

Phaseout of PVC sought

By DAVID HESS

Beacon Journal Washington Bureau

WASHINGTON — Chiding the government for a "lax approach" to curbing hazardous vinyl chloride emissions, environmentalists called Tuesday for tough new standards that would encourage phasing out the vinyl chloride industry.

At hearings conducted by the Environmental Protection Agency (EPA), a spokesman for the Environmental Defense Fund lashed out at EPA's proposed rule for reducing vinyl emissions from plants that make the basic gas and the resin which form the root materials for hundreds of plastic products.

A spokesman for the plastics industry said manufacturers are prepared to "do their best" to comply with the proposed standards, even though compliance would cost hundreds of millions of dollars.

Vinyl chloride gas (VC) and polyvinyl chloride resins (PVC) have been implicated in 27 liver cancer deaths worldwide and are prime suspects as the cause of serious damage to other vital organs.

Studies in Ohio and Norway suggest that certain birth defects and post-natal deformities are linked to sustained exposure to vinyl chloride emissions — leading some researchers to believe that VC and PVC may cause chromosome damage.

VINYL CHLORIDE is the basic component of many everyday products, including phonograph records, garden hose, furniture and wall coverings, wire coatings, credit cards and footwear. It also is used in medical settings for such items as surgical hose and blood containers.

The federal Occupational Safety and Health Administration already has imposed stiff emission standards on VC and PVC in factory work areas. The Food and Drug Administration is moving to ban the use of PVC as a food wrapping.

The EPA is proposing that VC and PVC plants reduce their emissions by at least 90 percent. This standard would work out to a permissible emission level of about 10 parts per million of the gas or resin in the air, or 10 times higher than the 1 part per million allowed by OSHA in factory work areas.

Barry I. Castleman Environmental Defense Fund urged EPA to adopt a more "stringent emission standard," approaching "zero emissions."

He said EPA should classify vinyl chloride uses according to products for which non-hazardous substitutes are readily available; products for which more study is needed to find substitutes, and products for which no reasonable substitutes are available.

EPA THEN could move to ban the use of VC and PVC in products where substitutes are available and encourage industry to find substitutes for others, Castleman said.

Since substitutes are available for most vinyl chloride products, VC and PVC production could be phased out, he said.

Industry spokesmen opposed this approach, arguing that the technology exists to make VC and PVC plants safe.

They said a sudden disruption of the industry could have "serious economic consequences" not only for plastics workers but also for workers in industries that depend on products from plastics makers.

Ralph Harding, head of the Society of the Plastics Industry, promised EPA that the industry is prepared to meet the proposed standards, even though they "will cost about \$200 million for emission control equipment and another \$70 million a year in operating costs."

HARDING and other industry spokesmen took issue with the environmentalists' suggestion that 10 parts per million of VC and PVC in the air is dangerous.

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Harding said, "researchers have found 'no demonstrable health risk to the public who live in the vicinity of our plants.'"

A paper prepared by EPA, however, said a 1974 research project indicated that "people living near these plants are at some risk of adverse effects due to their exposure to vinyl chloride in the ambient air near the plants."

EPA said an analysis of these findings points to the possibility of up to 10 cases of liver cancer a year and another 10 cases of cancer in other organs among people exposed to an average of 1 part per million or vinyl chloride around the clock.

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Cancer 23976002

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In addition, the proposed standards for lead, beryllium, trichloroethylene and toluene call for establishing what is called an "action level." That means that when workers are exposed to one-half of the permissible level, employers would have to give medical examinations to check for possible effects of exposure.

What seems to run through much of what is being learned about cancer-causing agents is the irony that technical advances often bring with them hidden hazards. The convenience of the spray can for hair sprays, for example, depended on the stability of the chemicals called fluorocarbons. Now many scientists believe that fluorocarbons are drifting up into the atmosphere and destroying the protective layer of ozone, which screens out ultraviolet rays that can produce skin cancer.

The IARC study of suspect chemicals conveys the feeling that none is safe. In the past, for instance, insecticides containing arsenic — another substance on the list — were used in the vineyards of Germany and France, exposing the laborers in the vineyards to a cancer-causing chemical.

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The Plastic Coffin Of Charles Arthur

A Warning Sign

Joe Klein visited Lorain County several times in researching his article. He used background files at The Journal and his magazine reprinted journal photographs from earlier stories on the vinyl chloride problem at the Avon Lake B.F. Goodrich plant. We feel Klein's article is important and we are reprinting it. (Copyright 1976 by Rolling Stone. Reprinted with permission.)

