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The Chemical World This Week

PRODUCTIVITY GROWTH REGAINS HEALTHY RATE

Like most other measures of industry performance, productivity and unit labor costs in the chemicals and allied products industry have cooled off from their outstanding recovery pace in the third quarter. Still, preliminary results calculated by C&EN from government data show continued improvement after the collapse in these two indicators during the recession.

Productivity (physical output per hour worked by production personnel) in chemicals and allied products made its third successive quarter-to-quarter gain in the fourth quarter with a rise of 1.2%. This pickup is much less than the revised 5.2% gain in the third quarter. However, it brings the year-to-year productivity increase back up to the industry's traditional pace with a reading of about 8% by year's end. Final government data on the fourth quarter and a revision in data series for previous years will change these figures somewhat in the next few months.

Unit labor costs (labor cost per unit of physical output) in chemicals and allied products stayed just about even in the fourth quarter with the third quarter, according to preliminary calculations. This did not continue the 1.8% quarter-to-quarter drop in the third quarter, which was the first such drop in two and a half years. However, the fourth-quarter reading confirms that the runaway rise in unit labor

costs during the recession has been stopped. The relative quiet in this indicator over the past three quarters leaves unit labor costs in the fourth quarter just 1.3% higher than in fourth-quarter 1974.

However, for all of 1975 unit labor costs were still about 9% over 1974. This increase is greater than the 8% increase in 1974 over 1973 and very much out of line with the chemicals and allied products industry's average annual 1% drop in unit labor costs from 1964 through 1973. The industry's labor cost for a unit of output is now about 15% higher than in 1967.

Average productivity in chemicals and allied products for all of 1975 was about 1% over 1974. This weak gain is about the same as the gain in 1974 over 1973. Both years are considerably under the industry's average 7% annual gain from 1964 through 1973. Average productivity in 1975 remained stalled on a plateau about 50% higher than productivity in 1967.

The 50% rise in productivity in the past eight years slightly exceeds the chemicals and allied products

industry's 43% rise in production over this period. The reason is that actual hours worked in 1975 were about 5% less than in 1967. This drop was due largely to the recession. The level of hours worked rose strongly in the third and fourth quarters, although not as fast as production.

The rise in productivity in the fourth quarter just about matched the gain in wages. Hence, the static reading for fourth-quarter unit labor costs. The 1.8% quarter-to-quarter gain in wages in the fourth quarter was also less than the corresponding rises in the past three quarters.

For 1975 as a whole, wages in chemicals and allied products rose about 10% over 1974. This compares with a rise of 9% in 1974 over 1973. The increases in both years were above the fairly steady 5 to 7% annual increases in wages in the previous several years. The industry's average hourly wage in 1975 was 73% higher than in 1967. This increase has outstripped the industry's 50% rise in productivity during this period. □

Monsanto plans to stop making PCB's

Monsanto, the only U.S. producer of polychlorinated biphenyls (PCB's), says it will stop making them "eventually." F. J. Fitzgerald, a Monsanto corporate vice president, says it's too early to set an exact timetable for the phase-out. But, he adds, "as soon as we are satisfied that the electrical power industry's needs for usable, acceptable alternate dielectric fluids has been met, by whomever, Monsanto will voluntarily shut down its PCB manufacturing unit."

PCB's came into commercial use more than 45 years ago. Their main use has been as dielectric and heat transfer fluids for capacitors and transformers, but they also found wide application as plasticizers, as hydraulic and lubricating fluids, and as components of "carbonless carbon paper." U.S. production peaked at 72 million lb in 1970.

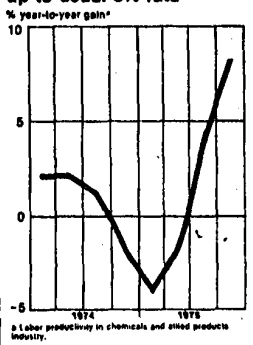
The compounds were long thought to be relatively inert and nontoxic. But about 1966 a Swedish scientist discovered PCB residues in fish and wildlife tissues. Since then PCB's have been detected, some-

times in high concentrations, in a variety of fish and animals, in rivers and lakes, in bottom sediments, and even in foods. Adverse effects began to be attributed to PCB's. For example, one study showed that feeding chickens small amounts of PCB's caused a marked drop in egg "hatchability." Also, the reproduction rate fell off precipitously in ranch mink fed PCB-contaminated coho salmon from Lake Michigan. The mink ranchers had to switch to different, more expensive feeds.

Because of the growing concern about environmental effects, Monsanto in 1971 voluntarily adopted the policy of selling PCB's only for use in closed electrical systems. Production fell to about 40 million lb a year. Despite the restriction, PCB contamination has remained distressingly high in some areas. According to some studies, PCB levels in Lake Michigan trout and coho salmon actually have increased since 1972.

