

Science & Technology



RIGHT TO KNOW: Ondrej Jack, whose father died from T-cell lymphoma, says the adhesives were dangerous and Schering-Plough should alert the public

of such factors as lack of a palatable replacement in a competitive market, strains between a supplier and a customer, and corporate upheaval. Only when New York State authorities were contacted by an anonymous tipster were the products withdrawn and substitutes quickly marketed.

The benzene saga was pried loose by several plaintiffs' attorneys despite years of resistance and a reliance on secrecy orders by corporate defense lawyers. The story began around 1970, when McKesson Corp., through its Norcliff arm, began marketing the denture adhesive Brace. The product used a resin called Gantrez S-97, a fast-sticking polymer made by chemical maker GAF. Benzene was a key ingredient in the resin's manufacture. At the time, benzene—a solvent—was used in hair sprays and dry-cleaning solutions. "People routinely

used benzene in the lab to wash their hands," says Daniel Mufson, a PhD chemist and onetime head of product development for Norcliff.

Indeed, in 1975, when Norcliff was sold to Revlon Inc., the company even introduced another denture adhesive, Orafix Special, made with the same resin. But signs of trouble began to appear that year. The National Institute for Occupational Safety & Health classified benzene as a suspected carcinogen. The chief worry among regulators was that workers inhaling benzene fumes could develop leukemia, a link suggested by doctors in 1928 and strengthened by research published in later years.

As Norcliff products grew in popularity, more damning data began to emerge about benzene. In 1977, Infante published a seminal study on leukemia in benzene workers, and the Environmental Protection Agency added benzene to its list of

hazardous pollutants regulated under the Clean Air Act. Now, there is little doubt about the danger. "We know for certain that benzene causes multiple forms of leukemia," says Infante.

At the time the EPA acted, the concerns surrounded the inhalation of airborne benzene—not the ingestion of a form encased in a solid denture cream. But the mounting bad news troubled some scientists and staffers at Norcliff and GAF. Norcliff memos made public in the lawsuits show that the company commissioned tests in 1978 that found 350 to 600 parts per million of benzene in both Orafix Special and Brace.

Several Norcliff executives, determined to seek a benzene-free substitute, met in mid-1978 with GAF's product manager for Gantrez. In a memo, Augi V. Grueneberg, a Norcliff lab supervisor, asked whether it was prudent to market the benzene-containing adhesives "even if no regulation exists to prevent it." Grueneberg warned that regulators could ban oral ingestion of the chemical, a move that "would result in either removal of the current product from the market, or obtaining benzene-free Gantrez."

Grueneberg noted that benzene-free Gantrez was under development at GAF but said that in the absence of an explicit ban, it was a "low-priority" project. It would rise in priority, he wrote, only if Norcliff pressed for a change. He added that Richardson-Vicks Inc., the maker of a rival product, Fixodent, was working with GAF on a benzene-free substitute.

STRONG DOUBTS. Norcliff executives did appear to heed Grueneberg's memo and press for the substitute. In a hand-written memo dated June, 1978, a Norcliff executive said he was interested in "getting benzene out—not lowering it." He emphasized his feelings by underlining the word "out" three times. Officials of Norcliff and a related Revlon subsidiary, USV, wrote GAF to relay the concern.

GAF seemed eager to help—and keep customers satisfied. "If the customer said 'Get the goddamn stuff out or we'll quit buying it,' that was an order," recalls Louis Blecher, former head of product regulatory compliance for GAF in a recent interview. Hewing to the letter of the law—even if not going beyond it—was also paramount, says Blecher. "You

tended to respond to regulations, federal and state, and... think in terms of morality and ethics after that."

Strong as the demands within the companies were, however, no records

“Is it prudent to market a product with a potential for ingesting small amounts of benzene even if no regulation exists to prevent it?” — AUGI V. GRUENEBERG, Norcliff Thayer, June 9, 1978



'We know for certain that benzene causes multiple forms of leukemia'

OSHA'S PETER INFANTE

changes

interfered with efforts to find a substitute. In the late 1970s, Norcliff's adhe-

elman. Later the same year, Perelman

In 1987, OSHA tightened the workplace standard for average airborne benzene exposure from 10 parts per million to 1. But again, there was no standard for solid products, such as denture cream. Meanwhile, the market for Gantrez resin was expanding. Shortages developed later in the 1980s as Gantrez made its way into at least one brand of toothpaste. The resulting benzene level in the toothpaste was far lower than levels found in the denture adhesives.

“Either GAF refuses to provide us with information which is absolutely necessary to us if we are to remain a customer of theirs or their operation is so inexcusably and incompetently run that they honestly don't know.”

— KEITH S. LIENHOP, Norcliff Thayer, July 16, 1987

to reformulate or replace the Gantrez resin. Lienhop headed an effort to improve the denture adhesives and, later, to find a replacement for Gantrez. But he says he didn't know about the benzene problem until about 1987. “The people in my lab were unaware of the stuff being in there,” says Lienhop, angry now about being kept in the dark about a potential health hazard.

The tight supply of Gantrez spawned tension between Norcliff and GAF. Norcliff tried to find out how Gantrez differed from experimental benzene-free alternatives, but GAF wouldn't say, according to a 1987 memo from Lienhop to a superior. Lienhop contended that GAF officials “have been deliberately uncooperative... even contradicting themselves on occasion.” A GAF spokesman says now that the com-

pany “worked closely in the development of these products” with customers and “promptly provided them with all relevant information at our disposal.”

Again, though, benzene seemed to lose priority in a corporate shuffle. In 1989, SmithKline and Beecham merged and the reformulation efforts were shifted from St. Louis to Parsippany, N.J. Beecham even retired the Nordiff name. SmithKline Beecham continued to market the denture adhesives.

