

Air Products

Date 1 August 1978

INTEROFFICE
MEMORANDUM

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AUG 02 1978
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Subject OSHA Suspect Carcinogen Inventory

To C. E. Blades

Administration

(Location, Organization, or Department)

From D. R. Hartter

Nitration Products

(Location, Organization, or Department)

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The OSHA suspect carcinogen inventory referred to in the attached C & EN article was published on 10 July. Review of this "preliminary list" which contains 269 Category I chemicals, 218 Category II chemicals, and 396 Category III chemicals, reveals that TDA is on the Category II list and DNT is not included on any list.

Given that these chemicals have been grouped using the original OSHA Category definitions, I question our basis for ever assuming that TDA would fall into Category I.

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DRH/cjf
Attachment

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Chemical, up 15%. Smaller gains occurred for W. R. Grace, up 6%; Union Carbide, up 4% (regaining the plus column a quarter earlier than it indicated in recent forecasts); and American Cyanamid, up 1%.

On the other side of the profits spectrum, some of the drops ran much deeper percentage-wise than did the largest gains. Unfavorable earnings comparisons with second-quarter 1977, some influenced by one-time factors, are reported by Ethyl Corp., down 2%; Olin, down 6%; Monsanto and Texasgulf, down 7%; Diamond Shamrock, down 25%; Allied Chemical, down 43%; and fertilizer-plagued First Mississippi, down 51%.

Chemical product lines showed the same wide variability in performance as did these profits figures in the second quarter. The most diversified chemical companies reflect this patchwork performance in their summaries. For example, Celanese president, John D. Macomber, points to improved performance in international fibers, U.S. cellulosic fibers, worldwide plastics, and worldwide polymer specialties. However, earnings slipped in U.S. polyester and nylon fibers and in worldwide chemicals. At Union Carbide, strong first-half 1978 sales gains came in specialty products, gases and related products, and batteries and home and automotive products. Metals and carbon sales went up at about the same 11% rate as did the company's overall sales. But chemicals and plastics sales just held even with first-half 1977.

Industrywide, major product lines showing better earnings than a year ago in the second quarter were fibers, excepting textile types, many plastics, pesticides, and many specialty lines. The earnings results in large-volume basic chemicals were very mixed, with notable weak spots such as chlorine and caustic soda, an important group mentioned by several large producers. At the bottom was fertilizer, which disappointed all producers.

After this generally improved but still hard-won profits standoff in the second quarter, chemical companies have no illusions about the rest of 1978. Executives are uniformly cautious. Observes Monsanto chairman John W. Hanley, "In general, the operational results for the first six months of 1978 were acceptable. We anticipate that we may be operating in a somewhat more difficult economic environment over the balance of the year with uncertainties including unresolved matters of the federal government's approach to tax policy, inflation, and energy policy. Despite these factors, 1978 continues to shape up as another satisfactory year for Monsanto."

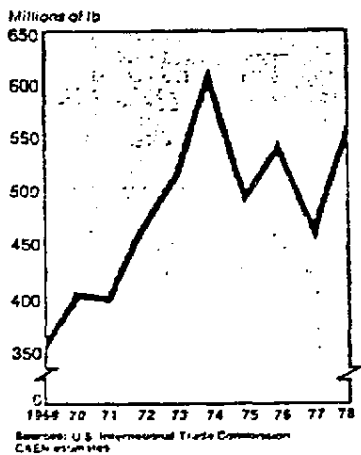
Dow tests clear methylene chloride

Methylene chloride is neither mutagenic nor a human carcinogen, according to analysis of a two-year animal study by Dow Chemical and a human occupational exposure study at Eastman Kodak. These findings could encourage continued growth in the use of methylene chloride in aerosol propellants, flexible urethane foam-blowing agents, paint strippers, metal cleaners, rapidly drying paints and adhesives, brush cleaners, and food and spice extractants.

