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Cancer Clearinghouse: Focus on Testing, Alerts

A national clearinghouse on cancer-causing agents in the environment is being established by the National Cancer Institute to accumulate information, decide what substances should be tested and alert the public to significant findings.

Dr. Frank Rauscher, director of NCI, says the clearinghouse is designed to eliminate duplication of efforts, focus attention on potentially hazardous materials and to contact rapidly the individuals most likely to be affected by cancer-causing agents.

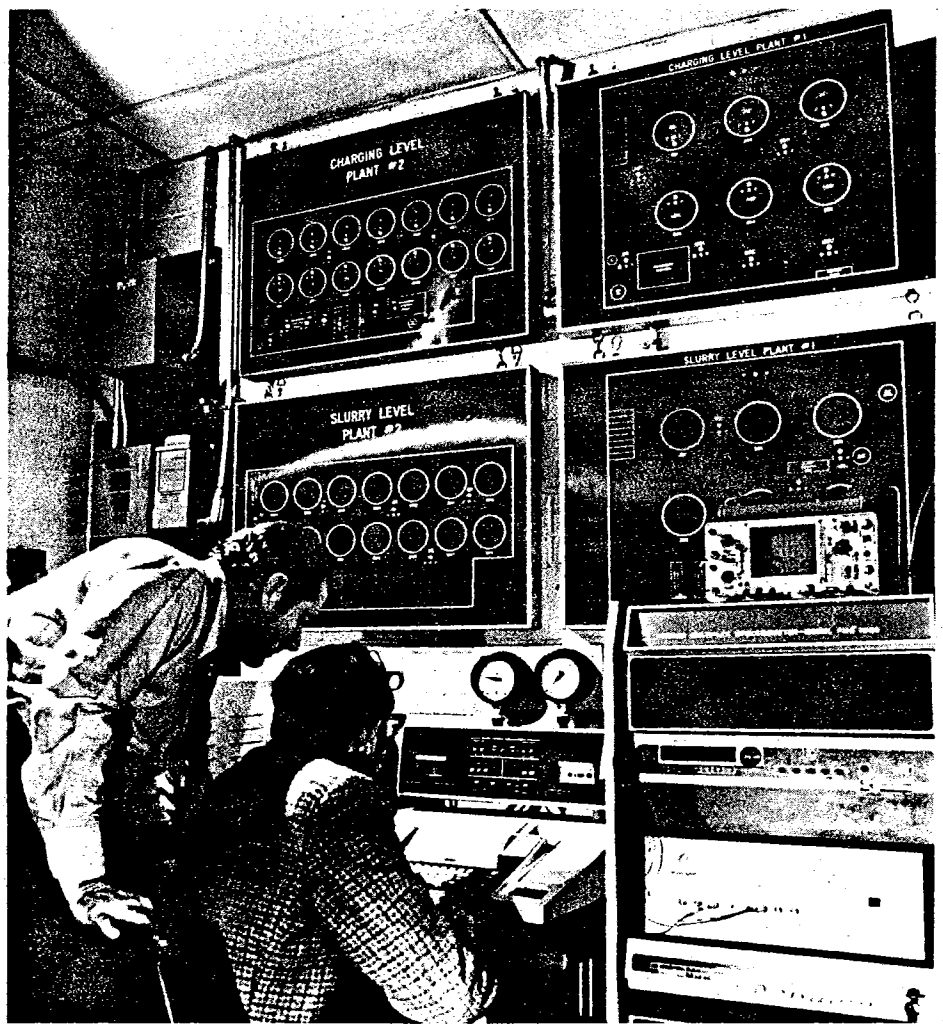
The clearinghouse will try to resolve some of the toughest questions about cancer. Of the many factors in food, air, water and the workplace suspected of causing the disease, it must determine which warrant closer examination and, perhaps, tighter control.

A scientific advisory group will be appointed by NCI to work with the clearinghouse. Its members will represent the academic and research communities, government, industry, labor and public interest organizations.

NCI officials already have contacted Chemical Industry Institute of Toxicology President Leon Golberg on the possibility of industry participation.

The clearinghouse also will coordinate the overlapping efforts of federal agencies involved with hazardous materials. They include the Environmental Protection Agency, the Food and Drug Administration, the National Institute for Occupational Safety and Health, the Occupational Safety and Health Administration and the National Institute of Environmental Health Sciences.

An NCI spokesman says it might take up to six months to set up the advisory group. No protocol has been established, but NCI says the group will conduct its meetings in public.



A minicomputer is the heart of a new monitoring process that helps control vinyl chloride. Jack Jaglom (standing), President of the Pantasote Company of New York, Inc., reviews a report on VC levels in two processing plants with manager Krish Sheth. Panels at top show concentrations of the gas at various work stations in the plants. The story is on page three.

