



occupational health studies

NEWS LETTER

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INTRODUCTION

This issue of the newsletter includes brief summaries of research findings which have recently been reported in various meetings and conferences throughout the country. The summaries range in subject matter from vinyl chloride exposures and its health effects to a report on current research on bladder cancer among rubber workers.

The OHSG is now spending much time and effort in the development of an environmental/medical surveillance system for the rubber industry. A report on the implementation and features of a pilot model of this surveillance system is included in this issue.

Industrial hygiene surveys have recently been performed at the California plants of Firestone, Goodyear and Uniroyal and at Uniroyal's Eau Claire, Wisconsin plant. Items regarding these surveys are included in this issue.

AN EPIDEMIOLOGIC STUDY OF THE FREQUENCY AND DISTRIBUTION OF BLADDER CANCER AMONG RUBBER WORKERS - A. J. McMichael; R. H. Holbrook; A. C. Guira; R. R. Monson; H. A. Tyroler; and F. S. Jones.

Mortality analysis of 5 major U. S. rubber company employee study groups for the years 1964-73 reveals a moderate excess of bladder cancer deaths, particularly among older, retired workers. Previously, an association of bladder cancer with certain chemicals used in the British rubber industry had been reported. Analysis of detailed work histories within one select group of workers indicates an association with jobs entailing exposure to dusts or vapors of raw chemical ingredients. To increase the number of rubber worker bladder cancer cases available for study, all bladder cancer patients treated in the major Akron hospitals for the years 1958-74 have been identified. In order to determine how many of the additional 800 hospital cases are rubber workers, the cases are being cross-checked against company employment records at the 5 Akron rubber plants. Researchers estimate 200 rubber worker cases will be identified in this way. These cases will be

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compared to two other groups of rubber workers free of bladder cancer. Work histories will be obtained, and differences among the three groups of workers will be sought in terms of specific jobs, chemicals handled, and employment duration. The analysis will take account of smoking habits (as assessed by questionnaire) to the extent that this in itself may be a factor in bladder cancer.

A discussion of this current research was presented by Dr. McMichael at the Eighth Annual Meeting of the Society for Epidemiologic Research on June 19th in Albany, New York.

X THE ASSOCIATION OF VINYL CHLORIDE EXPOSURES WITH MORBIDITY SYMPTOMS - R. Spirtas; A. J. McMichael; J. F. Gamble; and M. Van Ert.

A significant dose-response association between vinyl chloride exposure and a range of sickness symptoms has been found. Through responses to questionnaires sent to workers in a vinyl chloride polymerization plant and an adjoining rubber plant, it was learned that dizziness, nausea, headache, "pins and needles" in arms and legs and general fatigue seem to have a strong relationship to vinyl chloride exposure. OHSG personnel examined each person's work history and evaluated each job held with previous vinyl chloride exposure symptoms. In addition, observation of the plant's environment and assessment of the amount of vinyl chloride doses sustained by the workers were used in the study.

This paper and results of the study were presented at the June 5th conference of the American Industrial Hygiene Association in Minneapolis, Minnesota.

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RESPIRATORY FUNCTION AND SYMPTOMS: AN ENVIRONMENTAL-EPIDEMIOLOGIC STUDY OF SELECTED RUBBER WORKERS - J. F. Gamble; A. J. McMichael, T. M. Williams, and M. Battigelli.

A study has been done of health factors for rubber workers exposed to a hexamethylenetetramine-resorcinol adhesive system used in tire manufacturing. Questionnaires and lung function tests were given to 157 workers in this study, and environmental samples of the areas where they work were analyzed for dusts and fumes, resorcinol, formaldehyde, ammonia, and hydrogen cyanide. In the questionnaire survey, persons working with hexamethylenetetramine-resorcinol reported more symptoms of breathing problems than did persons doing similar jobs with other materials. There was a temporary decrease in lung function over the period of a shift in exposed workers, but permanent changes in lung function were not found. Those people who reported respiratory symptoms also showed a decrease in lung function more often than did those not reporting symptoms. Results of this study have been presented to the URW and the Company; a scientific report of the findings was presented by Mr. John Gamble at the American Industrial Hygiene Association Conference in June.

A COMPREHENSIVE OCCUPATIONAL EPIDEMIOLOGIC RESEARCH PROGRAM - D. A. Andjelkovic;
A. J. McMichael; and H. A. Tyroler.