By JOE KLEIN

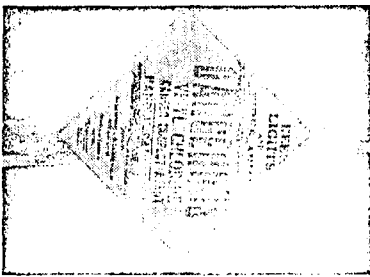
Rolling Stone Magazine
The most terrifying thing is the cleanliness of the operation; no belching smokestacks, no grime, no sludge dumped in the river, no mess. The factory is located on a peaceful country road in Avon Lake. On the front lawn there is a modest sign with the corporate logo: B. F. Goodrich.

From the road, you can see a modern building — the B.F. Goodrich Development Center — which smacks of better living through chemistry. Behind the technical center is the factory itself, a jumble of vats and pipes and tanks, emitting small, benign puffs of white smoke. The very model of corporate good citizenship, it would seem.

Inside the factory, they transform vinyl chloride gas, which is a petroleum byproduct, into a powder which is the second most common form of plastic, polyvinyl chloride. It is virtually impossible to go a day without coming into contact with some form of polyvinyl chloride.

But there was another property of polyvinyl chloride that turned out to be even more remarkable than its myriad of uses: the vinyl chloride gas, which is the base for the miracle powder, induces a rare form of liver cancer that is guaranteed to produce a quick and painful death. Recently, it killed one of the workers at the B. F. Goodrich plant in Avon Lake, a man named Charles Arthur.

Now Charles Arthur was not the first person to die of liver cancer caused by vinyl chloride, and he certainly won't be the last. His case was not much different than the others on record: his life was not much different than the other workers at Avon Lake. He was 47 years old, a good employee, a devoted husband and father. He lived in a small ranch house on a quiet street. He was never arrested, never caused much of a stir of any kind. In fact, there is little that distinguishes Charles Arthur's life from millions of others... which



(Journal Photo by John Cole)

"When asked to contribute to a collection for Charles, the company said, 'We don't want to start another Walergate.'"

estimate for all job-related deaths is 100,000 annually, staggering but wildly underestimated.

Charles hired on with B.F. Goodrich in Avon Lake as a poly cleaner in 1951. It was his job to climb into the vats where the vinyl chloride gas was heated and mixed and transformed into the miracle powder, and clean them. After a batch was cooked, Charles would climb down into the vat with a bucket and scraper and literally scrape the residue off the walls so the vat would be clean for the next batch.

Strange things happened around those vats. The vinyl chloride gas was colorless and odorless in small concentrations. In high concentrations, though, it had a very distinct smell, a sweet smell, "like something in a bakery," according to one of Charles's friends. "Like ether," according to another.

Inevitably, some of the guys came to enjoy getting high on vinyl chloride. They would lean over into the vats and breathe deeply... and then do it again. "Some would become like alcoholics,"

On February 15th, Goodrich reported the death of a fifth employee.

On February 21st, the Union Carbide Corporation reported the death of a vinyl chloride worker due to angiosarcoma.

On March 1st, the Goodyear Tire and Rubber Company announced the death of a vinyl chloride worker due to angiosarcoma.

On March 6th, Goodrich announced cases of liver angiosarcoma in two living employees.

On March 22nd, Goodyear announced two more fatalities.

On April 16th, the Firestone Plastics Company announced its first case.

The chemical companies said they were shocked. They said they would do everything they could to improve conditions in their vinyl chloride operations to prevent worker exposures. If they had only known, they said, they would have moved a long time before, if they only knew...

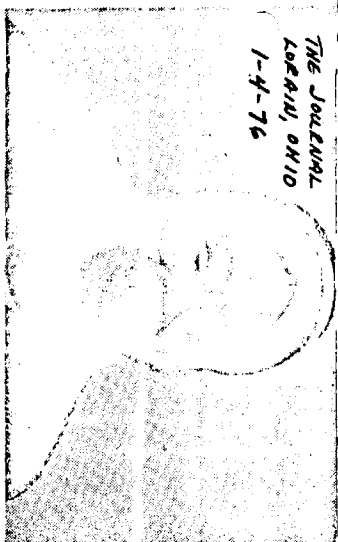
But a case can be made that the companies did know. Strong suspicions of vinyl chloride as a carcinogen began in 1949, or five years before Charles hired at Avon Lake. Russian scientists in 1950 found that vinyl chloride was a carcinogen in laboratory experiments.

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"The year before Goodrich announced that three of its workers had died of angiosarcoma, American chemical manufacturers covered up the knowledge that vinyl chloride caused cancer."