Consequently, there has been a growing clamor for a complete ban. Last November, for example, at a

Productivity gain back up to usual 8% rate



Chicago meeting on PCB's, assistant interior secretary Nathaniel P. Reed complained that multimillion-dollar programs to rebuild Great Lakes fisheries would be "for naught" if high PCB concentration made the fish unfit for consumption. He called for elimination of all sources of PCB's within three years. And Environmental Protection Agency administrator Russell E. Train has on several occasions cited the PCB problem as evidence of the need for a strong toxic substances control act.

For most applications, switching from PCB's has caused no great difficulty. But because of a combination of PCB properties—stability, nonflammability, and high dielectric constant—no completely satisfactory substitutes have been found for use in transformers and capacitors. However, several companies are working on finding substitutes. □

Safety data of drugs, pesticides queried

Drugs and pesticides may be reaching the U.S. market without adequate proof of their safety, two government agencies told the Senate Subcommittee on Health late last month. The problem arises from the fact that in most instances regulatory agencies, such as the Environmental Protection Agency and the Food & Drug Administration, must rely on data submitted by a product's manufacturer to determine that product's safety. But there is generally no agency supervision of facilities where the safety tests are performed.

EPA deputy administrator John R. Quarles Jr. told the subcommittee, chaired by Sen. Edward M. Kennedy (D.-Mass.), that although "private laboratories generally provide competent and honest service, there are indications that serious problems may exist" in the conduct of pesticide testing. These problems can range from a laboratory's technical incompetence to perform safety tests due to an inadequacy of personnel, equipment, or management experience to the withholding from EPA of valid test results indicating dangerous pesticide characteristics. In addition, Quarles says, a laboratory's independent scientific judgment might be impaired by its close economic relationship with a pesticide producer on which it is dependent for contract work. Or the laboratory, at the request of the manufacturer, might intentionally misrepresent test results.



Quarles: serious problems may exist

Quarles told the subcommittee that EPA has found instances in which an unknown number of subcutaneous tumors were removed from test animals during the last six months of life and where independent pathologists diagnosed many more cancerous and precancerous tumors in test animals than did the original laboratory pathologists.

FDA's system of new drug regulation is also heavily dependent on the accuracy of data submitted by the sponsor of the drugs. But Gregory J. Ahart, director of the General Accounting Office's manpower and welfare division, told the subcommittee that FDA's monitoring of clinical investigation—in which drugs are tested on humans—has been limited. He said that a review of 155 clinical investigators, reviewed from July 1972 to January 1974, showed that 115, or 74%, failed to comply with one or more of the regulations covering human testing. According to Ahart, half of the investigators did not keep adequate records of the drug being tested, 35% did not get proper consent from the patients involved, and 23% did not maintain records accurately reflecting the condition of the patients before, during, and after the study.

However, the subcommittee was told that steps are being taken to ensure the accuracy, reliability and completeness of test data submitted to the agencies. Quarles said that EPA, FDA, and the National Cancer Institute have agreed to establish a cooperative auditing and inspection program. The program will set laboratory testing standards including standards for personnel qualifications, equipment, and laboratory management. And the program will call for regular auditing of laboratories performing safety testing. □

Balloon probes seek fluorocarbon data

As the debate over chlorofluorocarbons and stratospheric ozone continues, researchers are continuing to strive to measure accurately the reactions taking place more than 50,000 feet above the earth's surface.

Some effort has been directed toward this end already, including the launch of a satellite, the Atmosphere Explorer, last November (C&EN, Nov. 24, 1975, page 25). This satellite will look down on the earth's ozone layer from about 85 miles from the planet's surface. Using backscatter ultraviolet spectrophotometry, it will determine the density and vertical profile of the ozone layer.

A somewhat more direct approach that has been used before will be attempted again this month by scientists from the University of Wyoming, Laramie, working with the National Oceanic & Atmospheric Administration (NOAA). Using balloon probes, the researchers will look for traces of chlorofluorocarbons 11 and 12, used as propellants in aerosol products and as refrigerants.

Chlorofluorocarbons are believed by some scientists to initiate a chemical reaction in the stratosphere that would deplete the ozone there. This layer shields the planet's surface from harmful levels of ultraviolet radiation that otherwise could cause more skin cancer and climatic changes.

At the same time, the Wyoming scientists will attempt to determine the effect of the earth's natural nitrogen oxide cycle on stratospheric ozone. At least one scientist has speculated that use of man-made nitrogen fertilizers is throwing the natural nitrogen cycle out of balance—leading to increased destruction of ozone by nitric oxide produced in the stratosphere by photodissociation of nitrogen oxide (C&EN, Nov. 24, 1975, page 6).

Balloon samplers will be launched from the Navy's weather station at McMurdo Sound, Antarctica, where they can rise into what Dr. Arthur L. Schmeltkopf, head of the sampling program, calls "the relatively clean stratosphere over Antarctica." Schmeltkopf believes the chlorofluorocarbon situation there is as it was over the lower latitudes two to three years ago.

Samplers on board the 35-lb instrument package of each double balloon consist of six stainless steel spherical flasks that have been evacuated and meticulously cleaned.