

FROM : Brussels, Belgium
THANK A LOCATION
DATE : 26th January, 1967
SUBJECT : SWEDEN, AROCLOR
REFERENCE : DW:gb
TO : G. R. Buchanan - St. Louis

cc P. G. Benignus - St. Louis
D. S. Cameron - Brussels
Dr. D. V. N. Hardy - London
Dr. R. Emmet Kelly - St. Louis
R.A. Steenrod - St. Louis

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We recently sent you a translation of a Swedish newspaper article referring to the identification in nature of polychlorinated biphenols. Because some of the uses claimed for the materials fell in line with the uses of our own chlorinated diphenyls, we made a point, during our recent visit to Sweden, of visiting the research institute involved and discussing their particular programme of work.

To eliminate any earlier confusion that there may have been, I should like to emphasise that there is no doubt that the chemical which is the subject of the investigation and the news release, is chlorinated diphenyl i.e. Aroclor.

The company that supplied the mass spectrometer which was used in the research programme, in fact have recently put out a press release on this work. Although I am horrified by some of the headlines in this press release, it does basically describe the research programme carried out in Sweden, and describes in clear terms how chlorinated diphenyls were identified. I therefore, enclose a copy for your files.

Jensens only aim in life as an analytical chemist, was to identify the substances found in his research work on the occurrence of insecticides in nature. The unfortunate aspect of the situation is the comments which have been added to Jensens work. He showed what was present and unqualified people have made statements as to the possible effect of what he has found.

Summarising the publication position, there were original articles covering the Stockholm conference in the Swedish daily press, and these reports were picked up also by the Danish press. You will have seen from D.V.N. Hardy's memo of the 12th January that it has also been picked up by the Shell Chemicals Laboratory in Kent, U.K. Jensen also divulged that he had been contacted by the Swedish American press agency who intended to include information about this research work in their monthly review "The Swedish American Journal". There is additionally the press review issued by LKB Productor AB which I imagine to have been sent to a number of technical journals.

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Effect in Sweden

This matter was raised with us by every capacitor manufacturer in Sweden that we visited. Fortunately there has not been too much adverse comment as yet from plant workers since they have not associated the polychlorinated biphenols mentioned in the article with Aroclor or Pyralene used in the Swedish factories. Jensen, however, stated that he had been approached personally by several workers associated with chlorinated diphenyls for non-electrical uses and these workers were quite worried as to the possible effect on their health.

Future Research

Arrangements are being made in Sweden for this work to be taken over by one of the medical institutes who hope to study the toxicology of the polychlorinated diphenyl residues at the levels of concentration found by Jensen. Additionally a geographical survey is to be carried out to try and determine where the highest concentrations of residue are appearing and, if possible, to detect from this the method of escape so that more security precautions can be taken. We were asked by Jensen if it was possible for Monsanto to supply any samples of the pure isomers of chlorinated diphenyl since his work indicated at the moment that the lower chlorinated isomers are fairly easily metabolised, and the potentially more dangerous constituents are the more highly chlorinated members. If he can get hold of pure isomers, he would like to carry out some work on comparative rates of metabolism.

Jensen is forwarding me copies of his mass spectrographs and details of sample preparation so that we have all the details of his research work.

The point that I have made to Jensen is the need for care in any further publication of his work which is made. He accepts that the toxicology of chlorinated diphenyls should only be discussed with detailed information about exposure concentrations and exposure times and that generalised statements out of context can only arouse undue public concern. If any technical journal takes up the press release from the ILC Productor Company, there is little that Monsanto could, or should do, in the way of publishing rebuttals. We do not want, personally as Monsanto to get too involved in this question. I am hopeful that we

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might persuade Jensen himself to write a letter defining the true extent of his own research work and placing his results in their proper perspective. It would certainly be helpful in gaining his further support if we were able to make available to him any small quantities of pure isomers.

Since we are not alone in supplying polychlorinated diphenyls to the Scandinavian market, I have drawn this matter to the attention of the other askarel manufacturers in Europe.

As you will see from the press release one of the major points that is made is the difficulty in disposing of waste chlorinated diphenyls and again I must mention that constructive recommendations for the safe disposal of our materials would be most helpful.


D. Wood.

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Conservationists have another chemical to worry about, one that appears to accumulate in fish, birds, animals and people much like DDT. Called polychlorobiphenyl (PCB) in Sweden where its presence in nature was first discovered, the chemical is known as chlorinated biphenyl in the U.S. Though not made in Sweden, the chemical is used worldwide in transformer oils, lubricants, paints and solvents.

A Swedish scientist says PCB first appears in museum-preserved sea eagles dating from 1914, and that it is now present in high concentrations in fish, fish spawn, birds, seals, and human adults and children. The Swedes attribute widespread distribution of PCB—it has been detected in the air of London and Hamburg, and in seals off Scotland—to air pollution resulting from industrial uses and from incineration, which does not destroy the chemical. The extent of the hazard, if any, is not known. And U.S. sources say they are not aware of any such problem in this country.

"Take me to the moon" remains a wish in song only for most women, except for the dozen or so who joined about nine hundred men in answering the National Aeronautics and Space Administration's (NASA) latest call for scientists-astronauts (*Chemmentator*, Sept. 25, 1969, p. 59). At the deadline, Jan. 8, only 339 doctorate engineers and scientists had filed applications out of an estimated 20,000 qualified persons in the country. Engineers comprised 27% of the applicants.

The National Academy of Sciences (NAS) will pre-screen the applicants for NASA, which will select twelve of the survivors before August 15. No estimate of the women applicants' chances of selection is available.

Even as the United Steelworkers asked the U.S. Supreme Court to overturn an injunction that forced striking members back to work at Union Carbide Corp.'s Kokoona, Ind., plant (*Chemmentator*, Jan. 10, p. 91), the company appealed last week to a W. Va. court to set aside an unemployment compensation award to its Alloy, W. Va., employees. The W. Va. Dept. of Employment Security said on Jan. 8 that 1,060 Alloy employees were entitled to compensation for the nearly three months the plant was shut down between July 2 and Sept. 22, 1969. The National Labor Relations Board had branded that shutdown as an illegal lockout (*Chemmentator*, Nov. 7, 1969, p. 97). When Carbide reopened the plant, the employees struck. They are still striking.

Power plants and the state of New Jersey got most of the blame for high sulfur dioxide (SO₂) levels in the New York-New Jersey metropolitan area—the power companies because they produce most of the pollutant, and New Jersey because it has no rules to cope with the problem.

These were among the conclusions of the lengthy N.Y.-N.J. Interstate Air Pollution Abatement Conference held in New York this month (*Chemmentator*, Jan. 16, p. 82). The Conference, though recessed, technically remains in session until a permanent body is established. Among the recommendations were these:

- Federal representation, with a vote equal to the states, on the interstate body. The U.S. wants an entirely new agency, while the conferees prefer to expand the authority of the existing Interstate Sanitation Commission.
- Application of New York's ambient-air quality objectives to the entire area.
- Power plants not to burn fuel exceeding 1% sulfur after Oct. 1, 1969, unless the plants are equipped to deal adequately with SO₂ emissions.
- No new generating plants to be permitted unless a 20-yr. supply of low-sulfur fuel can be guaranteed.
- New sources of SO₂ emission to be limited to 500 ppm., and existing sources limited to 2,000 ppm.

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