"Charles prayed that God had a purpose, that it was selected"

He was not unlike the others who worked the polyvinyl chloride vats. They all learned too late that one man's bread and butter may also be his poison.



The Journal
Lorain, Ohio
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of 29 brands of aerosol products containing vinyl chloride.

Meanwhile, the Food and Drug Administration was investigating another, potentially more terrifying, form of exposure to vinyl chloride. It was found that vinyl chloride gas escaped into meat in supermarkets, which was routinely packed in polyvinyl chloride plastic. The FDA began studying what to do about this.

Laboratory experiments continued. And scientists were unable to remain unable to find a level at which vinyl chloride did not cause cancer.

Around that same time, Charles's wife, Helen, developed a stomachache. She thought maybe they were eating the wrong things. Then she lost the level that has been considered for human exposure. He had pain all the time, stomach pain. He also had a lot

noticed that three communities had a significantly higher than average rate of birth defects. The communities were Ashland, Painesville and Avon Lake. All three had polyvinyl chloride factories.

Checking closer, infantile found the abnormalities especially involved the central nervous system. There was also a significantly higher rate of brain tumors among adults in those communities.

The coincidence was a little too much for Charles Arthur to comprehend. He sat in the backyard thinking, thinking. It was obvious God was using him for a purpose, but what purpose? Charles prayed the purpose was a miracle, that God had selected him as a sign to the others. He played on his mind continually. He would ask Helen: "Why me? Why, of all the guys who work there, is it me?"

In April Charles began a series of chemotherapy treatments designed to arrest the growth of the tumor that was devouring his liver. Chemotherapy involves drugs that slow down the growth of rapidly dividing cells, like the cells in a cancerous tumor. The advantage is that it can prolong a cancer patient's life. The disadvantage is that there are other rapidly growing cells in a person's body, aside from tumor cells — hair cells, cells that line the intestinal walls. Soon Charles's hair fell out. He was nauseous all the time and began losing weight rapidly. Sometimes, he told friends, he was so dizzy he didn't even know his name.

The manufacturers decided that

But wouldn't labor tend to buckle under to management, to worry more about jobs than the long-range problem of health?

He said that if you talked to most workers and told them that they had two alternatives — either lose their jobs or run the risk of getting cancer in 15 years — most would say that working on the job would be a socially acceptable risk.

Charles and Helen took the money the guys had raised and in August went to Disney World in Florida with their youngest daughter, Valerie. "We had a real nice time," Helen remembers, "although Chuck felt kind of funny. He was so tired. We bought him a bathing suit but he only wore it down to the motel pool one day — I guess he felt funny in it. After that, he would come down to the pool wearing his pants."

In September, Charles continued to try to go to work, but it was getting harder. He was growing weaker, he had pain in his back. Helen thought the pain might have been the result of Charles walking around lurching over; later she realized that it was probably caused by his liver tumor swelling and pressing against his other organs. Still, he didn't complain much. Helen could never really be sure how much pain he was in.

In early October, he quit work. He just couldn't make it anymore.

On October 21st, he entered Elyria Memorial Hospital.

On October 27th, Charles was feeling a bit better. He received some old friends, joked about their gaining weight and his losing it, then prayed with them. Outside the hospital room, Helen received reporters from the local newspaper. "He has no bitterness at all," she told them. "He never had bitterness in his heart. In fact, if he comes through this, he says he'll go back to work at Goodrich."

"God gave him to us and if He feels He wants to take Chuck home, He can," she said. "God loves him more than we ever could and we know him more

frightening.

And one thing is even more frightening. Only now are people beginning to question the fact that chemicals are routinely considered innocent by government and industry until proven guilty.

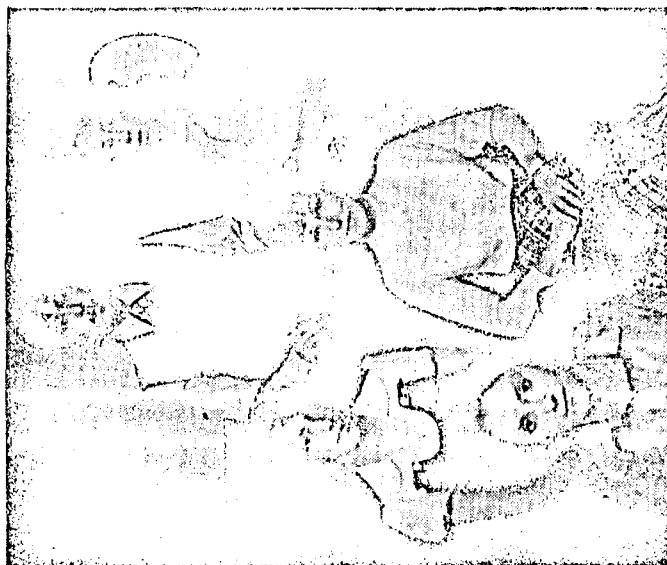
Some other relevant facts:

Cancer is responsible for approximately one out of every four deaths. In 1974, an estimated 358,400 people died of it.

