unexpected influences on Canadian wheat.

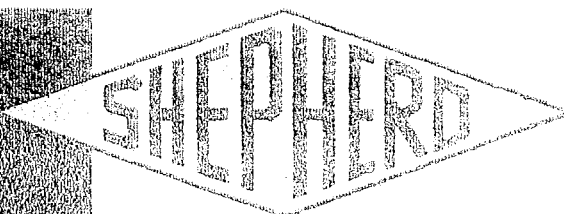
His view is that '75 sales will be approximately double those of '74 and that if the "super crop" of '75 is followed by other lush crops and delivery quotas, fertilizer sales may be only 50% greater than in '74.

Saskatchewan is the key to increasing fertilizer sales to prairie farmers. D. A. Rennie of the University of Saskatchewan argues that yields per acre in that province could be increased an average of about 50% by full utilization of technical information concerning moisture conservation, greater use of fertilizers, management and control of weeds and diseases.

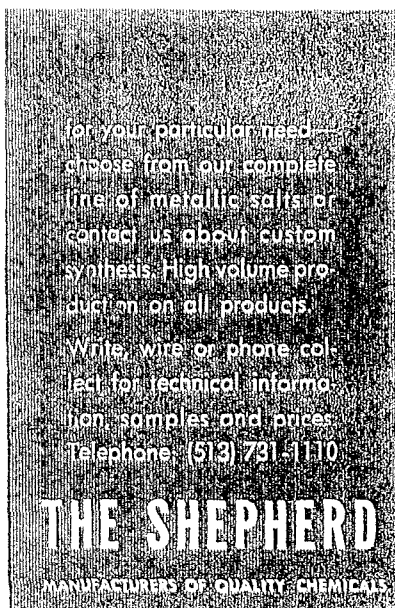
More Wheat — If: There are differences of opinion on whether Canadian wheat production can come to the record rate of 750 million bushels in 1975. Canada has a long way to go to have good moisture conditions in 1975. Even if the average is upped and more fertilizers and chemicals are used, the "super crop" could mean reduced yields. On the other hand, Rennie has predicted that Saskatchewan alone will increase production by 10 million bushels, expanding acreage, growing the amount of fallow land about 5 million acres and increasing stubble-seeded crops by 10 million acres.

U.S. and Canadian representatives at the "Kennedy Round" of tariff talks at Geneva have clashed over wheat demand and supply. T. Hedges, a key U.S. trade negotiator at Geneva, is said to be demanding that Canada adopt controls on acreage, production and marketing, agree to minimum and maximum prices. Canada doesn't have export support programs like those in effect in the U.S. (the Canadian government pays for some storage, crop insurance and subsidizes rail shipment to the East). Canada feels it avoids overproduction by refusing to take for storage any grain not committed to sales.

Recent rains have made the wheat crop look good, and the big export markets seem firm for some years to come. All conditions promise a healthy fertilizer market next year — if it rains and it doesn't hail.

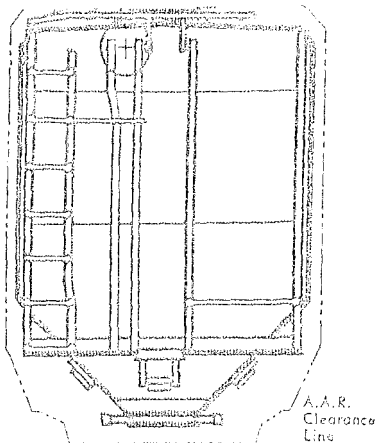


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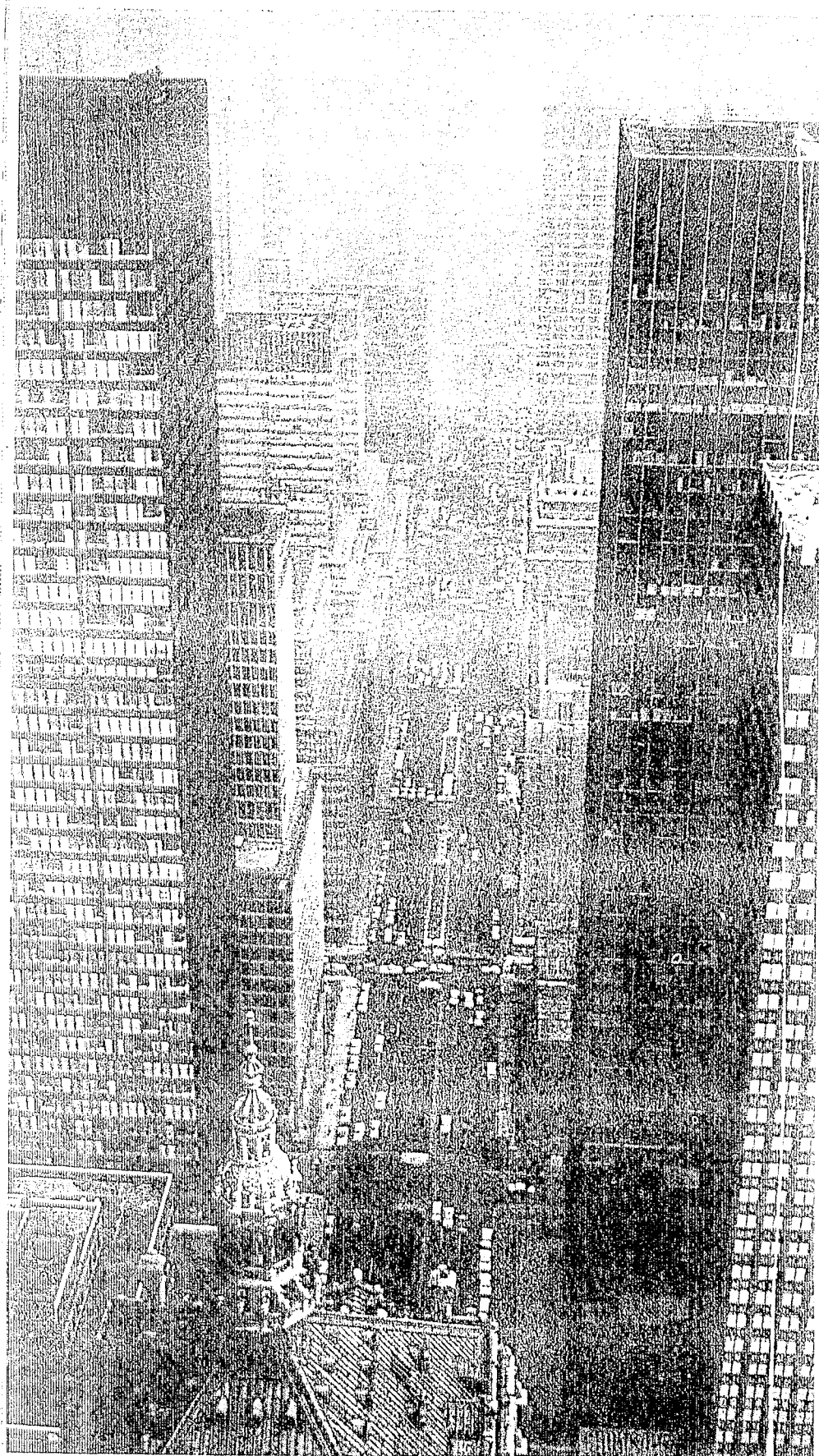
Two Wulff process acetylene plants will go onstream this month in Great Britain. They will be the first in the world to use naphtha feedstock. The units—one to be operated by British Oxygen at Maydown, Northern Ireland, and the other by British Geon Ltd. (Barry, South Wales)—each have a 30,000-long tons/year capacity. British Oxygen's output will be sold "over the fence" to Du Pont; by-product ethylene from the plant will probably feed a 50,000-l.t./year ethylene dichloride unit slated for Maydown. British Geon will use its new ethylene source for vinyl chloride. Monomer output will be upped to 130,000 l.t./year by '67. Hedon Monomers Ltd. (a Distillers-Celanese venture) is also building a Wulff plant at Hull.

