

ever, involve anaerobic conditions. In that case, H_2S removal and conversion to sulfur proceed in the same way as in the aerobic process, but the spent catalytic solution is circulated to a regenerator, where it is oxidized with air.

Plugged lines. The Stretford process carries out the sulfur recovery by flotation. "There is no end to the problems," complains Pritchard's Leland, who offers the process but doesn't minimize the difficulties. He notes that the sulfur plugs instrument lines and requires complex handling equipment. Moreover, chemical costs can be high. "We have a

The Lo-Cat process—with a new catalyst—may do the trick where Claus is not practicable

test solution that is running at \$70/ton of recovered sulfur," says Leland, "but we tell our customers that chemicals may cost them \$200-250/ton."

Reagent cost is one area where Hardison feels he has a strong selling point. He says that the organic portion of earlier Lo-Cat catalysts tended to degrade by oxidation but that the new version, ARI 310, has solved the stability problem. He says that chemical costs amount to \$50/ton of sulfur.

Further, Hardison notes that iron is not toxic, while the sodium metavanadate used in the Stretford process is toxic at levels over 25 parts per million. Pritchard's Leland, however, maintains that disposal is not a problem.

Hardison concedes that his reagent is "mildly corrosive" and that equipment cannot be fabricated from carbon steel. Even so, he claims that capital costs for Lo-Cat are competitive with a straight Claus unit and cheaper than Claus when amine-treating is involved. Hardison puts the cost of a unit to treat 5 million cu ft/day of low- H_2S , low-pressure gas at \$300,000-\$400,000. Higher pressures and heavier concentrations cost more. A 15-ton/day unit costs \$2-3 million; a small unit for odor control can be as low as \$100,000.

But the initial cost is among the least of the concerns of plant operators. "The biggest problem is keeping a plant on-stream," says A. J. Flynn, a senior staff chemical engineer for Shell Exploration and Development. "We want to operate a plant day in and day out for 365 days a year." Shell has a Stretford unit at its Martinez, Calif., refinery. It has investigated the Lo-Cat process and is now working to develop its own version of an iron catalyst. Says Flynn: "We are still looking for the answer." □

A battler to restore the good name of vinyl

It was not under the most pleasant circumstances that Roy T. Gottesman started his new job as executive director of the Vinyl Institute (VI), the 10-month-old group established by the Society of the Plastics Industry (SPI) to clear up the smudgy safety reputations of polyvinyl chloride and vinyl chloride monomer. On June 8, just two days after Gottesman moved into his New York offices, 23 people died in an airplane crash in Cincinnati. Newspapers reported an eyewitness's account of white smoke billowing from the plane and turning deep gray to black. The eyewitness, a chemist, said he was "pretty sure it was PVC burning. Folks got a noseful of PVC—and could not breathe."

When Gottesman reads that quote aloud, he seems to breathe fire himself. "Such comments are ludicrous," he fumes, "but once they're printed, it's impossible to get them retracted."

Gottesman does concede that "plastics have been implicated in a number of fires." But he insists that the press has labeled the materials as culprits far more often than has been warranted. And he sees one of VI's primary responsibilities as setting the record straight about the safety of plastics in general, and of PVC and VCM in particular.

Adversaries. Gottesman may be taking on some formidable opponents. He refers only to a "deliberate attempt by certain interests to undermine PVC," but SPI itself is more specific. It claims that iron and steel producers are making "spurious attacks against the safety of PVC."

The final straw came last October, when Allied Tube and Conduit (Harvey, Ill.), a metal-pipe fabricator, sponsored a

conference on the hazards of plastics. SPI formed VI a month later. Eight months after that, Gottesman was appointed VI's chief administrative officer.

Many of Gottesman's colleagues say that if anyone can turn around plastics' tarnished image, he can. "Roy is an intellectual and honest person," says Raymond H. Marks, senior vice-president of Tenneco and Gottesman's former boss. "Whatever he said, that's the way it was." Gottesman, he notes, "has a strong technical background and a combination of interests in community affairs and the public sector."