More people are dying of cancer all the time. Through the early Seventies, the cancer rate increased at about one percent per year. In the first seven months of 1975, though, there was a major leap: the rate increased by five percent. Part of the reason for the annual increase is that people are living longer and, because of its long incubation period, cancer is a disease of old age. But another reason for the increase probably can be traced to the introduction of all these new synthetic chemicals over the last 50 years.

It is generally agreed among scientists that 80 to 90% of all cancers are probably environmentally caused.

While it's difficult to say how many workers die each year of job-related cancer, the official government



CHARLIE ARTHUR'S family. His wife, Helen, and children, Valerie, (front), Mrs. Karen Long (beside mother), Charles Jr., and Mrs. Denise Perry. All live in Elvira except Karen, who resides in Loran. (Journal Photo by Jim Fiedler)

a miracle, a sign to the others. He would ask Helen: 'Why me? Why, of all the guys who work there, is it me?'

million parts of air $\pm$ 500 ppm) he been shown to have an effect on the liver and kidneys of laboratory animals." The same year, Dr. V. K. Rowe, doing research for the Dow Chemical Company, found liver damage at exposure levels as low as 100 ppm in laboratory animals, and Dow decided to set a level of 50 ppm in its plants.

And there is evidence that, at least in Goodrich's case, the cover-up had begun nine years earlier. In 1965, a worker named Earl Parks at Goodrich's Louisville plant filed a workman's compensation claim for liver disabilities caused by working with vinyl chloride. The company contested the claim but acknowledged that it had removed Parks from contact with vinyl chloride because of his liver ailment. During the hearing before the state workman's compensation board, Parks attempted to introduce evidence of liver ailments among his fellow employees but the company blocked him. Still, the Kentucky authorities were sufficiently convinced to order the company to pay a partial claim. As the years progressed, Parks's condition worsened and the amount the company was forced to pay increased. In March 1973, Parks died of angiosarcoma. His was one of the three deaths Goodrich reported on January 22nd, 1974.

In Avon Lake, the Goodrich workers took the news of the new occupational disease in stride. They would say to each other: sure there were polychlorinated biphenyls (PCBs) in the chlorinated solvents, but that's not here. Maybe conditions are different in Louisville. Maybe they're worse. If this thing is so serious, how come nobody's getting sick here?

Throughout 1974, the vinyl chloride bomb continued to explode. Almost immediately, it became apparent that not only factory workers were in trouble but the general public as well. Vinyl chloride gas, it was found, was used as a propellant for aerosol sprays. On April 3rd, Clairmont announced it was recalling 100,000 bottles of hair spray.

On April 4th, the Environmental Protection Agency announced a study that showed that if a typical antiseptic room spray were sprayed for seconds in a typical bathroom, the result would be a vinyl chloride concentration of 400 ppm, well above the levels shown to cause cancer in rats.

On April 17th, the Food and Drug Administration announced the recall

Weeks passed and the pain of it and Helen began to worry. She made doctor appointments for Charlie but he would cancel them. Finally Helen refused to budge: she wasn't canceling the appointment. If he didn't go to the doctor, they would have to pay for the appointment anyway, so he might as well go.

The doctor ran a series of tests on Charlie. He checked all the normal things, checked his gastrointestinal tract, everything seemed okay. The last test was a liver scan and the doctor seemed to think there was something definitely wrong. He told Charlie he would have to enter the hospital and have a biopsy done. They would have to cut Charlie open and take a sample of his liver tissue to see what was wrong with it. In mid-March, Charlie entered Loran Community Hospital and the biopsy was performed. The tissue sample was sent to the Beltsville (Maryland) Naval Hospital.

On March 20th, the brief notice from R. N. Rylands, plant manager, was posted on the bulletin boards at the "rich plant in Avon Lake:

"It is with regret that I inform you that one of our employees has been diagnosed as having angiosarcoma of the liver. The employee is still hospitalized. He has 21 years of plant service, of which the first 13 were in PVC operations and the last eight in Estol, plasticizer and Carboset operations."