Considerable economies are expected to stem from the naphtha-based Wulff units. Some British sources estimate that the initial United Kingdom acetylene cost from naphtha will be 7-7.5¢/lb. Acetylene from the old carbide route costs 8.5-10¢/lb., depending on depreciation factors. Future British naphtha prices, however, are a question mark; in the past year the naphtha price increased from \$18/metric ton to over \$22/ton because of growing demand as a manufactured gas feedstock. Natural gas from the new strikes in the North Sea (*CHN*, Sept. 3, p. 26) may ease the price pressure, although if exceptionally large strikes are found the one-stage flame process may upstage the Wulff-naphtha route.

Full-scale cumene production has resumed at Gulf Oil's 300-million-lbs./year plant at Philadelphia. The plant was extensively damaged by fire last May. Repairs and reconstruction, says Gulf, were completed several weeks earlier than expected. Loss of Gulf's output contributed greatly to tightness of supplies of phenol and acetone and helped spark price increases.

Shell Chemical will increase epoxy-resin prices, effective Oct. 1. The tag on liquid Epon resins 815, 820, 826, 828, 830 and 834 will go up 2.5¢/lb. Tank-truck quantities of Epon 828 will sell for 50.5¢/lb., under the new schedule. Solid-resin prices will be hiked 1¢/lb. for Epon 1001, 1002, 1004, 1007 and 1009. Comparable changes will also be made in solution prices. Price differentials between bulk, truckload and less-truckload quantities, however, are not being changed. Epoxy-resin prices have fallen precipitously over the past 14 months, and a recent attempt by Ciba to partly restore the cuts was unsuccessful.

Shipping price differentials for high- and low-density polyethylene will be revised by Monsanto next month to reflect the trend toward bulk movement and to obtain minimum freight costs. The minimum prices category for truckload bag shipments will be increased from 20,000 to 30,000 lb. for high- and low-density product. Boxed shipments will command a 0.25¢/lb. premium. The 1.25¢/lb. discount for 100,000-lb.-minimum hopper-car shipments will be trimmed to 1¢/lb. The 1.25¢/lb. discount, however, will be offered on shipments of 160,000 lbs. and greater.



Seen from atop the Pan Am building is the Carbide building (left) and Hooker offices (right center). Under way: 299 Park (right).

Park Ave.

Stauffer's move spotlights a midtown saga

Manhattan's posh Park Avenue, once known for its debutantes rather than for its directorates, is becoming a chemical process stronghold. A two-block area just north of Grand Central Station (between 47th and 49th streets) has attracted 16 CPI organizations in less than a decade. And Stauffer Chemical will join them as soon as the 42-story tower at 299 Park Ave. is completed.

"Chemical Row" was born when Union Carbide acquired the old McGuire Hotel at 270 Park Ave., tore it down for its headquarters offices. Carbide President Kenneth Rush tells why.

"We were headquartered in the building on 42nd Street, but we spread out in 13 other buildings around town. We needed room for 4,000 employees, and after careful consideration this seemed a best way to do it."

Rush adds that the choice was easy, recalling: "We bought the Butler estate in Tarrytown, N.Y., gave very serious thought to building our headquarters there."

But Carbide needs a lot of secretarial help, ready accessibility to customers and business associates, uncomplicated commuting and travel facilities (it near the Pan Am heliport*), and they were most readily available in a heart of the city. All this plus airy, well-lighted, pleasantly decorated offices on the wide, bus- and neon-streets free avenue have since lured other

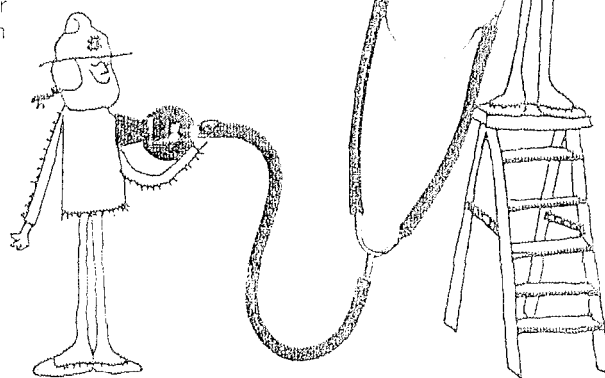
Any regrets? None at all, says Rush. Corporate growth was anticipated at the building already occupies as much space as is practical. If Carbide grows this building it may put up additional, one or lease additional space. Where, it won't say. But do

*The roster of headquarters or major offices includes: Glidden, Vanderbilt, Eganor Laboratory, Great Lakes Chemical, the Plastics Industry, W. Allee Jordan & Associates (chemical public relations), American Union Carbide, Grow Chemical, Hooker Chemical, B. F. Goodrich Chemical, Monsanto, Mitsubishi, Witco, Hess Oil & Chemical and Westvaco. Lever Bros. and Colgate-Palmolive are just the street.

