PLAINTIFF'S EXHIBIT

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INDUSTRIAL HYGIENE DIGEST

LITERATURE ABSTRACTS

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ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY NEWS

INDUSTRIAL HEALTH FOUNDATION, INC.
5231 CENTRE AVENUE • PITTSBURGH, PA. 15232

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Pittsburgh, Pennsylvania

INDUSTRIAL HYGIENE DIGEST

Literature and News

NEWS ITEMS

677/75 Toxic Substances: Ketones--Proposed Standards for 2-Butanone, 2-Pentanone, Cyclohexanone, Hexone, Methyl n-Amyl Ketone, Ethyl Butyl Ketone.

As the first phase of the Standards Completion Project, the Occupational Safety and Health Administration (OSHA) proposes to amend Part 1910 of Title 29 Code of Federal Regulations by the addition of provisions for six ketones: 2-butanone, 2-pentanone, cyclohexanone, hexone, methyl n-amyl ketone and ethyl butyl ketone. The proposed standards, if adopted, will establish requirements for measurement of employee exposure, medical surveillance, methods of compliance, handling and use of liquid forms of the substance, employee training, recordkeeping, and sanitation and housekeeping, among other things. In addition, the proposals are designed to enable employers to better understand and comply with existing OSHA safety and health standards that relate to the above listed substances. For example, the proposed standards attempt to compile in a single place, by the use of cross references, requirements, appearing elsewhere in Part 1910 which are likely to be of particular importance where any of the above listed ketones are present or are used in the workplace. To determine the classes and groups of materials found in a particular workplace, the employer must evaluate the explosion characteristics of the materials. Some of the properties that must be determined include: maximum explosion pressure: maximum safe clearance between parts of a clamped joint in an enclosure; and the minimum ignition temperature of the atmospheric mixture. Determination of these properties would be difficult for the average employer. The proposed standards will aid the employer in complying with § 1910.309 by supplying the proper classification of each substance in the text of the standards.

--Federal Register 40: 20202-20230, May 8, 1975

678/75 Chemical Firms Launch Toxicology Institute.

Primed with a first-year budget of $506,000 and 11 "big" chemical company sponsors underwriting an ambitious five-year $12 million program, the Chemical Industry Institute of Toxicology formally got off the ground last Monday in Washington, D.C. The institute, aimed at generating, assessing, and disseminating health and safety data (particularly relating to long-term exposure) on commodity chemicals, so far has no permanent address, nor has it any employees. But that will change. The institute is scheduled to begin operation by summer. The search for a professional staff, including a full-time president, director of research, and a handful of other professionals, is "now in progress." And by the end of this year, it intends to start letting contracts for studies of the first five chemicals. Data and conclusions from institute programs "will be made public promptly." For the time being, the institute is being run by an interim officialdom. Its interim board of directors consists of officials of the 11 founding companies (Air Products & Chemicals, Allied Chemical, Diamond Shamrock, Dow Chemical, Du Pont, Eastman Kodak, Exxon Chemical, Monsanto, Shell Chemical, Stauffer Chemical, Union Carbide). And the interim chairman of the board is Dr. M. E. Pruitt, vice president and director of R & D at Dow. Membership is open to domestic and international companies that produce or use chemicals. Last week an assemblage of upper-level federal bureaucrats--all of whom praised creation of the institute--was briefed on its initial plans and workings. The institute's initial thrust, they were told, is to "look at the building blocks of the chemical industry." Priority ranking as to which chemicals to study first will be based on a chemical's physical volume, physical and chemical properties, estimated human exposure, toxicological suspicion and opinion, public interest, and significance to society. Initial plans call for the operating budget to grow to $1.93 million in 1976, and to $5.18 million in 1979. Initial thinking has the effort plateauing at the 1979 level, but that might change: More members mean a bigger budget. A decision on whether to build research facilities has been postponed until July 1976. Without physical facilities, staffing in 1979 won't be much different from the modest level of "several" professionals planned for the end of 1976. If facilities are built, the institute would have a staff of about 100 with more than 70 professionals by 1978.

--Chemical & Engineering News 53: 4-5, May 5, 1975

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682/75 Draft Technical Standards for Another 15 Substances Now Available

