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Attached is a copy of an article taken from European Chemical News, issue dated November 15, 1974, which verifies the VCM Standards in the Netherlands at 10 PPM.

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technical week

Dr. Shooker

Netherlands sets legal limits for VCM concentrations

THE Netherlands' government, through its Ministry of Social Affairs (*Volksgezondheid*), last week adopted a resolution from its factory inspectorate department (*Arbeidsinspectie*) that permissible vinyl chloride monomer levels in the working atmospheres of PVC plants must not exceed 10 ppm. The current level of 50 ppm was introduced earlier this year from the then existing level permitted of 200 ppm.

DSM, one of the two Netherlands PVC polymer producers, has stated, in a message to its staff, that the lowered standard will not affect the continuity of production at its Beek PVC complex.

As concentrations of more than 10 ppm level may occur in certain plant areas for short periods of time, DSM has now decided that in these situations the workers will be obliged to wear protective respiratory devices. Formerly these were only used at concentrations above 50 ppm.

Based on Sumitomo Chemical technology, DSM's 120 000 ton/year PVC facilities have been in operation only two years, and the company states that vinyl chloride monomer (VCM) levels are comfortably below 10 ppm, although not as low as 1 ppm, which has been established as the future permissible limit in the USA.

Shell, the other Netherlands PVC producer, operates a 160 000 ton/year PVC facility at Pernis, based on BASF technology. Nearly half of this capacity has been in operation since 1967 and Shell may have difficulties in ensuring that this older plant meets the new 10 ppm limit. Shell states however that it can comply in all its plants.

DSM has also stated that it is taking measures to ensure additional protection during certain operations in the plant, such as the provision of special clothing, and that people directly engaged in the production of PVC will be instructed at special meetings.

At the same time, irrespective of legal requirements, the company will continue working towards further reduction of VCM concentrations in PVC plants and of the total VCM emission, according to the statement.

Commenting on the cases of illness that have been reported in PVC plants outside the Netherlands, DSM stated that periodic medical examinations have not furnished any medical evidence of diseases amongst DSM workers that might have been caused by VCM.

All DSM workers are regularly subjected to medical examinations in which special attention is given to abnormal conditions of the blood indicative of liver disease, as well as to afflictions of fingers and skin, the statement added.

Trade Union Action

Apart from the request that health and safety matters should be incorporated into the annual work contract (*the CAO*), the Netherlands unions are also having discussions with the Netherlands government on legal requirements in general for chemical plants, and on the need for a "compendium" on chemicals.

The chairman of the Netherlands Trades Unions, Mr. Arie Groeneveldt, has written to the Netherlands Minister of Social Affairs, Mr. Boersma, on the need for legal requirements for chemical plants.

He has suggested that a system should be set up whereby permission is required to sell new chemical products, and also that a catalogue or compendium should be established which lists process characteristics, toxicity levels and safety requirements, for example, for all chemicals produced.

This is in addition to the assertion that the collective work contract, *the CAO*, should be extended to cover health and safety matters (*ECN*, November 8, page 32).

ICI Australia develops water de-salting

ICI Australia's *Sirotherm* process for de-salting brackish water using thermally re-generated ion-exchange resins is now attracting world-wide interest from the process industry and water authorities.

A report from the State Government of Australia indicates that a European authority has sought ICI Australia's assistance in evaluating a project to recover better-quality drinking water from the highly salted river Rhine, and

also that Japan has begun a market study of the possible uses of the process.

ICI Australia, which jointly developed the process with the Commonwealth Scientific and Industrial Research Organization, has offered its *Sirotherm* process for applications such as a 75m. gallon/day municipal water scheme and the preliminary demineralization of boiler feed water.

ICI offers new polyester resin curing system

A NEW ICI resin-with-catalyst system that cures when exposed to a special bright light and stops when the light is removed has been added to the *Impol* range of unsaturated polyester resins which came on to the market in February, 1974.

Impol K brings a number of advantages to the handling of unsaturated polyester resins. It permits greater flexibility of workshop and production planning because the operator has complete control of when curing starts and when it stops. There is no weighing, mixing or handling of catalysts or accelerators, no waste of catalyst or resin, and no need to clean equipment during breaks in work. Curing is not dependent on workshop temperature, it takes place as quickly or slowly as the operator decides, ICI stated.

The process is expected to bring the greatest advantage to traditional contact moulding, in both hand lay up and spray lay up processes widely used in the manufacture of boats, land transport and prefabricated building units. Another application will be in the mechanical process of filament winding. Many other applications are expected to be developed by industry.

ICI Petrochemicals Division has a full range of standard unsaturated polyester resins. In addition, new resin systems have been developed in ICI's research laboratories. These are based on pure terephthalic acid and include chemical-resistant resins, heat-resistant resins, and a range of flexible and rigid gel coats of good gloss and durability.

A specially designed plant with a capacity of the order of 20 000 ton/year of *Impol* resins, is being built at Wilton, Cleveland (formerly Teesside) at a cost of over £1 million and is scheduled to be on line in 1975.

The new plant utilises new ICI technology and is being built by ICI's Engineering Services (Wilton) Ltd.

Interim production for test marketing purposes is available from an existing multi-purpose plant at Billingham.

UK consumption of unsaturated polyester resins is currently around 50 000 ton/year and has shown good historical growth, although generally lagging behind levels on the continent and in the USA. Major consuming industries are marine, transport, building, and corrosion-resistant plant such as tanks and pipes. The resin is usually reinforced with glass fibre, but may be unreinforced, as in castings or lacquer. The major producers are Scott-Bader, Synthetic Resins, Freemans, BP, BIP, Pinchin-Johnson, Cray Valley Products, and Mitchell and Smith.