Those interests extend well beyond the sphere of plastics. Gottesman, 55, has been politically active in Glen Rock, N.J., where he lives with his wife

Gottesman complains of a "deliberate attempt" to undermine PVC.



Sandi, a teacher, ever since his two children were in elementary school. He was elected to the school board in 1963 and served as president from 1967 to 1969. In 1973 he was elected a borough councilman for the division of public safety. Last year he was named to the state's Hazardous Waste Siting Commission.

While his avocation may be public service, Gottesman's education and career background is clearly chemical. He graduated from Rutgers University in 1947 with a BS in chemistry and a Phi Beta Kappa key, and in 1951 he received a PhD from Rutgers in organic chemistry. Two days later he joined Heyden Chemical in Piscataway, N.J., as a research chemist.

The job was the beginning of a 31-year career with Heyden—though the company itself went through several permutations. Heyden became Heyden Newport Chemical; then in 1963 it was acquired by Tennessee Gas and Transmission, which in turn became Tenneco. During his stay with Tenneco Chemical, the oil company's subsidiary, Gottesman progressed from research manager to

director of chemical development to founder and head of the firm's Environmental and Regulatory Affairs Dept. In 1980 he was promoted to vice-president, responsible for administering contributions to political action committees.

But late last year an unexpected monkey wrench was thrown into Gottesman's path at Tenneco. The parent company sold its specialty chemicals business to its employees and absorbed

As head of the Vinyl Institute, Roy T. Gottesman is taking on the critics of PVC and VCM

industrial chemicals into other existing divisions. On Apr. 1, Gottesman elected to take early retirement and set off to become a consultant. It was his "shortest career," he concedes, and two months later he joined VI.

Bart A. DiLiddo, president of B. F. Goodrich Chemical and VI's chairman, says that Gottesman's extensive chemical experience and his affinity for public affairs suit him well for his VI post.

And, indeed, Gottesman will soon have a chance to exercise both aspects of his background. He plans to become active in drafting state PVC rules.

Set to battle. He already is braced for a fight during the upcoming peer review of a controversial study prepared for New York State by Arthur D. Little, the Cambridge, Mass., consulting firm. The study recommends that standardized tests be used to assess the combustion toxicity of building and furnishing materials. Gottesman contends that the state of the art in testing leaves too much to chance for a regulatory use. The tests "are good for research," but beyond that, he says, their value is "questionable."

For now, Gottesman's time will be spent fighting battles in the media and in state legislatures. But his long-term goals are loftier. He wants to smooth the way for PVC makers to create new products and applications. "VI members want to introduce new products in a friendly environment," he says. "Ultimately, I would like to see VI move from being reactive to proactive." □

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Toxic fumes and fire safety

It seems that the recently formed In-
 dustry Coalition for Fire Safety has al-
 ready had some success in steering
 state legislators away from overly sim-
 ple-minded approaches to the hazard of
 toxic fumes (p. 19). That's good. But we
 also see a potential danger in one as-
 pect of the coalition's program.

The group, begun by Du Pont, con-
 sists of some major synthetics produc-
 ers and related industry organizations.
 It was set up to combat a trend among
 lawmakers to focus on combustion tox-
 icity in considering fire-safety statutes
 and codes.

It is an unfortunate fact of life that
 many synthetics give off toxic fumes
 when they burn. And most lawmakers
 can easily cite some horror stories—
 cases where people were harmed, or
 fire fighters hindered, by poisonous
 gases produced by burning plastics or
 synthetic fabrics.

The coalition is right, though, in in-
 sisting that combustion toxicity is only
 one of many factors to be considered in
 designing a fire-safe environment. Com-
 bustion toxicity is a life-threatening

problem only when the material in ques-
 tion is overheated to the point of smol-
 dering or burning, when people are ex-
 posed to the fumes, and when there is
 no means of rapid egress. Smoke detec-
 tors, sprinklers, stricter adherence to
 building codes, and public education—
 all can help keep toxic fumes from be-
 ing a life-threatening problem.