The Occupational Safety and Health Administration announces the availability of drafts of the technical content of proposed standards for another 15 substances, designated Set E, under the joint OSHA/NIOSH Standards Completion Project. The following list of substances for which drafts have been prepared brings the total to 49: Hydroquinone, n-Amyl Acetate, Isoamyl Alcohol, sec-Butyl Alcohol, Isobutyl Alcohol, tert-Butyl Alcohol, Isopropyl Acetate, Butyl Alcohol, Isopropyl Alcohol, Cyclohexanol, Methyl Alcohol, Diacetone Alcohol, Methyl Isobutyl Carbinol, Ethyl Acetate, and Propyl Alcohol. OSHA plans to prepare standards for these substances in the near future, at which time a formal comment period will be provided for the proposals. However, interested persons are now invited (without a deadline for submission) to submit written data, views, and arguments on the draft technical standards to the Docket Officer, Standards Completion Project, OSHA, U.S. Department of Labor, Docket H104, Room 350, 1726 M Street, N.W., Washington, D.C. 20210. Copies of the draft technical standards on the above listed substances are available for inspection or purchase, at a standard copying fee, at the national, regional, and area offices of OSHA, and at the national and regional offices of the National Institute for Occupational Safety and Health. --AOMA Report, p. 1, 1975

683/75 Legislation to Transfer Railroad Safety and Health.

Legislation to transfer railroad safety and health activities of Federal government from Department of Transportation to Department of Labor and Occupational Safety and Health Review Commission was introduced May 14 by Sens. Harrison Williams (D.-N.J.) and Jacob Javits (R.-N.Y.). Under S.1743, DOT would retain only certain advisory and research functions. DOL would take all responsibility for establishing and enforcing job and passenger safety and health standards, while an expanded OSHRC would adjudicate citations and proposed penalties. Secretary of Labor would be authorized to issue a cease-and-desist order where emergency hazard involving railway employees exists. A Federal Railroad Safety and Health Administration would be created. --Job Safety & Health Report 5: 93, May 19, 1975

684/75 Protest Spreads in California.

The strike called May 1 by Northern California anesthesiologists to protest rising medical liability insurance rates has begun spreading to other parts of the state and to other medical specialists. Some 70 anesthesiologists in Santa Clara County, 60 in Sacramento, and 12 in Monterey have promised to walk off the job in the next few days, said Norman R. Catron, executive director of the California Society of Anesthesiologists. In addition, he said that surgeons, internists and other physicians throughout the state are closing down practices as the state's professional liability rates continue to climb, with no relief in sight. In addition to rate increases this month of up to 375% for Northern California physicians under Argonaut Insurance, Travelers Insurance Co., which insures some 17,000 physicians, announced that it may have to raise its rates 400 to 600% beginning Nov. 1. Some 1,000 physicians--most of them anesthesiologists--who marched to Sacramento May 6 demanding action from the governor and the legislature, received a disappointing response. No action was promised on requests for immediate freeze on rates or for a special session of the legislature to examine the crisis. Physicians were told their problems would probably take months to solve. "I personally recommend you go back to work," assembly speaker Leo McCarthy told them. Although numerous bills on professional liability have been introduced in the California legislature this year, only three have received approval from both houses. And all three deal with risk pooling to guarantee availability of carriers rather than with the issue of major concern--cost. --American Medical News 18: 1,11, May 19, 1975

685/75 Modifying Mining Machine Operations May Reduce Respirable Dust.

Tests by the Interior Department's Bureau of Mines suggest that the respirable coal dust generated by continuous mining machines in underground mines can be reduced by controlling how fast and how deeply they cut into the coal, according to a new Bureau report. The experiments used the Bureau's "microminer"--a 14,000 pound "baby brother" to the huge underground mining machines that claw their way through solid coal seams. The big machines account for more than 50 percent of the nation's underground coal output, but their use has increased the respirable dust concentration in mines. Breathing dust is, of course, related to pneumoconiosis. According to the report, the rotational speed of the cutting head on the experimental machine, and the distance it advances into the coal seam appear to be the most important factors in

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688/75 OSHA Communique.

The AFL-CIO Executive Council concluded its recent annual meeting with a scathing indictment of present administration of the OSHAct. The council issued a 13,000-word report which charges the Ford and Nixon Administrations, OSHA, and the OSH Review Commission with sabotaging the intent of the law. Worst failures, the report contends, are inadequate funding of OSHA, watered-down enforcement, and footdragging in promulgation of standards, especially health standards. The council urged Congress to strengthen the OSHAct by enacting these amendments: Extend coverage to all workers, including Federal, State, and local government employees, and to all workplaces, regardless of size; Prohibit State enforcement of job safety and health standards; Permit OSHA compliance officers to prohibit employees from working where there is imminent danger; Place NIOSH within the Department of Labor; and Require full pay for employee representatives for time spent accompanying OSHA compliance officers during workplace inspections.
--Occupational Hazards 37: 37, April 1975

689/75 What Price Toxic Substances Control?