Charlie's name was omitted, but everyone knew who he was talking about.

As the death toll mounted around the country, more scientific studies were undertaken. Teams of scientists began studying the workers at vinyl chloride factories, checking old records, tracing former employees, finding out how they died. At least three studies were completed by the spring of 1975 — all had similar findings. In addition to angiosarcoma, vinyl chloride workers seemed to be coming down with other forms of cancer as well. Brain cancer, for example. Lymphatic and lung cancer, as well.

And there was a fourth study.

This was done by Dr. Peter Infante of the Ohio Department of Public Health. He has since moved to the National Institute of Occupational Safety and Health. Infante noticed a curious thing about birth defect statistics in the area, along the

their image. What was needed was a new public-spirited approach. They would bend a little. They would be reasonable. And they found exactly the man who could calmly explain their new approach to the government and the public: William D. Ruckelshaus.

By the summer of 1975, there was good news and bad news at the Goodrich factory in Avon Lake. The good news was that the company seemed to have made an effort to lessen the dangers to workers. It had developed new systems so the poly cleaners didn't have to go into the vats as often. It had developed complex monitoring systems, complete with computerized gadgets that took constant readings of the vinyl chloride levels in the plant, and flashing lights and alarms that warned the workers when the levels went too high.

The bad news was that there was some evidence that the company didn't pay much attention to its monitoring systems. One worker named Harry kept a notebook during the summer. "It was more or less on my personal things," he said. "Like, 'today my back is hurting' or 'my left hip is hurting.' Then I'd say things like, 'today the vinyl chloride count on the third floor was 87 ppm.'"

"One day I wrote down that the count was over 100 and the red light wasn't on. In other words, the supervisor had pulled the plug because they wanted everybody in that building to work."

In a November interview, a company spokesman denied all the charges.

In early summer, the guys in the factory began taking up a collection for Charlie Arthur. Everybody contributed five dollars so Charlie could take a trip before he died or do whatever else he wanted with the money.

As innocuous as the collection for Charlie Arthur was, it caused some concern among the management at Avon Lake. When a delegation of workers went in and asked if they could begin a collection, they said Industrial Relations officer Ron Cross told them he wasn't sure. It would start a precedent. They would have to collect money every time someone died.

The workers went ahead anyway and eventually most of the management contributed, too. But that wasn't enough for some of the workers. One of them went into the plant manager's office and asked if the company would be willing to contribute. And Bob Rylands, the plant manager told him, "The company can't give money because we don't want to start another Watergate."

William Ruckelshaus sat in his posh law office, just a few blocks from the White House, and pondered his decision to represent the plastics

much."

On October 2nd, the Wall Street Journal reported that nine cases of angiosarcoma had been discovered at a Goodrich polychlorinated biphenyl plant in Quebec. All nine workers were long dead but the company had chosen not to make an official announcement.

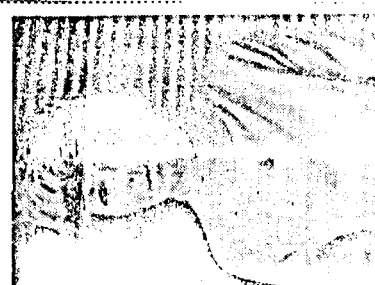
On October 30th, Charlie's condition worsened. The doctor said he could have no more visitors. A friend was his last visitor from outside the family and he said, "It seemed like Charlie was fighting for every breath he took."

On November 1st, Charlie lapsed into a coma. He died the next evening. The morning after Charlie's funeral a delegation from Goodrich came over to the house to explain to Helen what she would be getting. In effect, they explained, she would be getting the same as any other widow of an occupational death. She would get \$19 each week from the state workman's compensation board. She would get some money from Social Security, but only for two years until her youngest daughter turned 18. She would receive hospitalization benefits for the rest of her life. There would be some insurance money coming but they were unsure exactly how much — perhaps some life insurance — depending on whether the insurance company considered Charlie's death job-related. (Although Goodrich said it still wouldn't admit that vinyl chloride caused angiosarcoma, but only that there was a "relationship" between the two.)

There was one other benefit. A gift from the company for 21 years of faithful service. A death gratuity, they called it. Four weeks' pay.

Helen was stunned and disappointed. The money wouldn't be nearly enough to live on. She would have to go to work. Friends suggested the possibility of taking legal action against the company, and for several days she considered it. Finally, she decided not to.

"A Christian," she said, "does not sue."



Charlie's Wife, Helen