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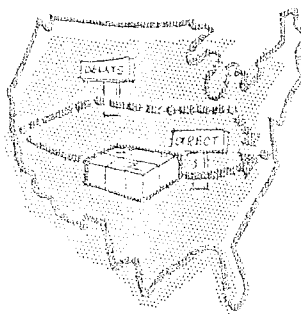
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KEY CHANGES

Robert W. Sterrett to general manager in charge of Zonolite Division; Dewey and Almy Chemical Division (Cambridge, Mass.), W. R. Sterrett Co.

C. E. Gehret to vice-president and general manager, Minerals/Refractories Division (Conshohocken, Pa.), Howmet Corp.

G. Keith Brewin to director, International Dept., The Glidden Co.

Alan T. Knight to chief executive officer and chairman, Catalytic Construction Co. (Philadelphia).

John Corcoran to president, and Howard Hardesty, Jr., and L. Jany Huegel to executive vice-president, Consolidation Coal Co. (Pittsburgh)

O. R. Wiebe to vice-president, and L. E. Quiram to executive assistant to the president, Central Farmers Fertilizer Co. (Chicago).

Thomas M. Smylie to vice-president, Ethyl Corp. (New York).

John A. Wining to treasurer, Mel Johnson & Co. (Evansville, Ind.).

E. O. Rohardt to assistant general manager, Hostachem Division, Hoechst Corp. (Monsieville, N.J.).

Walter G. Gibbons to general manager, The Montrose Co. (New York Division of Millmaster Corp. Corp.).

Morton M. Gruber to assistant president, Joseph R. Weschler, manager of marketing, Market Dept., Resin Division, Ciba Products Co. (Summit, N.J.).

Harold G. Mangelsdorf to box chairman, Crown Central Petroleum Corp. (Baltimore, Md.).

Robert D. Evans to vice-president and technical manager, Vaco Corp. (Odenton, Md.), fibers maker.

William H. Collins to vice-president of sales, Trent Tube Division, Cible Steel Co. (Pittsburgh).

Richard C. Richter to vice-president, Superior Zinc Co. (Bristol, Pa.) and Nopco Chemical Co. (Pittsburgh subsidiaries of Nopco Chemical Co. (Newark, N.J.).

Edward W. Callahan to manager business development, Allied Chemical Corp. (New York).

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TECHNOLOGY Newsletter

Several U.S. compressor makers have been testing centrifugals in the 5,000-psi. range with success, although at least one is believed to be experiencing some problems.

Questions remaining in the minds of process designers concern the operating safety of the new units and the improvements in process that will be needed to justify their cost.

More technology on the production of melamine from urea is revealed in a recent Canadian patent 737,474 to Stamicarbon, N.V. According to one claim of this patent, the technology appears to cover improving yields by quenching a hot melamine-containing gas mixture (from a urea-to-melamine reaction) in a virtually constant amount of water. Water is vaporized, and makeup water is added to compensate. After the melamine is condensed, the remaining gas mixture is discharged from the cooling zone with at least 90% of the ammonia supplied.

This processing step appears to run parallel to quench technology revealed in Canadian patent 737,475 to Chemical Construction Corp. Stamicarbon, along with Chemico and Österreichische Stickstoffwerke AG, is offering new melamine-from-urea processes that are said to reduce the manufacturing cost of melamine to about 10¢/lb. (*CW*, Aug. 27, p. 100).

A novel ceramic-faced lightweight body armor has resulted in a \$1.8-million contract for U.S. Rubber from the Army Materiel Command's Natick (Mass.) Laboratories. The contract covers front and back torso armor for Army pilots and air crewmen.

The ceramic, composed of aluminum and silicon oxides, is said to completely stop shells rather than fragmenting them, as do older types. The armor is backed with fabric of glass-fiber-reinforced polyester resin.

General Electric is girding to go after process control computer business even more actively than it has already. The company has set up a separate Industrial Process Control Division to take care of the fast-growing business formerly handled by groups within GE's big Information Systems Division.

GE took over Bunker Ramo's share of the process control computer market in May '65 by buying access to BR's patents and know-how when BR closed up shop. At that time, BR had an estimated 80% of the petroleum and chemical process control computer business.

Now GE is one of the leading vendors in this segment of the computer industry—but, although business is booming, the company has been losing money on its process control equipment. Indications are the new division will soon be operating in the black.

Imorganics

Can your low temperature plasticizer system pass the "frigid guillotine" test?

The T-bar samples (below) that failed this test (described at right) were made from a vinyl that cost a few cents less but which could cost a fortune in lost customers.

If you're not sure of the low temperature performance of your vinyls, you should take a good look at the test sample at the top of the photo. Plastolein® 9058 DOZ Plasticizer helped this vinyl retain its flexibility down to a chilly -60°C and below!