Sometimes—in airplane cabins, for
 example—combustion toxicity should be
 a determining factor in materials selec-
 tion. More often, it should be part of
 the tradeoff process that is integral to
 every intelligent design.

However, we do not believe that the
 coalition should oppose constructive at-
 tempts to develop and use indexes of
 combustion toxicity. The coalition may
 be correct in suggesting that available
 tests are not yet good enough to sup-
 port such an index. But we are in favor
 of any honest attempt to help users of
 synthetic materials make good deci-
 sions. And we are against any attempt
 to suppress meaningful information
 about the properties of materials on the
 grounds that it may be misused. □

FTC did it again—badly

Two weeks ago we ran a story telling
 how the Federal Trade Commission had
 ruled against Du Pont and Ethyl in a
 case involving lead-based antiknock ad-
 ditives for gasoline (CW, Apr. 13, p. 15).
 We have editorialized on this case twice
 before—in 1979 when an FTC bureau
 recommended the complaint, and in 1981
 when an administrative law judge ruled
 against the two companies and two
 competitors, Nalco Chemical and PPG
 Industries. Then and now, we think the
 FTC case has little merit and could set a
 bad precedent.

At no time were any of the companies
 charged with price-fixing. The charge
 has always been that the companies use
 a variety of marketing devices to arrive
 at identical, noncompetitive prices. The
 commission limited its recent finding to
 Du Pont and Ethyl because PPG is drop-
 ping out of the business and because
 Nalco was considered too small to be a
 price leader.

FTC objects to long lead times on
 price announcements, saying that they
 give competitors a chance to match the
 new price before it takes effect. The

agency doesn't like uniform delivered
 prices. And it objects to "most favored
 nation" contracts that guarantee a cus-
 tomer a price that is no higher than one
 charged to any other customer.

The agency may have a point on uni-
 form delivered prices. But as we have
 said before, advance warning on price
 changes helps customers make better
 decisions on purchases and inventories.
 And the most-favored-nation principle is
 in the spirit of in the Robinson-Patman
 Act. Its purpose is to keep a supplier
 from discriminating between buyers
 who are competing with one another.

Those are worthy ideas, not to be
 lightly shed. FTC notes that the lead
 antiknock business is a highly concen-
 trated industry—by definition, an oli-
 gopoly—and so it is. It is also an indus-
 try that is rapidly going out of
 business, as the demand for lead anti-
 knocks continues to dwindle. We fail to
 see how changes in business practices
 that FTC insists on could have desirable
 effects sufficient to outweigh the losses
 in efficiency and equity that they will
 cause. □

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Brown: "Pressure has been building."

term interests of our industry [because] it's an incentive for companies to invest in new products and innovations."

At EPA, officials are trying to sort out ramifications. Indications were that EPA lawyers felt they could make decisions on a few registrations—those involving data submitted by the corporate applicant. It seemed likely that EPA would request modifications and clarifications to meet a Friday court deadline. EPA has to select a legal strategy quickly, and one course could be to request a stay of the judge's order. That would allow the old system to be resumed until all appeals are exhausted. **Appeal.** EPA could also go to the high court if Wangelin rejects a stay request. Appellate court review is bypassed when a lower court judge rules a law unconstitutional. Rosanne Mayer, U.S. Justice Dept. attorney, is quoted as saying that the government probably will appeal the Wangelin decision.

Rulings upholding FIFRA provisions have been handed down by the third U.S. circuit court of appeals (*Mobay vs. Gorsuch*) and the U.S. district court in Washington, D.C. The Supreme Court has declined to consider those decisions.

Monsanto's victory upsets Representative George E. Brown, Jr. (D., Calif.), who chairs the House Agriculture subcommittee that oversees FIFRA. "Pressure has been building for over two years now," he says, "for the EPA and the Congress to speed up the process of releasing pesticide data to the public. Some real progress has been made in recent months, and it's a shame that this progress may now be lost for months or years while the legal system sorts through the implications of the Monsanto decision." □

Fortune 500 drives 1982 home

The chemical industry's tough 1982, portrayed in detail in this issue (p. 45), showed up last week in another set of statistics as well—the annual list published by *Fortune* of the 500 largest industrial corporations.