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OSHA's rules spur suits

When John H. Stender, Assistant Secretary of Labor and head of the department's Occupational Safety and Health Administration, presented final standards for worker exposure to vinyl chloride monomer gas at the National Safety Congress in Chicago last week, he expected the Labor Dept. "to be sued by both sides." He was partially right within two minutes of the announcement, when the Society of the Plastics Industry filed a petition for review of the standards in the Second Circuit Court of Appeals in New York.

Other suits followed. Hooker and Union Carbide filed a similar petition in the same court, Firestone filed in the Sixth Circuit, Tenneco and Air Products in the Third Circuit. All companies will seek to get the actions removed to the Second Circuit Court. Also, B.F. Goodrich says it intends to request a legal review.

But one attorney familiar with the long struggle over the standards tells *Chemical Week* that "it will be a very tough case for the industry to overturn," citing what he described as an "excellent preamble" to the standards from OSHA.

The standards are not the "no detectable" limit originally proposed by the agency, but the three-step program is much tougher than industry proposed at hearings earlier this year. Until the end of 1974 the 50-ppm. maximum exposure set by OSHA as a temporary emergency standard in April stays in effect. In 1975 the maximum exposure will drop to 5 ppm., measured over a 15-minute period,



OSHA'S STENDER: Spelled out timetable for tougher vinyl chloride exposure rules.

with a 1-ppm. time-weighted average (twa.) for the eight-hour day. But, where engineering of these controls is not possible, maximum exposure will be 25 ppm., with respirators to be available, but not mandatory, for worker use. After Jan. 1, 1976, there will be no exceptions to the 1-ppm. twa. and 5-ppm. maximum limit, with respirators mandatory at higher exposures.

The other side—the labor unions—is also expected to attack the standards because of the implementation timetable and allowance for the use of cannister and cartridge respirators. "It would appear this thing has a number of loopholes in it," says United Rubber Workers President Peter Bommarito. He also takes issue with the use of respirators at the workers' discretion during 1975. Other union spokesmen say they need more time to examine the standards.

Death Knell: Industry sources say it is impossible to operate at the lower exposure levels, could mean the demise of the 17 U.S. plants that produce the monomer, the 37 that polymerize it to make polyvinyl chloride (PVC) resins and the thousands of plants that mold, extrude and otherwise shape the resins into plastic pipe, vinyl flooring, house siding and phonograph records.

An Arthur D. Little study for SPI indicates that about 2.2 million jobs in the U.S. depend on PVC production and that the annual loss to industry in sales and production would be \$65-90 billion if the material were banned. (Some 5 billion lbs./year of PVC are now produced in the U.S. Wholesale value of all products is \$3 billion.)

The question now seems to be whether the courts will upset the OSHA determination, whether legal delays can give the industry sufficient time to tool up to the new standards or whether, as one industry observer states, "a political and economic solution must be imposed by Congress to save the industry."

Counting Criteria: Object of the new standards is protection for 1,500 workers in monomer production, 5,600 PVC plant employees and about 350,000 workers at PVC fabrication plants.

Exposure to VCM at the old standard of 500 ppm. or higher has been linked to about 28 deaths worldwide from angiosarcoma, a rare liver cancer, since it was first noticed in January 1974 in former workers at B.F. Goodrich's Louisville, Ky., PVC plant. Technical basis for the OSHA standard is animal tests in Italy and the U.S. (*CW*, July 17, p. 30) demonstrating angiosarcoma in rats, mice and

hamsters at 50-ppm. exposure.

Ralph Harding, president of SPI, calls the standards "unrealistic," says it probably will be impossible for most, if not all, plants to meet them and that they "appear to have been developed on some basis inconsistent with recorded facts."

Trouble Spots: Stender is more optimistic about the industry's ability to cope with the regulations. But he says the PVC plants will be "hardest pressed." The batch-process polymerization of vinyl chloride in kettles is the point of highest exposure to the monomer gas.

Vinyl chloride maker Dow Chemical is bringing legal action seeking to block the OSHA regulations. The company says it has been operating at below 10 ppm. and considers the new standard "more restrictive than necessary." Dow questions the "ability of the industry to develop the needed technology." On the other hand, Robintech says all its PVC pipe fabricating plants will meet the new standards and that it will expand its Freeport, Tex., resin plant to 150-million-lbs./year.

Shell loses a round

Environmental Protection Agency Administrator Russell Train last week ordered Shell Chemical to stop production of aldrin and dieldrin for most uses, claiming the pesticides can cause cancer. The ban will remain in effect until EPA completes hearings to determine whether the pesticides' registrations should be canceled.

Shell, sole manufacturer of the pesticides, would have to cancel plans for 1975 production of about 10 million lbs., but could sell the material it has in stock.

The two pesticides are chlorinated hydrocarbons used largely on corn, citrus fruits and certain seeds.

Aldrin breaks down into dieldrin after application.

Train had earlier disclosed his intention to impose the ban because lab tests with rats and mice showed dieldrin increased the incidence of malignant tumors (*CW*, Aug. 14, p. 13). Shell requested a hearing, and last month EPA administrative law judge Herbert Perlman urged that manufacture of the pesticides be suspended.

Last week, Shell appealed Train's latest order in the U.S. Circuit Court in New Orleans. The Environmental Defense Fund, the group that initiated the complaint, also filed suit last week in federal appeals court in Washington, D.C., requesting that the ban be extended to use and sales of existing inventories.