WHISTLE-BLOWER. It wasn't until mid-1990 that the issue surfaced again—this time with far greater ramifications. An anonymous whistle-blower sent an alarming note to regulators at the New York State Consumer Protection Board. Residual benzene turned up in a study of denture adhesives that the writer of the unsigned letter claimed to be involved in. “Our study was abruptly canceled and we were ordered to destroy all records,” the writer said. “I am whistleblowing to your good offices to help get these highly toxic adhesives off the shelves. I cannot go public for fear of losing my job.”

New York State regulators and the FDA tested the denture creams. Five of the 10 brands on the market turned out to contain benzene. Orafix Special and Brace headed the list, with 191 and 190 parts per million of benzene, respectively. Schering's Cushion Grip followed, with 65 parts per million. Procter & Gamble's Fasteeeth and Fixodent were far lower, with just 29 and 12 parts per billion, respectively. During the mid-1980s, Procter & Gamble, which bought Richardson-Vicks, had added a

step during processing that removed most of the benzene from Gantrez. “There was confidence this chemical could be a problem and should be eliminated,” says retired Richardson-Vicks Executive Vice-President John E. Markley.

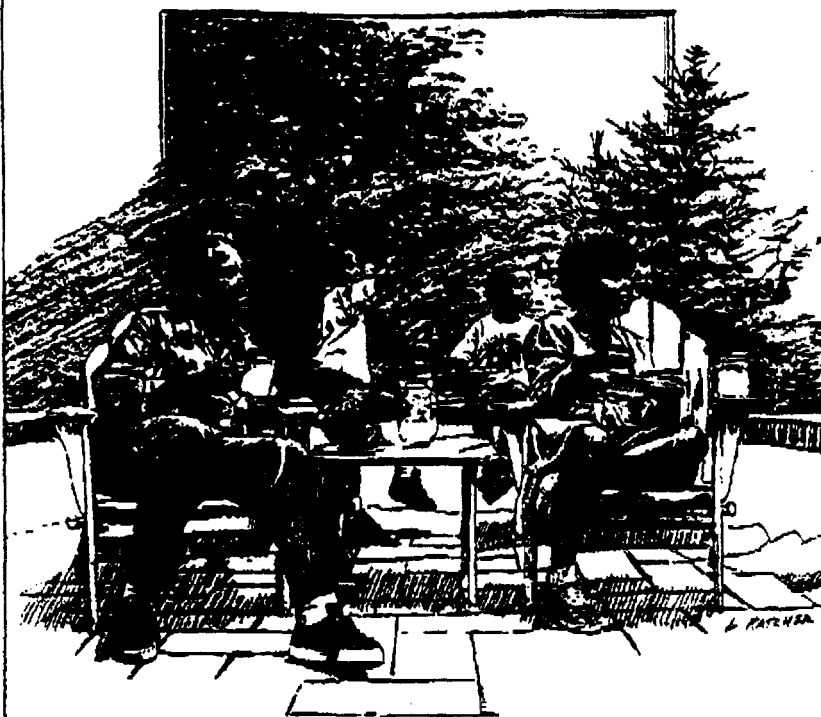
The FDA quickly ruled that no detectable amount of benzene would be tolerated in the adhesives. The companies chose not to

fight. Instead, they “voluntarily”

recalled their products, and they still insist that they posed no risk. “We do not believe there was any health hazard associated with the benzene,” says SmithKline spokesman Jeremy Heymsfeld. He adds that SmithKline reformulated the adhesives to steer clear of anticipated government regulations, not because the company thought benzene presented any danger.

By April 1991, SmithKline had begun

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The National
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using an alternative formulation of Gantrez that reduced the amount of benzene in Oratix Special to something below detectable levels. The product, however, has faded in the marketplace. Smith Kline sold the Oratix brand last December. The company faced a little-noticed class action, which it settled without any admission of wrongdoing in 1992. The company paid \$11 million in cash refunds, coupons, and lawyers' fees.

"INJUSTICE" For its part, Schering-Plough says that until it was alerted by the FDA in 1990, it wasn't aware of the benzene in its Cushion Grip (which doesn't contain Gantrez). Schering promptly switched suppliers of an ingredient that was the source of benzene and put its products back on the market. Schering has since settled two of the four lawsuits brought against it, agreeing in one case to pay just \$1,000. But a New Jersey case, on behalf of a 70-year-old Carteret man who died of T-cell lymphoma in 1991, could be far more troublesome. The victim's son, Richard Ondrejcek, says the company is "doing a tremendous injustice" by not alerting the public to the adhesives' dangers. Schering, however, insists that there was too little benzene to cause problems.

The dispute will be tough to resolve, because no one can be sure how much risk the benzene posed. Some users, like Frey, applied the adhesives heavily and regularly. Others used less. In some cases, exposure might have exceeded what is now allowed by workplace air standards. For light users, exposures were presumably lower. Another factor is that the effects of benzene exposure vary in different individuals.

Plaintiffs' experts blame everything from severe anemia to leukemia on the benzene. But the picture is often complicated. Frey, for one, smoked, drank excessively, and in his work as a janitor was around a lot of other potentially toxic chemicals. Company-paid experts also insist that too little of the toxin would have been absorbed by users to cause any problems.

As tough as it is to prove a link in each case, many scientists now concur with the worries some Norcliff researchers raised 18 years ago. Says OSHA's Infante: "I find it rather shocking that they could allow such a high concentration in their products up until 1990. The benzene should have been removed in the 1970s." Questions about the dangers and about who is accountable will plague the manufacturers and untold numbers of victims for years to come.

By Joseph Weber in Philadelphia, with John Carrey in Washington