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If you haven't already added the safety factor of

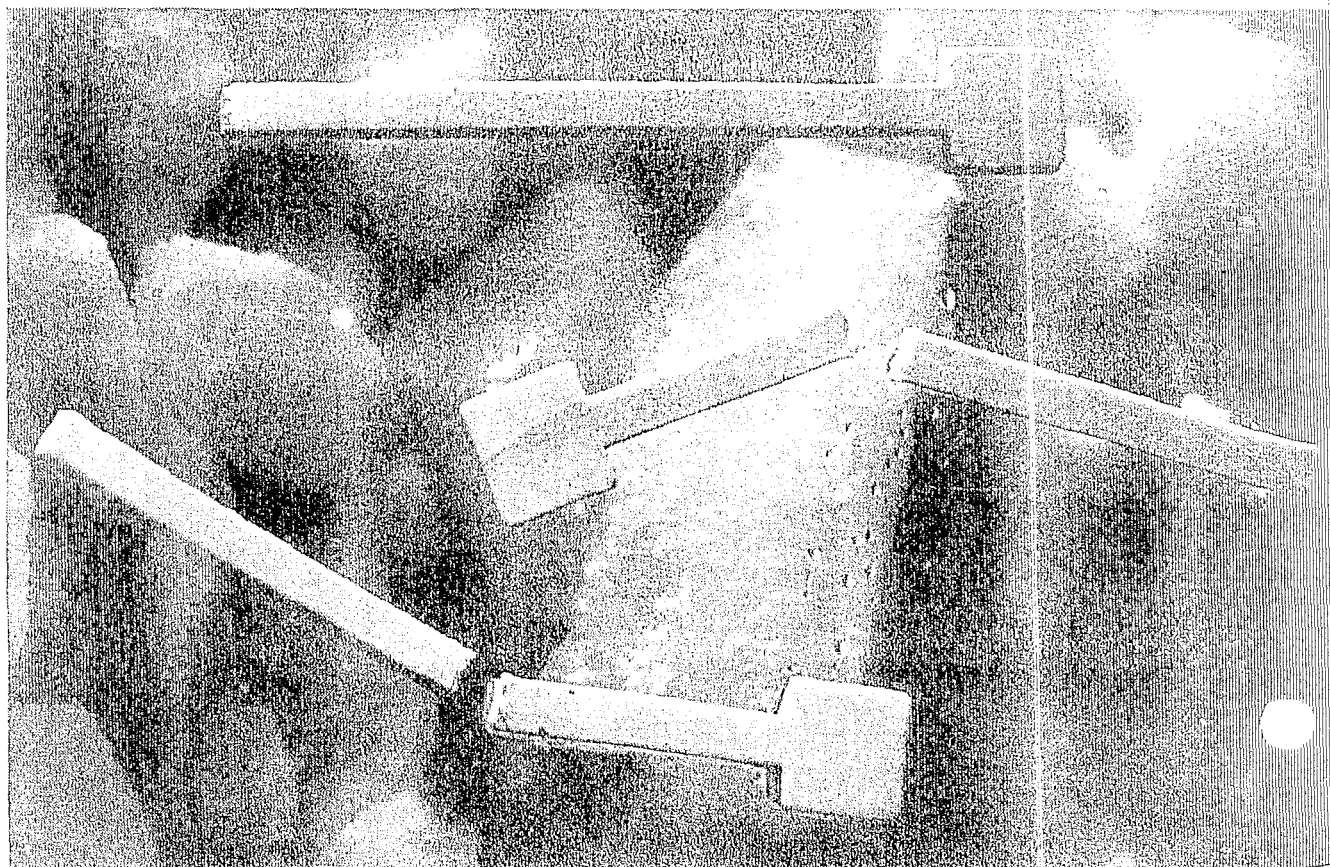
Plastolein 9058 DOZ to your vinyl formulations, why not send for evaluation samples and complete information today? Use convenient coupon.

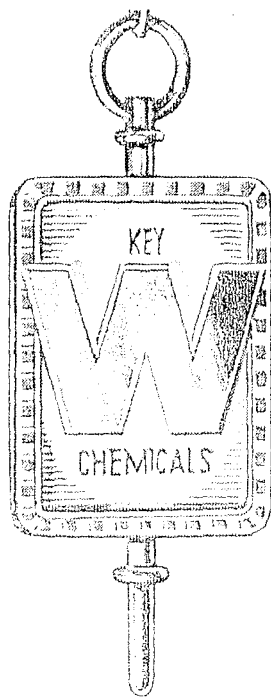
ASTM D746 BRITTLE POINT TEST

T-50 samples are cut from 75 mil plastic sheeting. A Scott Brittleness Tester is employed, using methanol cooled with dry ice as the heat transfer medium. Five samples at a time are clamped in tester holder and immersed in the fluid for 2.5 minutes at the given test temperature. After immersion, a solenoid activates a guillotine which delivers a single impact blow to the samples. The samples are examined for failure, failure being defined as breaking of the sample. Temperatures are selected to produce a range between no failure and complete failure. Brittleness temperature is defined as that temperature where 50% of the samples break.

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those being tried on human patients, and no lens effects in these patients had been reported; nonetheless in Nov. '65 FDA ordered a halt to testing of DMSO on humans. At that time, it's estimated, nearly 50,000 persons had been treated with the drug in the U.S. alone.

It has become clear that FDA's crackdown on DMSO is one of the most unpopular moves the agency has ever made. Physicians who believe that the compound has great clinical promise are afraid that large-scale testing may never be resumed. They also question whether FDA is any longer in a position to make an objective assessment of DMSO.

However that may be, DMSO is on the shelf for now. Some small test programs are still operating, under FDA supervision. Five "sponsors" are being allowed to use DMSO on some 100 patients who have life-threatening diseases—e.g., multiple sclerosis and scleroderma.

FDA won't tell who these sponsors are, but one is Cleveland Clinic's Scherbel. He tells *CW* that he is using the material on some 40 scleroderma patients. (Scleroderma is a condition that affects collagen, a fibrous component important in the structure of skin and bones. Changes in the collagen render the skin and other soft tissues rigid, the joints stiff.)

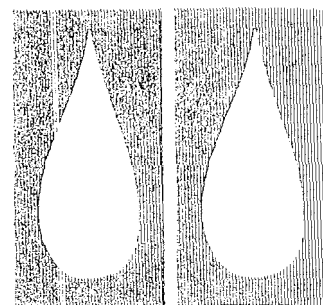
According to Scherbel, his patients have received frequent eye examinations in the course of DMSO treatment, and none has shown "any ocular abnormality thought to be related to DMSO."

But last week an FDA spokesman said the agency knows of no evidence of sufficient significance to support wider use of DMSO as an experimental drug. And there the matter stands.