High Court Reviews Right to Promulgate Wastewater Limits

The U.S. Supreme Court has agreed to review a decision by the Fourth Circuit Court of Appeals which upheld the Environmental Protection Agency's right to promulgate national effluent discharge limitations.

In the case that triggered the review, the lower court sent EPA back to the drawing boards on effluent guidelines for the inorganic and organic chemical industries.

The Fourth Circuit Court of Appeals set aside inorganic effluent guidelines on 11 substances promulgated under the Water Pollution Control Act Amendments of 1972. It remanded them to EPA for reconsideration, citing "the confusion caused by this poorly drafted and astonishingly imprecise statute."

The court also told the agency to redefine "effluent limitations," "process wastewater" and "process wastewater pollutants."

Noting that the case revolved around EPA's power to establish effluent guidelines by regulation of sources, the court found that the regulations are "presumptively applicable to permit applications unless that presumption is rebutted."

Concerning organics, EPA and several chemical company litigants agreed to a stipulated settlement under which the agency withdrew all effluent guidelines except for butadiene.

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NCI Says Kepone Causes Cancer In Lab Animals

Chlordecone, the chemical name for the insecticide Kepone, has been found to cause liver cancer in rats and mice, the National Cancer Institute reports.

NCI says its findings are definitive for the animal studies, but that predictions of human risk are not possible on the basis of these studies alone.

The tests are part of the institute's continuing program to screen chemicals for cancer-causing activity. NCI currently has some 500 chemicals in long-term studies as suspected carcinogens.

Chlordecone was selected because of its uses, persistence in the environment and chemical structure. It is one of a number of chlorinated chemicals to which humans have been exposed in the workplace and general environment.

Rats fed high dose levels of the chemical, and mice at both high and low dose levels, showed significant increases in liver cancer, NCI says.

The compound was originally developed by Allied Chemical Corporation and produced under the trade name Kepone. More recently, it was produced by Life Science Products Company of Hopewell, Va., and sold exclusively to Allied.

Life Science's Hopewell plant was closed in July 1975 when some workers were found ill. In August 1975, the Environmental Protection Agency halted sales and use of the compound and prohibited further manufacture.

NSF Involves Students

Some 600 college students will receive support this summer from the National Science Foundation to conduct research in environmental and social problems, such as land-use planning, waste utilization and biological control of agricultural pests.

NSF grants totaling $972,450 have been awarded to 63 universities in 30 states.

NAS' Ozone Report Still Out; Last-Minute Data Being Weighed

The delay by the National Academy of Sciences of its study on the environmental effects of chlorofluorocarbons leaves the controversy very much up in the air.

NAS postponed releasing the report shortly before its April 1 due date because significant new information had come in. Several months might be needed to evaluate the data, NAS says. The academy would not comment on the nature of the new material.

Meanwhile, the government's Interdepartmental Committee for Atmospheric Sciences has absolved six classes of possible man-made hazards to the stratosphere, excluding fluorocarbons.

After assessing nitrogen fertilizers, brominated compounds, other chlorinated compounds, particles, the space shuttle and carbon monoxide, the committee concluded that "in each case there appears to be no immediate serious problem, either because the concern is highly speculative or because it is based upon compounds that are not as yet released to the upper atmosphere in quantities believed sufficient to produce a hazardous effect."

The committee warned, however, that several of the substances might combine to threaten the ozone layer and that materials still to be invented could pose future hazards.

Limited copies of the report, "Potential Modifiers of the Stratosphere Other Than Fluorocarbons," are available free from Warren Muir, Council on Environmental Quality, 722 Jackson Place, N.W., Washington, D.C. 20006.

As for fluorocarbons, the Du Pont Company says that new measurements raise questions about the validity of the theory that continued use of the compound may damage the ozone layer.

Du Pont scientist Dr. J. Peter Jesson says recent measurements of hydrogen chloride in the atmosphere by the National Center for Atmospheric Research do not agree with the fluorocarbon/ozone theory.

Dr. Jesson says the new measurements show a sharp decrease in hydrogen chloride above 24 kilometers. In contrast, the ozone theory predicts that the HCl concentration should increase rapidly with increasing altitude in the lower stratosphere, level off near 25-30 Km and remain fairly constant at higher altitudes.

A second important factor, Dr. Jesson says, is that the measurements suggest a strong seasonal variability in the hydrogen chloride mixing ratios. This is difficult to account for with the present chemical scheme, he says.