The controversy over the costs to the chemical industry of complying with S. 776, the Toxic Substances Control Act, is escalating. And so are the cost estimates. Last week, in a letter to a Senate subcommittee on the environment, Environmental Protection Agency Administrator Russell E. Train said that the costs would run about $80 million to $140 million per year, rather than the $45 million he quoted in testimony before the subcommittee in March. He attributes the higher figures to the "highly speculative costs associated with premarket screening and regulatory actions." Further, he points out, 10 to 20% of the $80 million to $140 million would be offset "on a national basis by the introduction of substitute products for the chemicals that are affected by regulations." Train's new estimates are spurred by a recent letter from Dow Chemical to the subcommittee, in which the company criticizes the $45 million figure, pointing out that compliance with the act would cost the industry about $2 billion per year. However, Train says in his letter that Dow has overestimated in all areas. For instance, Dow is working on the assumption that every new chemical would have to be premarket tested and reported. Train disagrees. Actually, he counters, general testing at a cost of $10,000 to $20,000 per chemical would be "very limited" and required of only 135 new and 180 existing chemicals per year. And more extensive testing at a cost of $200,000 to $400,000 per chemical would be confined to only about 15 new and 20 existing chemicals per year. Train also criticizes Dow estimates that on an industrywide basis the premarket testing provision would delay the marketing and production of the equivalent of about 120 new products each year. The company says that the delay costs to industry would be about $150 million per year, and that at the time of delay, each product would represent an R & D investment of $5 million. But, according to Train, "relatively few chemicals that will be delayed (because of) test requirements will involve a $5 million R & D investment at the time required testing begins." Hence, he says, the $150 million is "considerably overestimated." --Chemical & Engineering News 53: 6, May 5, 1975

690/75 NIOSH Study Suggests High Rate of Occupational Disease in Small Business.

More than one worker out of four employed in selected small business operations in the Northwest were found to be afflicted with occupational disease in a pilot study funded by National Institute for Occupational Safety and Health. Data released April 24 by Rep. Dominick V. Daniels (D.-N.J.) from the study, designed to develop occupational disease surveillance methods, conducted by University of Washington, suggest that many workers involved in high risk occupations in small businesses may be contracting work-related diseases at an alarming rate. The study's sample consisted of employers in Tacoma and Seattle, Wash., and Portland, Ore., and an agricultural area of Yakima County, Wash., who had been selected to report occupational injury and disease experiences to Occupational Safety and Health Administration in 1973. Sample industries were divided into four categories: (1) lead-using industries; (2) chlorinated hydrocarbon solvent-using industries; (3) agriculture; and (4) other worksites classified as hazardous. A walk-through survey by an industrial hygienist was conducted in 138 establishments, and questionnaires were given to participating employes to determine their demographic, occupational and medical history. Medical examinations were given to 908 employes. Compensation claims and employer injury and disease logs were reviewed for the period July 1972 through August 1974, as well as one to one-and-one half years prior to the survey. Daniels stressed that "the study

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COMING EVENTS

Aug. 3-7 — 12th Annual Institute in Industrial Hearing Conservation, Colby College, Waterville, Maine. Write: *Colby College Institute, 1721 Pine Street, Philadelphia, Pa. 19103*

Aug. 3-8 — 23rd Annual Institute in Occupational Hearing Loss, Colby College, Waterville, Maine. Write: *Colby College Institute, 1721 Pine Street, Philadelphia, Pa. 19103*

Aug. 3-8 — Sampling and Sample Systems for Process and Environmental Instrumentation, Robert Morris College, Pittsburgh, Pa. Write: *R.J. Hanz, Instrument Society of America, 400 Stanwix Street, Pittsburgh, Pa. 15222*

Aug. 3-8 — Process and Environmental Analytical Control, Robert Morris College, Pittsburgh, Pa. Write: *R.G. Hand, Instrument Society of America, 400 Stanwix Street, Pittsburgh, Pa. 15222*

Aug. 4-8 — 9th Short Course on Laser Safety, Medical College, University of Cincinnati. Write: *Laser Safety Course, CONMED, Medical Sciences Building, 231 Bethesda Avenue, Cincinnati, Ohio 45261*

Aug. 5-7 — ASTM Symposium on Calibration--Problems & Techniques. Write: *Hank Hamilton, ASTM, 1916 Race Street, Philadelphia, Pa. 19103*

Aug. 10-15 — National Medical Association, Fontainebleau, Miami Beach, Fla. Write: *E. Leon Cooper, MD, 2109 E Street, N.W., Washington, D.C. 20037*

Aug. 11-15 — Basic Safety Management, International Safety Academy, Macon, Ga. Write: *International Safety Academy, 1021 Georgia Avenue, Macon, Ga. 31201*

Aug. 11-16 — American Physiological Society, State University of New York, Albany, N.Y. Write: *Orr E. Reynolds, PhD, American Physiological Society, 9650 Rockville Pike, Bethesda, Maryland 20014*

Aug. 17-21 — 3rd International Conference on Physics & Chemistry of Asbestos Minerals, Quebec City. Write: *G.J. Foy, Department of Natural Resources of Quebec, 1180 Dufresne Street, Quebec City, Quebec, Canada.*