For five out of six key financial ratios, the median for the chemical companies included in the Fortune 500 was lower last year than it was in 1981 (table). The exception was total return to investors, which includes both dividends and stock appreciation; the median for chemicals and many other industries was negative in 1981.

Three chemical companies—Celanese, Mobay Chemical and B. F. Goodrich—made the list of 58 money-losers in 1982. Of the profitable companies, Sun Chemical showed one of the largest decreases in profits—92.5%.

Du Pont moved from No. 12 to No. 8 on the sales ranking, reflecting the full impact of its 1981 absorption of Conoco. Allied jumped six notches, to 49. Monsanto and W. R. Grace each rose by three notches, to 47 and 50, respectively. But two other majors slipped three notches, Dow Chemical to 27 and Union Carbide to 83. □

How the Chemical Industry fared

	1981	1982	1982 Rank*
Return on Assets	9.95%	9.53%	12
Return on Equity	15.7%	13.7%	15
Debt to Capitalization	27.2%	27.2%	18
Current Ratio	1.14	1.14	23
Working Capital	\$108.8	\$108.8	23

A hot debate over synthetics

Three months after its formation, the Industry Coalition for Fire Safety is enjoying some success in dissuading state legislators from restricting the use of synthetic materials because of their combustibility or combustion toxicity (*CW*, Jan. 26, p. 26). So far, the group has convinced Connecticut legislators not to adopt a measure to ban, as a building material, anything emitting smoke more dense or more toxic than smoke given off by untreated wood.

Now the coalition—organized largely by Du Pont and including nine big synthetics makers and four industry groups—is lobbying on legislative proposals in Massachusetts, New York, California, Florida and Texas. Some of these focus on combustion toxicity as overriding in deciding what materials to allow in high-rise construction.

"Such proposals will not make buildings safer," argues Richard Bennett of Du Pont, who is coalition chairman. "They will only distract the public from the real solutions to the problem—smoke detectors, automatic fire sprinklers, stricter compliance with existing building codes, and public education." The coalition supports mandatory installation of smoke detectors and fire suppressant devices in Florida, where the legislature is weighing such a proposal for hotels.

Behind Texas legislation. Producers of plastics and synthetic fibers are sometimes finding themselves lined up against the Foundation for Fire Safety, a group backed by steel-pipe maker Allied Tube and Conduit (Rosslyn, Va.). The foundation has been the force behind proposed Texas legislation to ban

any combustible as an electrical conduit, leaving steel as virtually the only usable material. The coalition has testified against the measure.

The proposed Texas law is extreme in its proscribing all synthetics. But the coalition also opposes legislation introduced in Massachusetts calling for a system to rate the combustion toxicity of various materials. Coalition executive director Ray Durazo says the group objects to state indexing of materials' combustion toxicity because it fears state tests may not be as sound scientifically as those done by industry or the federal government. Durazo adds that the coalition considers available test methods insufficiently accurate. "Given the state of the art of combustion toxicity today, it cannot be used."

Reproducible. Not everyone agrees. Dr. Yves Alarie, University of Pittsburgh professor of respiratory physiology and toxicology, insists that methodologies have improved greatly over the last decade. "We can measure it [combustion toxicity] and measure it well," he says. And test results are "more reproducible than the results for flamespread."

Advocating indexing, Alarie says builders and those who recycle synthetics need to understand the combustion toxicity of available materials. Some synthetics, such as fluoropolymers, have a "kind of toxicity we've never seen with wool and cotton. If the designer is unaware of that toxicity, how can the designer make that decision?"

In arguing for a systemic approach, Durazo is quick to point out that, while highly toxic when burned, fluoropolymers are "probably the safest material you can use in wire and cable insulation" because of their high heat resistance. "The real question is this," Durazo says. "Once you test for products of combustion, what do you do with those results?" □

Compromising on gas rates in Oklahoma

With the ammonia market depressed, any new increases in production costs could be enough reason for a producer to throw in the towel and shutter more capacity in the already battered industry. This month producers in Oklahoma are focusing on just such a threat—a decision by the Oklahoma Corporate Commission (OCC) on an \$88.5 million rate increase request made by Oklahoma Natural Gas (ONG), the pipeline that supplies the 10 ammonia facilities with

Quaker to boil off chemicals

Quaker Oats plans to sell its chemicals unit but has yet to disclose a buyer. Quaker says chemical earnings slumped 31.5% in the first half of its fiscal year, which began June 1982.