In the Dow study, nearly 2000 rats and hamsters were exposed to atmospheres containing 0, 500, 1500, and 3500 ppm methylene chloride, six hours per day, five days per week. At the end of six months, animal cell samples were analyzed for chromosomal damage. At the end of the animals' lives, bodies were autopsied and slides of tissues examined.

No greater number of tumors was found in experimental than in control groups of hamsters. The rats, which have a tendency to develop spontaneous mammary tumors, were found to have an excess number of benign tumors in the experimental groups but not of malignant tumors. Company scientists ascribe the excess number of benign tumors to metabolic stress. Exposed rats suffered liver effects, but company spokespersons say that these were not severe enough to shorten animals' lives, and severity did not progress between the 18th and 24th months. No evidence of chromosomal aberrations was found in cell samples taken after six months.

Methylene chloride makes erratic recovery



A study of a large number of male employees exposed to up to 135 ppm methylene chloride for up to 30 years at Eastman Kodak in Rochester, N.Y., shows lower mortality rate among exposed persons than for the population of the state. Death rate from cancer and heart disease among these persons also was lower than that of the state population. Kodak is reluctant to discuss details of the study, pending publication in a peer-reviewed journal.

A similar study of employees exposed to methylene chloride at Celanese Fibers Co.'s Rock Hill, S.C., plant is still in progress. Dow industrial hygienists who are assisting Celanese in carrying out the study say that preliminary results show no adverse health effects.

These encouraging findings to date may help methylene chloride to recover ground lost in 1977. Industry sources attribute a 12% drop in production from 1976 levels to increased solvent reclamation efforts by users, a tripling of imports, and a falloff in exports. Strong growth of the U.S. economy may produce an increase of 17% to 553 million lb for 1978. □

Chemical carcinogens list released by OSHA

As promised several weeks ago, the Occupational Safety & Health Administration has released a preliminary list of chemicals classified according to the system the agency proposed last year for regulating cancer-causing substances in the workplace. Lengthy public hearings on the proposal are now being conducted and it was at these hearings that the existence of the OSHA list first surfaced (ENR, May 22, page 16).

In a sense there are no surprises on the list because it is based on substances listed in the 1976 edition of the National Institute for Occupational Safety & Health's inventory of suspected carcinogens. The list was prepared for OSHA by Clement Associates, a Washington, D.C., consulting firm hired to conduct a preliminary review and categorization of substances in the NIOSH inventory that are found in U.S. work places.

The Clement list places 269 chemicals in OSHA's Category I, which is comprised of substances that are confirmed carcinogens based on human data or on tests in two mammalian species or on one species if those results have been replicated. Listed in Category I are chemicals such as acetamide, benzene, carbon tetrachloride, chloroform, tannic acid,

Cat. I
Descrpt

and trichloroethylene; minerals such as asbestos, beryllium, chromium, iron ore, and nickel; and drugs such as daunomycin, estradiol, and progesterone.

The Category I list also contains a number of substances, such as various nitrosamine compounds, that are of special concern to the chemical industry. Although the substances themselves are not commercial products, they may appear in trace amounts as contaminants in commercial products. Under OSHA's proposed policy, there will be no exclusion for contaminants present in trace quantities, as there is in most OSHA regulations. Thus, if the carcinogen policy proposal becomes final in its present form, commercial products that contain only traces of Category I substances might have to be regulated and handled as confirmed carcinogens.

The list also places 218 chemicals in OSHA's Category II, comprising substances whose carcinogenicity has been reported but for which the evidence is only suggestive, or is positive in only one species and has not yet been replicated. Included in Category II are substances such as *tert*-butyl peroxide, ethanol, methyl hydrazine, naphthalene, petroleum, toluene, 2,4-diamino, and xylene.

Category III has 396 substances with no, or at most, meager, evidence of carcinogenic risk.