The overall occupational epidemiological research program in the rubber industry, as conducted by the Occupational Health Studies Group, was described by Dr. Andjelkovic at the Annual Meeting of the Society for Epidemiologic Research in June. The program involves active cooperation among epidemiologists, environmental scientists, and biostatisticians. We have experimented in a search for the best way to measure the health of workers exposed to varying levels of known or suspected chemical carcinogens, pulmonary irritants, dermatitis producing agents, and noxious levels of fumes, dusts, vapors and noise. We have also begun health monitoring projects to find groups of workers with high risk of disease from yet unidentified work hazards. The research has included studies of mortality (causes of death), morbidity (kinds of illness), and health status (questionnaires and health testing).

Findings to date among selected groups of rubber workers, indicate excesses of leukemia and gastric cancer, chronic respiratory disease, and dermatitis, and a high level of non-specific, general symptoms and medical care indices. The entire program is aimed at reducing illness and death which may be associated with any condition of work in the rubber industry.

* OHSG RESULTS PRESENTED TO URW VINYL CHLORIDE CONFERENCE - AKRON, OHIO - May 16, 1975

A URW Vinyl Chloride Briefing Conference in Akron, May 16, was attended by OHSG physician-epidemiologist, Dr. Tony McMichael. He presented research results from the Firestone Pottstown plant, where a group of workers in the polyvinyl chloride manufacturing plant have been studied in a search for any adverse health effects which might be related to work. Results of questionnaire studies and health-tests, conducted both by the OHSG (independently and in conjunction with a NIOSH-CDC research group) were discussed at the meeting.

* JOINT NIOSH-CDC-UNC REPORT ON VINYL CHLORIDE HEALTH EFFECTS PRESENTED TO FIRESTONE-URW COMMITTEE

A meeting was held on August 5, 1975, at the Firestone Pottstown, Pennsylvania plant to consider the results of a joint health survey conducted in 1974 by two federal governmental agencies (NIOSH, CDC) and the Occupational Health Studies Group. The study had sought to detect differences in health status between chemical (vinyl chloride polymerization), plastic (PVC products), and rubber workers at that plant, to determine the range of health effects associated with a history of exposure to the vinyl chloride polymerization process. Dr. Tony McMichael, physician-epidemiologist, represented the OHSG. Other parties represented were NIOSH, CDC (Center for Disease Control), the URW International Union, URW Local 336, and the Firestone Tire and Rubber Company.

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URW-GOODYEAR INTERIM MEETING - LOUISVILLE, KENTUCKY - May 15, 1975

At the request of the URW and the Goodyear Tire and Rubber Company, a two hour presentation on occupational health studies was made by the Occupational Health Studies Group at the Interim Meeting of the Local Union Presidents and Personnel Managers held in Louisville, Kentucky on May 15.

Dr. Dragana Andjelkovic, team leader for the University research projects involving Goodyear workers, described what has been learned so far about causes of death and kinds of illnesses among rubber workers compared to the general population. She explained that the studies which are underway are aimed at learning whether diseases which appear in excess are associated with conditions of work, and if so, to identify the jobs or occupations involved. If possible, the chemicals or other work conditions which are responsible for any diseases will also be identified. Dr. Andjelkovic also described the health testing work done at the Gadsden, Alabama plant and the dermatologic (skin) investigation now underway there. Dermatologic investigations are planned to be started in other plants as well when the work at the Gadsden Plant has progressed to the point that it will be useful in the other studies.

Dr. Robert L. Harris, Director of the OHSG, presented a summary of completed and on-going industrial hygiene work relating to the Goodyear plants under contract. In this regard, he reported that detailed industrial hygiene studies have been made and reports completed on the Gadsden and St. Marys plants. Further, he indicated that industrial hygiene surveys and some sampling studies have been made at most of the other plants as well and that reports on these studies are in various stages of completion.

Dr. Harris, in continuing his remarks, indicated that the OHSG research teams are giving special attention to both past and present use of solvents. This attention is prompted by research findings which show that in the past, people in jobs involving solvents may have had more leukemias than would normally be expected.

Dr. Harris closed his remarks by summarizing the results to date on dust sampling, solvents concentrations, noise levels, ventilation control and house-keeping in the rubber plants.