Stanley Jacob—now engaged in animal experimentation on the use of DMSO as an adjunct in the treating of arterial diseases—says he hopes some "washback" of data and clinical experience from Europe may help bring a break in the present stalemate.

Indeed, Europe will be holding the attention of DMSO experts in the months ahead. Early in November a conference at the University of Vienna will be devoted to the drug and to European doctors' experience with it. More important, by year's end DMSO will have reached the market as a prescription drug in West Germany and Austria.

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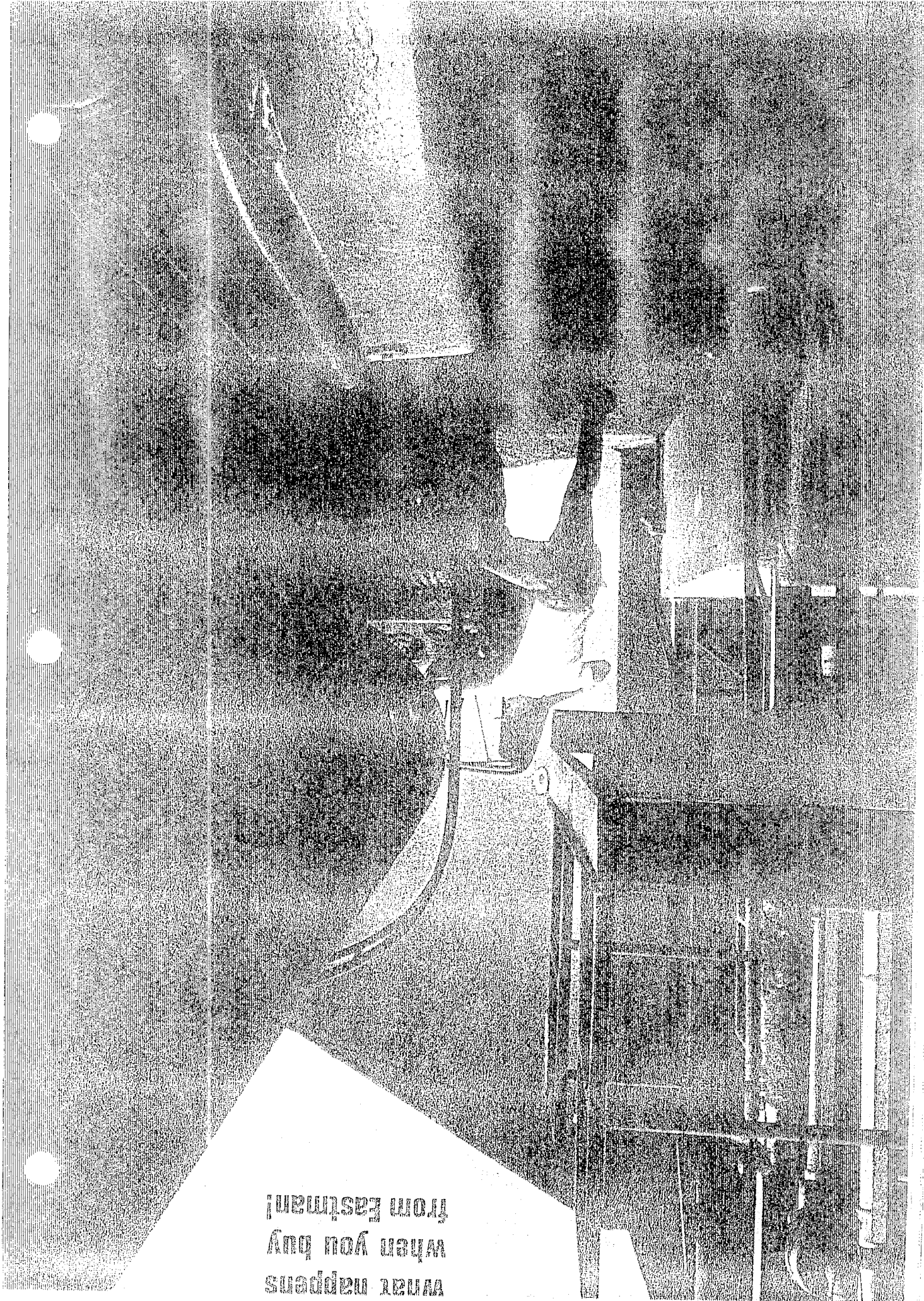