In releasing the list, OSHA emphasizes that it is not intended to be a "hit list." OSHA says it is providing the list at this time because of numerous requests to do so and because it may serve as a basis for drawing up criteria on how the agency could decide priorities for regulating the chemicals on the list. □

Scientists form group to inform consumers

A new group, the American Council on Science & Health, calling itself "a new type of consumer advocate," has been formed to "combat the chemical phobia now rampant across the country." Composed largely of university scientists including a number from Harvard University, the group insists that it intends to remain financially free from the food and chemical industries.

At a press conference in Washington, D.C., last week, Dr. Elizabeth M. Whelan, a research worker at the Harvard School of Public Health, said that the group has been set up because "facts about chemicals are often distorted, the whole story not told, and decisions are made more on the



Whelan: facts are often distorted

basis of emotion and politics than science."

Whelan, author of "Panic in the Pantry," a book about food additives, and a frequent critic of what she considers to be scare stories about chemicals and health, declared, "The consumer advocates have dominated, and federal regulatory agencies have succumbed to their pressure and banned or restricted use of a number of chemicals. Only rarely are the voices of more rational scientists heard in discussions relating to chemicals and health." Whelan is executive director of the council and a member of its board of directors.

Also named as directors of the council are Dr. Frederick J. Stare, professor of nutrition at Harvard; Joseph F. Murphy, executive vice president of Continental Corp. (formerly Continental Can); Dr. Thomas H. Jukes, professor of medical physics at the University of California, Berkeley; and Nobel Laureate Norman E. Borlaug, now a researcher at the International Maize & Wheat Improvement Center in Mexico City.

The council's motives, however, do not go unchallenged. Dr. Sidney Wolfe, director of the Health Research Group, a Ralph Nader affiliate, claims that many of Whelan's previous statements about chemicals and cancer have suspiciously supported industry positions. The council, Wolfe says, "is probably more interested in the health of the food additive industry... than it is in the health of the public." Wolfe and HRC have been instrumental in pressing for tighter federal regulation of food additives, artificial food colors, and prescription drugs. □

Hoechst narrows focus of research efforts

Hoechst A.G. will be concentrating its research efforts on just a few areas in the near future. Dr. Klaus Weissmermel, director of research of the West German chemical company, told a press conference in New York City last week. The areas receiving the greatest R&D push over the next few years are pharmaceuticals, plant protection and animal nutrition, reprography technology, and fine chemicals.

The biggest R&D spending will go to pharmaceuticals. Weissmermel predicts that this area, which makes up about 16% of Hoechst's sales, will receive about 39% of the company's \$454 million research budget.

According to Weissmermel, these areas of concentration may shift because of changing strengths within Hoechst. However, the total research budget will not change very much. Weissmermel predicts that it will rise only 4 to 5% over the next year—just enough to keep pace with inflation.

Hoechst's research budget, set at a percentage of sales, is higher than that of most U.S. chemical companies. The figure in 1977 was about 4.1%, compared to an average of about 2.6% for U.S. companies. However, Hoechst's R&D as a percent of sales figure probably will slip if the company insists on keeping the budget at its present level in terms of constant dollars, which will happen if it is raised only in keeping with the inflation rate. Although sales dropped from 1976 to 1977, mainly because of lagging fiber sales, this situation likely will not continue. If sales increase more than inflation, the R&D percentage will begin to lag.

In areas of research other than the four which were emphasized, Weissmermel says that Hoechst is doing more work in fire retardant materials. Last year the company introduced an inherently flame resistant polyester—Trevira 271 (C&EN, Oct. 31, 1977, page 4). Weissmermel told the press conference that Hoechst is also working on flame retardant polyolefins using chlorobromide for fire resistance, and polyamides using phosphors.

Another new development by Hoechst is an auto exhaust catalyst that uses nonprecious metals instead of the precious metals used in U.S.-produced catalysts. The catalyst that Hoechst is working on can be used with leaded or unleaded gas. C&EN has learned that in the U.S., Ford Motor Co. is interested in the new catalyst, which probably will cost less to produce than existing catalysts. □