The \$2.6 billion company says it is the world's largest maker of furan chemicals. Furfuryl alcohol, made from corn cobs and rice hulls, makes up 75% of the group's products.

Mobil seals a deal. Mobil Chemical has purchased the Baggies product line from Colgate-Palmolive for an undisclosed price. The line includes plastic-sandwich and food-storage bags and will be added to Mobil's line of plastic products, which includes Hefty trash

bags. Mobil has made Baggies for Colgate for 20 years.

Diamond joint venture. Diamond Shamrock has agreed with Japan's chemical and drug company, Showa Denko, to launch an international joint venture in animal-health products and agriculture chemicals. Diamond says operations will be headquartered in the U.S., probably in Cleveland.

Plastics sale. Northern Petrochemical, of Omaha, Neb., has sold its National Poly Products Div. to Triad Investment Group (Barrington, Ill.) for about \$15-20 million. National Poly makes plastic tubing, liners and shrink-wrap film. Northern is a subsidiary of Internorth.

nearly all of their natural gas supply.

For ammonia producers, the commission's decision was a mixed blessing: OCC issued interim rulings that afford some short-term relief for ammonia makers but foreshadow future hikes.

Nevertheless, Oklahoma's fertilizer manufacturers association, in the words of George W. Haney, sees it as "a step in the right direction." Haney, a plant manager for Farmland Industries at Enid, Okla., echoes the feelings of the 10 Oklahoma plant operators, who have been fighting all this year against the proposed increase. The increase, the group claimed, might be enough to put several or all of them out of business.

The cost of natural gas is especially crucial for ammonia makers because it makes up as much as 85% of the cost of each ton of fertilizer. The 10 Oklahoma producers turn out as much as 2.5 million tons of anhydrous ammonia annually, paying an average of \$3.27/Mcf for their natural gas.

A mixed decision. The interim decision, in essence, placates both sides. Natural gas producers were granted permission to push through a \$32.3 million emergency rate hike. The gas companies can collect the money under bond but can not use it until OCC's final rate decision—expected in August or September.

Ammonia producers, meanwhile, won some breathing space—and a precedent. The innovative rate-allocation scheme for the first time shifts the burden of payment to residential users.

Under the scheme approved by the commission, ONG's customers—residential, commercial and industrial—will pay \$1.42/Mcf more than they are now pay-

ing—but on a weighted scale. Industrial customers, including fertilizer manufacturers, will pay the higher rate on the first 100 Mcf of natural gas they use per month—not much of an increase for plants that produce up to 2,000 tons/day of ammonia. Residential consumers will pay the extra \$1.42/Mcf on the first 3 Mcf they use per month. Thus, the vast numbers of ONG residential consumers will carry the bulk of the load from now on.

OCC also took the interim step of issuing a 90-day ruling that may well serve to reduce the average cost of gas in the state. OCC has limited natural gas production of unallocated wells to just 25% of each well's potential flow. Prior to the ruling, the legal maximum production from such wells was 50%. OCC expects the ruling to reduce production from the 15,000 wells in the state by between 25% and 50%. A hearing will be held on May 24 to discuss natural gas supply and demand questions. An OCC representative said the 90-day test program could reduce the overall cost of gas to such companies as ONG, since it will reduce the company's take-or-pay liabilities. That would free the company from the need to borrow money to service those liabilities and would allow it to pass along the cost of the gas they were forced to buy but couldn't sell. □

Correction. We incorrectly reported that Air Products and Chemicals will raise hydrogen prices to \$1.52/100 cu ft for the largest-volume users (*CW*, Apr. 20, p. 38). The correct price will be \$1.32/100 cu ft. □