URW DISTRICT NO. 8 COUNCIL CONVENTION - GREENSBORO, NORTH CAROLINA - June 18, 1975

Dr. Michael Symons, OHSG biostatistician, gave a presentation to the URW District 8 Council Convention. Dr. Symons spoke to the convention concerning the mortality studies being conducted by the OHSG and the status of the dermatitis (skin) study now being conducted at the Goodyear Gadsden, Alabama plant.

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AOMA MEDICAL INFORMATION SYSTEMS COMMITTEE MEETING - WASHINGTON, D. C. - June 17, 1975

On June 17th in Washington, D. C., the American Occupational Medical Association's Medical Information Systems Committee held a meeting with guests from NIOSH, OSHA, and the American Public Health Association. Mr. Robert Spirtas, biostatistician from OHSG, presented a talk on the use of job classifications in occupational health studies. The presentation brought favorable comments from the audience regarding the work underway at the OHSG.

SURVEILLANCE SYSTEM INITIATED AT THE FIRESTONE MEMPHIS PLANT

The Firestone plant in Memphis, Tennessee has been chosen for initial implementation of the developing surveillance system for the rubber industry. One of the key elements of the system being initiated at the Memphis plant is the development and continuous recording of selected personnel data, including different jobs held, and related health events. The continuing documentation of this type of data will provide, in a standard way, information which will be suitable for comparisons with other plants. The basic elements of the surveillance system are as follows:

- (1) Work force roster with basic identification and descriptive information.
- (2) Logs of major health events among the work force, including occupational illnesses, occupational injuries, hospitalizations, disabilities, retirements and deaths.
- (3) Work history information for each employee. This history will include time periods as an active and inactive employee and the different jobs worked while an active employee.
- (4) Characterization of potential exposures in the major segments of the rubber manufacturing processes, for example, compounding and mixing, milling, calendering, tire building, curing, finishing.
- (5) Development of an Occupational Titles Dictionary including each job performed at the plant. This will provide the necessary link between environmental data and medical findings.

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INDUSTRIAL HYGIENE SURVEYS

UNIROYAL PLANTS - LOS ANGELES AND EAU CLAIRE

The Los Angeles Plant of Uniroyal, Inc. was one of four plants included in the June-July surveys of tire plants located on the West Coast. This recent tour was undertaken as a part of the on-going cross-sectional study of environmental conditions existing at tire and tube production facilities.

The purpose of the study was discussed with Mr. Pete Farrington, President of URW Local 44 and members of the Safety Committee and Mr. Wally Gramberg, Plant Superintendent, along with various members of the management team. Under the guidance of Mr. Bill Woll, Safety Director and Mr. Jack Bunal of the Safety Committee, the survey team conducted a walk-through survey prior to initiating the sampling study.

The OHSG survey team, composed of Mr. Earl Arp, Ms. Jeannie Cantrell, Mr. Dale Herman and Mr. Tim Martin, then engaged in three days of environmental data collection at major processes throughout the manufacturing areas. Principal emphasis was given to sampling for particulates and solvent vapors as well as evaluation of existing engineering control measures.

In addition to providing insight to potential exposures of workers and the effectiveness of various control methods, the data from this study will eventually be combined with the findings from other similar studies to provide information on kinds and levels of exposures throughout the rubber industry.

In early June, Mr. Dale Herman and Mr. Earl Arp visited the Eau Claire plant for the purpose of locating specific records and collecting environmental samples at selected locations along the process train.

After meeting with Mr. Joseph Sosnouski, President of URW Local 19, Mr. Richard Green, Industrial Relations Manager, Mr. Rusty Clarke, Safety Director and the Officers and Executive Board of Local 19, the three day study was conducted and accompanied by Mr. Clark and Mr. Gary Tourville representing plant safety, and Mr. Clifford Davidson and Mr. Kenneth Bartholomew representing labor.

Environmental particulate levels and engineering controls were measured in the compounding and mixing areas, while noise levels were obtained at points throughout the manufacturing process.