Dr. Jesson believes the recent findings indicate a need to modify the photochemistry used in the models. He says the theory's originators, Drs. F.S. Rowland and M. J. Molina of the University of California, have recognized this by introducing new chemistry involving chlorine nitrate to the model.

"We have too often heard claims that the ozone theory has been proved because a first, preliminary measurement of some part of the theory can be made to fit the theory's predictions," the Du Pont scientist points out.

Because of this, he urges additional confirmation of any new results before drawing conclusions.

In another development, MCA's Technical Panel on Fluorocarbon Research has submitted to the National Academy of Sciences a scientific review of the effect of fluorocarbons on the concentrations of atmospheric ozone.

The panel also has published an updated summary of industry-sponsored fluorocarbon research programs. It calls for continued cooperation with government scientists as the way to produce most rapidly the information needed for rational decision making.

Great Lakes Cleanup Taking Decade Longer

A joint Canadian-United States governmental board, formed in 1972 to assess the extent of pollution in the Great Lakes, recently revised its estimate of the time required for cleanup.

In contrast to early optimism, "the commission now thinks in terms of a decade or more before the goals can be fully realized," the board reported. Although some antipollution measures have an immediate effect, others take 15 or more years to show results.

The quality of open water is "generally good," the board commented, except in Lake Erie and in Lake Ontario which show signs of oxygen deficiency.

PCBs: EPA Tells How to Treat Wastes

The Environmental Protection Agency recommends carefully controlled incineration as the best method for disposing of industrial wastes containing polychlorinated biphenyls.

In material published in the *Federal Register* of April 1, EPA favors controlled land disposal as the second best method of handling these hazardous wastes. Recycling is advisable only as long as adequate substitutes for PCBs are not available.

The recommendations do not have standard-setting or regulatory status, but EPA says they represent the best information available on preferable disposal options.

The recommendations are part of an EPA action plan announced last December to insure that PCBs currently in service do not enter the environment where they accumulate in the food chain and degrade very slowly.

The agency has asked industry to voluntarily reduce consumption of PCBs. It didn't ban the material because there is no adequate substitute for essential uses.

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NIOSH Recommends Standards to OSHA On Four Chemicals

Tighter limits on workplace exposure to nitrogen oxides, isopropyl alcohol and hydrogen fluoride and retention of the present standard for phosgene have been recommended by the National Institute for Occupational Safety and Health.

Reduction from the present federal standard for nitrogen oxides of five parts per million to one ppm (1.8 milligrams per cubic meter) and adherence to the federal standard of 25 ppm as a time-weighted average for a 10-hour workday, 40-hour workweek is suggested to the Occupational Safety and Health Administration.

NIOSH says isopropyl alcohol exposure should be limited to 400 parts per million parts of air, noting that exposure to carcinogenic agents may occur in the manufacture of the substance.

Occupational standards for hydrogen fluoride should be set at 2.5 milligrams of fluoride ion per cubic meter of air for a 10-hour day, 40-hour workweek. Ceiling limits for the material of 5.0 milligrams of the fluoride ion per cubic meter of air were sent to OSHA March 11.

For phosgene, NIOSH advises retaining the one ppm standard as a time-weighted average for up to a 10-hour workday, 40-hour workweek. NIOSH, however, recommends a ceiling value of two ppm for any 15-minute exposure period.

Because the human senses cannot readily detect phosgene at permissable exposure levels, use of automatic continuous monitors with alarm systems is strongly advised.

Allied's Waste-Heat Recovery System Generates Electricity, Saves Energy

Allied Chemical Corporation plans to install and operate a Rankine cycle waste-heat recovery system in its sulfuric acid plant at North Claymont, Del. A Japanese firm will design and fabricate the system.

Operating on an industrial waste-heat stream to produce electrical energy, the unit reportedly will be the first of its kind located outside Japan. It is expected to start up in mid-1977.

The demonstration plant will have a net output of 500 kilowatts. The electricity generated and used at the plant site will reduce purchased electrical power by almost 4.4 million kilowatt hours each year.

Installation of the Rankine technology is part of Allied's ongoing energy conservation program, a spokesman comments.

Employing a sulfuric acid stream from the Delaware plant and using fluorocarbon as the working fluid, the power plant will convert low-level heat energy into useful electrical power. Inlet temperature of the acid to the power plant will be about 250 degrees Fahrenheit.

The sulfuric acid application represents a technical challenge in material corrosion and low-level waste heat utilization which could yield an attractive economic opportunity, the company says.

If the unit proves successful, use of other plentiful waste-heat sources to produce shaft power or electricity also should produce satisfactory economic benefits, Allied says.

Toxic Substances Focus of Meeting

The concept of action levels in exposure limits for toxic substances will be explored at a meeting May 3-4 of the Labor Department's National Advisory Committee on Occupational Safety and Health.