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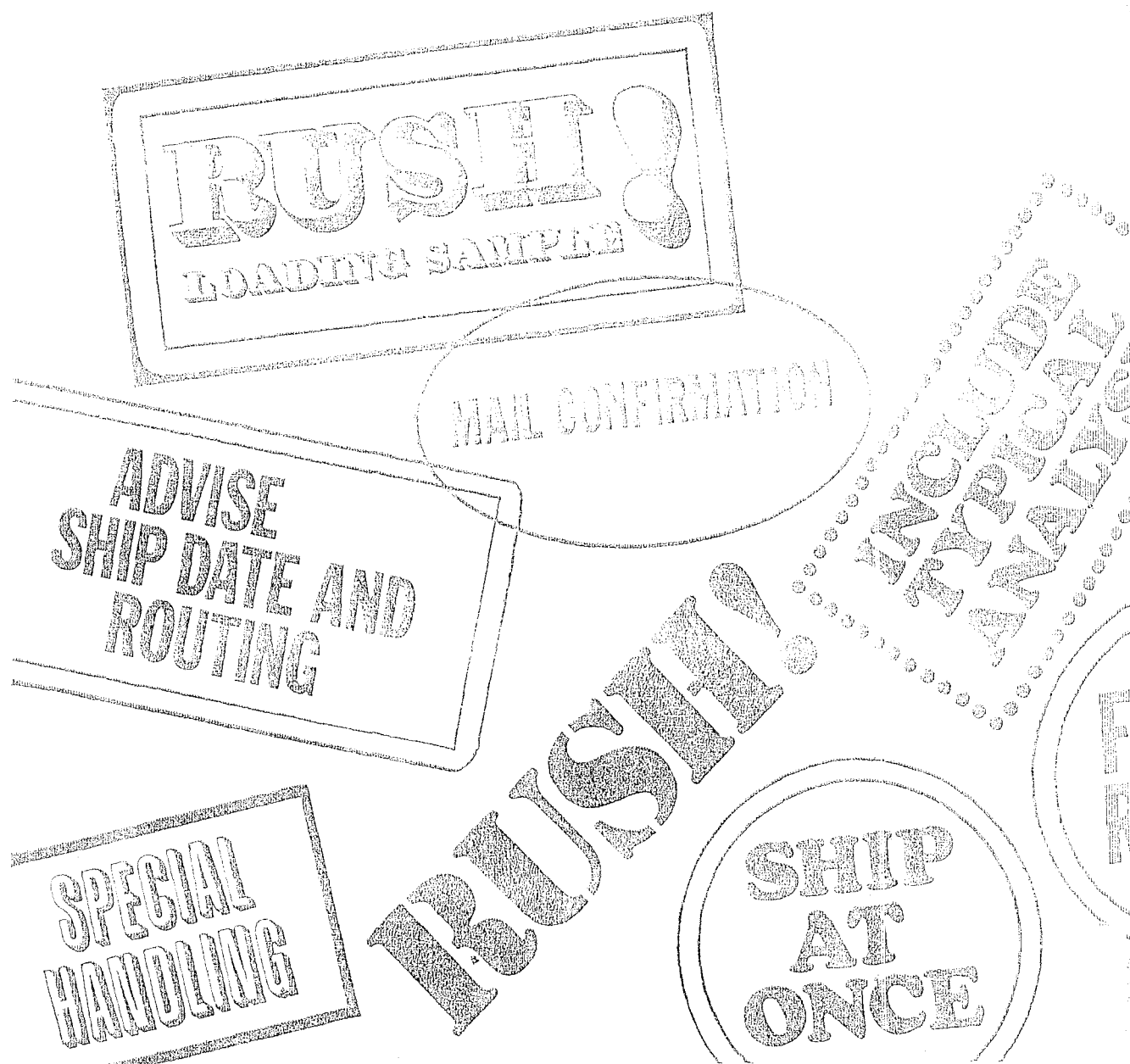
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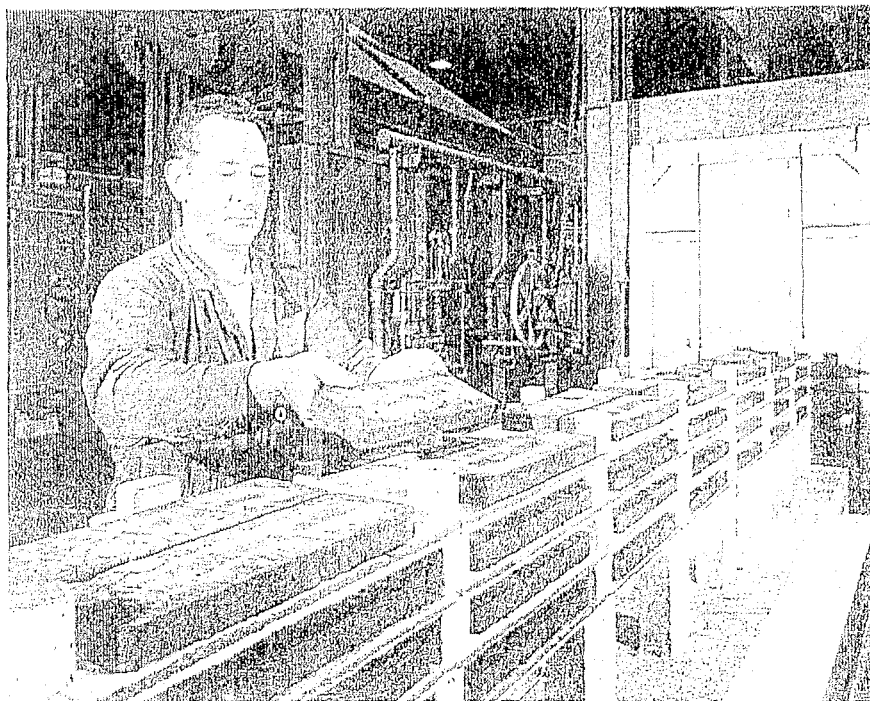
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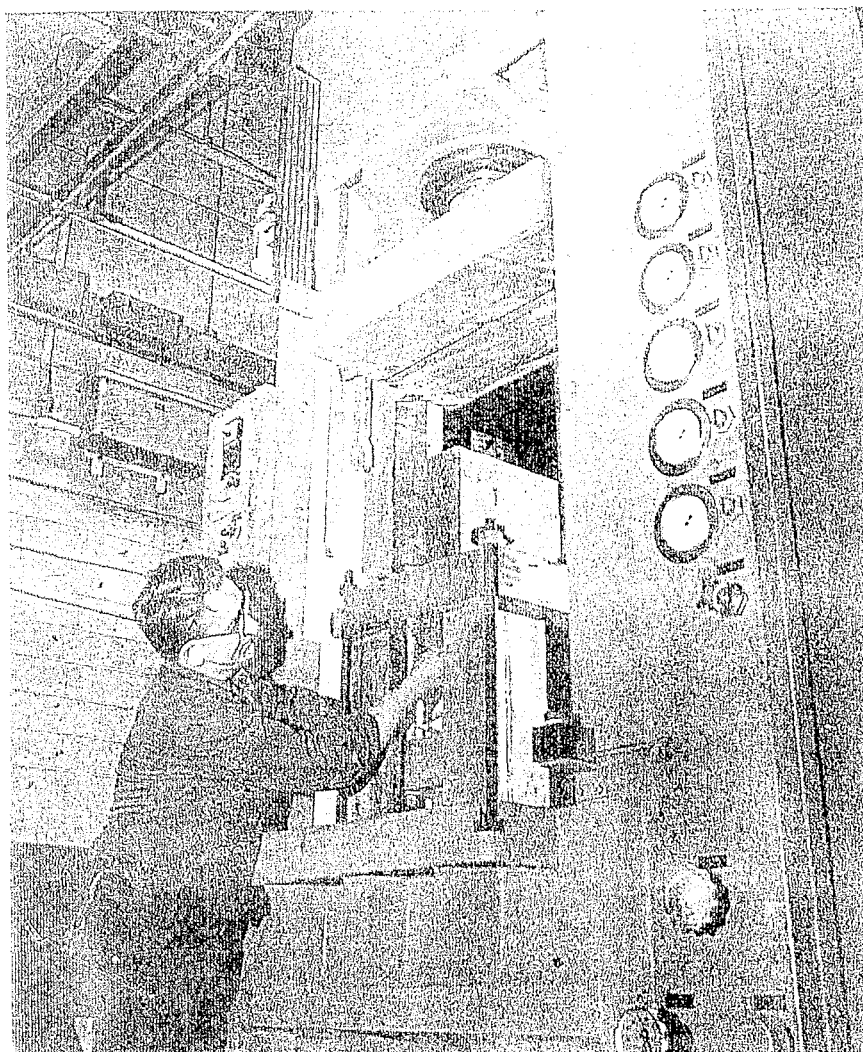