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FIRESTONE PLANTS - LOS ANGELES AND SALINAS

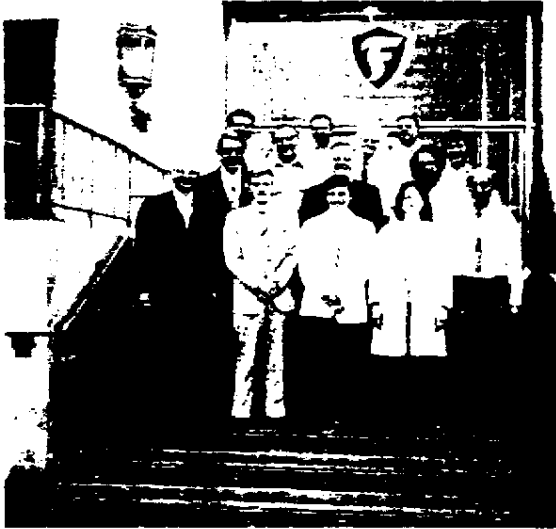
Environmental sampling surveys were conducted at the Los Angeles and Salinas Firestone plants on June 23-26 and July 7-9, 1975, respectively.

The Los Angeles plant survey, conducted by Dr. Mark Van Ert, Mr. Ted Williams, Mr. Earl Arp, Ms. Jeannie Cantrell and Mr. Tim Martin from the Occupational Health Studies Group (OHSG), was guided by Mr. Milton Dales, Plant Safety Engineer and Mr. Frank Gild, Vice-President of URW Local No. 100. Mr. Charles Connor, Plant Manager, and Mr. Julian (Spike) Evans, President of URW Local No. 100, were also involved in arrangements for the survey at the plant. The purpose of the industrial hygiene survey was outlined at a preliminary meeting of plant, union and OHSG representatives.

The Salinas environmental sampling study began with a preliminary meeting arranged by Mr. Eugene R. Jones, Plant Safety Engineer. Attending the meeting were Mr. Risley, Plant Manager, Mr. R. W. Allen, Production Manager, Mr. Norman

J. Bolcoa, President of URW Local No. 726, Mr. Al (Gene) Stephens, Union Safety Committee Chairman, and Mr. Bill Parker, Union Safety Committee member, and Mr. Jar Valdez, Vice-President, URW Local 726. Details of a recent OHSG study on the respiratory effects of certain agents including resorcinol were presented by Drs. Van Ert and Symons and Mr. Ted Williams of the Occupational Health Studies Group.

The three day environmental survey at Salinas was assisted by Messrs. Jones, Stephens and Parker. Certain locations at both the Salinas and Los Angeles plants were selected for thorough particulate and solvent sampling, complemented by ventilation and noise checks. Limited heat stress evaluation were also made at these plants.



Left to right are Milton Sales, Plant Safety Engineering; Mr. Oakeson, Comptroller; Lynn Hargrave, Production Manager; Mr. Wittmer, Industrial Relations Manager; Frank Norwood, Union Safety Committee; Ted Williams, OHSG Industrial Hygiene for Goodyear Team; Charles Connor, Plant Manager; Mark Van Ert, OHSG Industrial Hygienist for Firestone and General Teams, Fred Gates, Master Mechanic; Frank Gild, Union Vice-President; Jeannie Cantrell, Industrial Hygiene Assistant; Tim Martin, Industrial Hygiene Assistant; Earl Arp, Industrial Hygienist, Uniroyal Team; Frank Mueggler, Staff Engineer; Julian (Spike) Evans, Union President Local 100.

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GOODYEAR PLANT - LOS ANGELES, CALIFORNIA

The Los Angeles Goodyear plant was the site of a three day (June 30 - July 2) environmental sampling survey. The purpose of the survey was outlined at a preliminary meeting of plant and union officials all of which are pictured on the next page.

The in-plant environment was surveyed primarily for total and respirable particulate and solvent vapor concentrations at selected locations of the tire manufacturing process. In addition, bulk solvent samples were collected for return to the Occupational Health Studies Laboratory for gas chromatograph analysis. Engineering and administrative controls were examined in relation to potential health hazards. Excellent cooperation from plant personnel and union representatives greatly enhanced the thoroughness of the environmental survey.



Left to right are Gene Hameady, (URW Policy Committee); John J. Morehouse, (Local #131 President); Mark Van Ert, (OHSG); T. H. Gamble, (URW Safety Committee); Richard L. Solem, (Mgr. of Safety and Training); Al Ledersma, (URW Safety Committee); Frank Boysiewick, (Chairman of the URW Safety Committee); R. W. Barnard, (Staff Eng. and Safety); Ted M. Williams, (OHSG); P. S. Bailey, (Personnel Manager); Carol C. Bishop, (OHSG); Mike Symons, (OHSG); and Edward Darwin, (Local #131 Vice President).

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