Also on the agenda: a discussion on the role of physicians in job health and safety programs and an explanation of types of occupational statistics available.

The meetings, open to the public, will begin each day at 9 a.m. at the Twin Bridges Marriott, Arlington, Va.

Researchers Develop New Asbestos Gauge

A team of Naval Research Laboratory scientists has developed a new technique to measure submicrogram quantities of asbestos in air and water.

Dr. Mohammad Fatemi and L. S. Birks believe their method is faster and less expensive than currently used electron microscopy. The new development takes air and water samples, measures them with a spectrographic x-ray tube and relates the findings to the volume of air or water sampled.

The technique is part of a program sponsored by the Environmental Protection Agency to develop routine methods of screening air particulate samples for asbestos.

Just When You Think You've Got It Figured Out . . .

Some of the difficulties of making a final determination on environmental problems have been graphically illustrated by current Environmental Protection Agency's statements on mercury in the environment.

A recent Office of Toxic Substances report says, "the oft-expressed 'threat to man' associated with the current rate of man-related mercury discharges has not been demonstrated. There is no conclusive evidence to indicate that a long-term buildup of mercury in the biosphere is occurring."

However, EPA researchers Robert D. Rogers and Don D. Gay, Environmental Monitoring and Support laboratories, believe the problem of environmental mercury should be re-evaluated in light of current findings that increased use of coal will cause more mercury to be emitted each year to the environment. They say that their experiments, reported in *Methylation of Mercury in a Terrestrial Environment,* have confirmed earlier hypotheses that common agricultural plants and soils can transform inorganic mercury into more toxic methylmercury.

This transformation was once thought to take place only in lake and stream sediments. Now it appears that methylmercury produced in soil by plants can remain there or enter the air as a vapor.

The researchers have not recommended new mercury controls. Mr. Rogers noted that there is "strong indication that a mechanism exists which prevents the accumulation of quantities of methylmercury." As yet, the researchers do not understand the mechanism.

Mercury, although used in relatively low volume compared to other industrial chemicals, enters the environment at a number of points. It easily becomes part of man's food chain.

The former report, *Materials Balance and Technology Assessment of Mercury and Its Compounds on National and Regional Bases,* is available free from the Office of Toxic Substances, EPA, 4th and M Sts., S.W., Washington 20460. Messrs. Rogers and Gay's conclusions (PB 24-8221) are $3.50 from the National Technical Information Service, 5280 Port Royal Rd., Springfield, Va. 22161

That's Quite a System!

Amoco Oil Company's petroleum refining process that improves gasoline yield, conserves energy and reduces air pollution is the winner of the biannual Kirkpatrick Chemical Engineering Achievement Award sponsored by *Chemical Engineering* magazine.

A spokesman from the magazine noted that Amoco's new process is one of the few abatement methods that yields a profit.

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David P. Reynolds seems pleased with the record $13 million his Reynolds Metals Company paid the public last year for returning 86 million pounds of aluminum to recycling centers.

Safe Handling of Chemicals Covered In MCA Booklets

Recommendations for the safe loading and unloading of tank cars and trucks of industrial chemicals are presented in four new technical booklets published by the Manufacturing Chemists Association. They are:

- Technical Bulletin TC-8, "Bulk Loading and Unloading Flammable Liquid Chemicals to and from Tank Trucks" (12 pages, $1).
- Technical Bulletin TC-27, "Loading and Unloading Corrosive Liquids—Tank Cars" (13 pages, 75 cents).
- Technical Bulletin TC-28, "Loading and Unloading Liquid Caustic—Tank Cars (Caustic Soda and Caustic Potash)" (12 pages, 75 cents).
- Technical Bulletin TC-29, "Loading and Unloading Flammable Liquid Chemicals—Tank Cars" (13 pages, 75 cents).

All four publications may be ordered from: Publications Service, MCA, 1825 Conn. Ave., N.W., Washington, D.C. 20009.

MCA: What it is

Manufacturing Chemists Association is a non-profit trade association of United States and Canadian company members representing more than 90% of the production capacity of basic industrial chemicals within these countries. MCA is engaged in basic activities pertinent to the chemical industry, including many related to environmental health. Activities are handled by MCA's staff and by committees composed of industry specialists who serve without compensation from the Association. MCA offices are at 1825 Connecticut Avenue, N.W., Washington, D.C. 20009.

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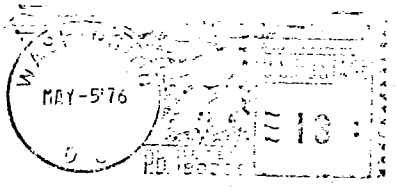

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