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efficiency, simplicity and lighter weight, are smaller, cheaper and make it possible to make easily portable appliances and tools.

Each magnet type lends itself to different uses. Alnico magnets are selected usually where small surface areas and long lengths are needed; ceramics can be made into flat plates that have a large surface. The ferrites are brittle and lower in tensile strength; alnico is better for magnets that must operate at elevated temperatures and where shock resistance is a prime requirement.

Right now about 95% of ceramic magnets sold in this country are barium ferrite types, although Westinghouse is going in heavily for a sulfate modified strontium type.

Both alnico and ceramic magnets are truly long lasting. Portus M. Wheeler, president of Crucible Steel Magnet Division, says "a PM retains more than 97% of its magnetism" practically forever. It loses about 1% of its magnetism as soon as it's energized, and 0.2% during the next 12 months, for a total loss of approximately 1.2% during the first year. And our best guess is that it's only another 1% during the next 100,000 years."

Long After Lodestone: The naturally occurring iron ore, magnetite or lodestone, was the first known permanent magnet material. But the first man-made PMs were made commercially by magnetizing high carbon steel. Tungsten magnet steels were developed next, followed by chromium alloy steels. Next came cobalt steels.

The alloy element contents in these later steels add to their ability to remain magnetic: carbon steels are readily magnetized but lose their "force field" quickly.

Big improvement came in the '30s with development of alnico, a metallic alloy of aluminum-nickel-iron, with cobalt, copper or titanium added in certain cases. This alloy is cast in molds to near finished shape and ground to specific tolerances. Such alloys soon became the "wonder metals" of magnetism.

Until 1960, when the ceramic permanent boom began, alnico and permanent magnet were synonymous. This is no longer the case. The big reason for the ceramics' success is that they are cheaper. A ceramic material suitable for door latches costs about

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Deep Gloss for Polishes: Buffing up a deep luster is easier because the silicone lubricates wax crystals without softening them. Imparts water repellency.

Water Repellency for Cosmetics: Plus soft, smooth feel for creams... sunscreen compatibility for suntan lotions... lubricity for mascara and lipstick... gloss improvement and softening for hair sprays... chemical inertness for products that touch the skin.

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Silicones work all these improvements at very low concentrations and so are often handled as emulsions to disperse their potency evenly. While the viscosity of the silicone oil to be emulsified will vary, depending on the job it's asked to do, (there's an optimum viscosity for each job), all oils invariably receive the skillful emulsification for which Union Carbide has long been known. Our emulsions resist freeze-thaw breakage through repeated cycles, and can be heavily tap-water diluted (to as low as 0.3% solids) without creaming under reasonable storage conditions. (Mild agitation restores victims of unreasonable conditions.) This quality means more reliable performance for your product.

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of magnetic force mean motors made with ceramic magnets have high efficiency. These motors (up to 1/4 h.p.) are operated on direct current and have made "cordless" battery-operated appliances a practical household reality. But PM motor application is not limited to DC operation. Where light weight and small size are important, a rectifier diode can be incorporated in the PM motor circuit so that AC can be used.

Since electric power in an auto is limited, and auto makers are very cost conscious, the relatively cheap ceramic magnetic motors have taken most of the car business. Ford Motor feels that ceramic magnets are so important to its operations that it may put in its own magnet-making facilities.

The shortage of copper now makes PM motors look even more attractive to the automotive people. In a window lift motor, for example, two-thirds of the motor's copper is in the stator coils that supply the magnetic field. Such copper-wound electromagnets can be replaced with ceramic magnets. The magnet is cheaper, and there's no labor cost for winding the field coil.

Ceramic Uncertainties: Not all ceramic magnet makers agree on the best recipe for a magnet. Westinghouse holds a patent (U.S. 3,115,927) for sulfate-modified strontium ferrite composition.

It claims magnets made of this have the highest coercive force of any of the currently popular production products. Westinghouse says that in laboratory experiments with sulfate-modified strontium ferrite, it has gone up to as high as 5,300 oersteds and repeatedly averages 4,500 oersteds.

Allen Bradley Corp. (Milwaukee) largely discounts the strontium ferrite magnet, at least for the near future. And it also rates lead ferrite, the third ceramic type of higher coercive, quite low. AB says the lead compound is difficult to handle, although it has high degrees of residual induction.

Size for size and weight for weight, the price of the basic raw materials (barium or strontium) is incidental, says Ingiana General; processing accounts for costs. Arnold Engineering, which has worked with both barium and strontium ferrites, says both are competitive in price and magnetic

properties. Prices are dependent on size and complexity of the piece as well as on quantity desired by user.

Magnets have to compromise between cost and properties. Some materials can make excellent magnets but usually at too high a cost. Arnold Engineering Co. (Marengo, Ill.) makes a costly platinum cobalt magnet, for example, that is used for micro-miniature application.

Improvements Coming: The need for ceramic magnets will more than double in 10 years—potential is nearly exhausted. In '65, ceramic magnet production was about 7 million lbs., including barium, strontium and lead ferrites. Better materials will help sustain magnet growth.

Indiana General says it has achieved, in laboratory samples, intrinsic coercive force of 12,000 oersteds—without strontium. Theoretically, maximum intrinsic coercive force has been calculated by Dutch scientists to be 17,000 to 18,000 oersteds—using barium or strontium ferrites. Ceramic magnets that are now being mass produced have a force of about 4,000 oersteds.

With or without improvements, the list of uses for magnets is growing and ceramics go into most of the new products. One potential application: Use of opposing magnets to act as spring cars for trains. Ceramic magnets will never totally replace alnico, but the field of PMs would not be growing so fast now if it were not for the ceramic permanent magnets.

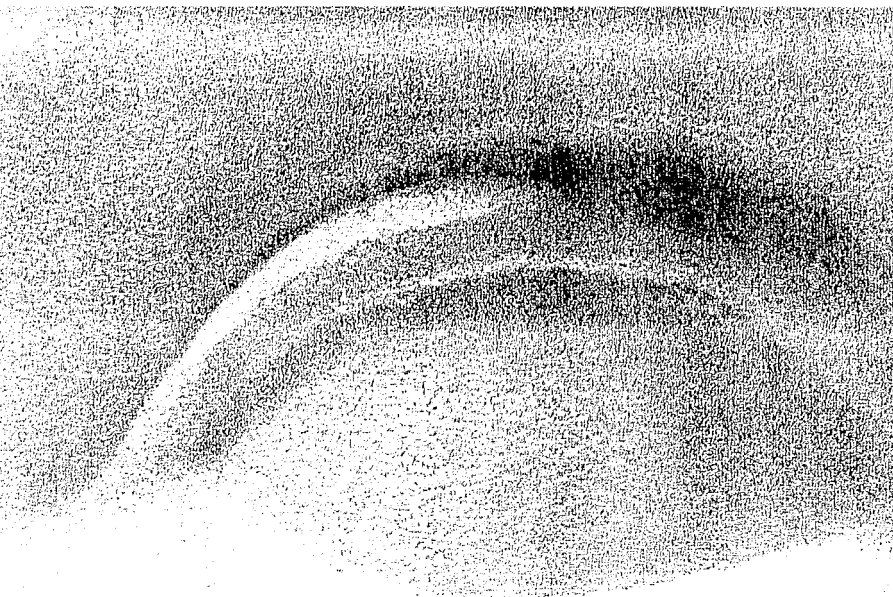
It all adds up to a long-time boom for magnetic materials.

Foam Control Agent

A Z Products Inc. (Eaton Park, Fla.), manufacturer of ore flotation reagents, has developed a new chemical defoaming agent. The new product, Defoamer 15-E, is a balanced liquid fatty acid blend reinforced with special additives.

It is suggested for control of foam in the manufacture of phosphoric acid by the wet process. It can be added to the acid train as 100%-active concentrate or can be dispersed in water of any desired concentration.

Stable emulsions can be produced by slight mechanical agitation or by bubbling air through the defoamer-water mixture.



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COUNTDOWN

Mo. 63103) for bonding glass to wood or aluminum in windows and doors. The premium-priced compound is claimed to provide a water proof seal and to withstand contraction and expansion. It is packaged in 1- and 5-gal. pails, and 55-gal. drums for use with pumping equipment.

POLYESTER SIZING AGENT: General Aniline & Film Corp. (140 West 51 St., New York 10020) is offering Polycetron 130, a poly(vinyl pyrrolidone-ethyl acrylate) copolymer emulsion for use in combination with latexes to make polyester filament yarn sizes. According to GAF the new emulsion—a 40% solids content and submicron particle size—is stable to mechanical shear, has good freeze-thaw resistance, and is compatible with many commercial latexes, tolerates high levels of pigment and filler loading.

WATER-SOLUBLE LANOLIN: A water-soluble form of lanolin for toiletries, cosmetics and consumer product formulations is being marketed by Alcolac Chemical Corp. (3440 Fairfield Rd., Baltimore, Md. 21226). Sipon LLS, a blend of lanolin alcohol ethoxylate sulfate and lauryl alcohol ethoxylate sulfate, is said to give good foaming properties, hard-water stability and low cloud point. Sample, experimental or multi-drum quantities are available.

ANTISTICK RUBBER COATING: National Milling & Chemical Co. (4601 Flat Rock Rd., Philadelphia 19127) has developed a new slab release compound that adheres to oil-coated rubber stock. JM-53 compound comes in an aqueous cream-colored paste that is diluted in water before use; the low-suds solution can be used for dipping, spraying or coating natural or synthetic stock. The compound is packed in 55-gal. open-head, lever lock-type nonreturnable drums.

NONSPREADING INSTRUMENT OIL: A new synthetic tube fluid, Fulchem Oil 461, that stays where it is applied in fine instruments, timepieces and electronic equipment, has been introduced by William F. Nye Inc. (P.O. Box G-927, New Bedford, Mass. 02742). Fulchem is a low-viscosity oil that flows easily at temperatures as low as -20 F yet will not migrate or creep at 200 F or higher. The oil is stabilized to prevent oxidation or gumming and inhibited to prevent corrosion of the metals used in instrument construction.

PLASTISOL MODIFIER RESIN: Goodyear Chemical Division (Nagawara Falls, N.Y.) is marketing a new plastisol modifier resin for expanded vinyl compounds in which low plasticizer level is desired (e.g., in flooring and fabric coatings). According to the company, the low molecular weight of Pliovic M-50 gives plastisols low melt viscosities and low fusion temperatures. The new resin is also suggested for use in automotive caulks and sealants, rotationally cast dolls and other toys, etc.

HOT-MELT ADHESIVE: Instant Lok 34-2900, a versatile hot-melt adhesive for ice cream cartons, bacon cartons and bag lip seals, is introduced by National Adhesive Division (750 Third Ave., New York 10017). Final bonds are said to withstand temperatures from subzero to over 140 F. The new adhesive, available in crushed form, is said to work well in almost all commercially available premelt-type applicators.

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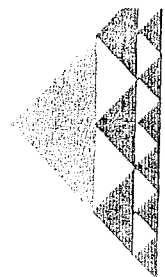
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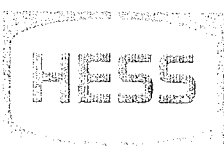


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