Aug. 24-29 — 170th ACS National Meeting, Chicago. Write: *A.T. Winstead, ACS, 1155 16th Street, N.W., Washington, D.C. 20036*

Aug. 25-27 — Environmental Health Management, Cherry Hill Lodge, Cherry Hill, N.J. Write: *International Safety Academy, 1021 Georgia Avenue, Macon, Ga. 31201*

LEGAL DEVELOPMENTS

693/75 — Part 1910--Occupational Safety and Health Standards: Part 1928--Occupational Safety and Health Standards for Agriculture--Roll-Over Protective Structures for Agriculture Tractors

Pursuant to section 6(b) of the Williams-Steiger Occupational Safety and Health Act of 1970 (84 Stat. 1593; 29 U.S.C. 655), Secretary of Labor's Order No. 12-71 (36 FR 8754), and 29 CFR Part 1911, Chapter XVII of Title 29, Code of Federal Regulations is hereby amended in the manner set forth below, in order to add a new Part 1928, "Occupational Safety and Health Standards for Agriculture," to include, in the new Part 1928, reference to the existing occupational safety and health standards applicable to agriculture, and to provide a new standard dealing with roll-over protective structures for agricultural tractors. The final standard preserves the requirement contained in the proposal that all tractors manufactured after October 25, 1976 of over 20 engine horsepower used in agriculture be equipped with a seat belt and a ROPS that meet the test and performance requirements specified in the standard. However, the final standard, unlike the proposal, exempts from this requirement "low-profile tractors" while used in orchards, vineyards, hop yards and low-clearance buildings. Other tractors are also exempted while used in low-clearance buildings. In addition, tractors mounted with implements incompatible with a ROPS may be operated without a ROPS at the time of these usages. The final standard also requires the employer to ensure that all employees use the seat belt. In addition it requires employers to enforce prescribed operating rules whether or not a ROPS is required. Finally, each ROPS must contain a label which states, among other things, that the test and performance requirements contained in the standard have been met. No requirements for retrofitting are issued at this time.

--Federal Register 40: 18254-18288, April 25, 1975

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697/75 AFL-CIO Appeals Rejection of Challenge to OSHA State Plans.

The AFL-CIO appealed to the U.S. Court of Appeals for the District of Columbia Circuit the decision of the U.S. District Court for the District of Columbia rejecting the labor federation's challenge to the approval of state plans under the Occupational Safety and Health Act. Notice of appeal was filed on April 18 from the decision in AFL-CIO v. Brennan. The plaintiffs attacked regulations issued by the Secretary of Labor regarding the levels of qualified personnel and funding necessary for state plan approval. U.S. District Judge John Lewis Smith, Jr., granted summary judgment for the secretary.

--Occupational Safety & Health Reporter 4: 1611, May 8, 1975

698/75 Workers File $328-Million Damage Suit for Asbestos Hazards.

More than 160 former employes of Raybestos-Manhattan Inc., Passaic, N.J., have filed civil class action suit charging five asbestos manufacturing firms with negligence in supplying Raybestos-Manhattan with "defective asbestos." Suit, filed in Federal court in Newark, seeks $1-million in reparations and $1-million in damages for each worker for "permanent injuries" caused by exposure to the asbestos. Defendants named are: Johns-Manville, Denver; Asbestos Corp. of America, Garwood, N.J.; three Canadian firms--Bell's Asbestos Co., Asbestos Corp., and Cassiar Asbestos Ltd.; and Metropolitan Life Insurance Co., which insured the Raybestos-Manhattan plant. Defendants were charged with a "most callous, willful and wanton decision to expose workers" to lung diseases and cancer. Raybestos-Manhattan was not named in the suit because claims have already been filed against the company by the workers through workers' compensation courts. Suit charges the companies did not take any reasonable precautions or care to "sufficiently warn" the employes of the dangers. Plaintiffs say they were exposed to the risk of cancer, asbestosis, sarcoma, mesothelioma, scarred lungs and other illnesses. Some of the workers claim they are permanently disabled.

--Job Safety & Health Report 5: 97, May 19, 1975

699/75 OSAHRC Orders Employer to Consult With Union on Safety and Health Matters.

The General Electric Company was ordered to consult with its authorized employee representative on matters affecting employee safety and health in the first "cease and desist" order issued by the Occupational Safety and Health Review Commission. This 2-1 decision, issued April 21, involved General Electric's Schenectady, N.Y., Steam Turbine Division, which is part of the company's large industrial complex in the greater Schenectady area. Commissioner Timothy F. Cleary wrote the lengthy and far-ranging majority opinion which, surprisingly, was assented to by Chairman Robert D. Moran without comment. James F. Van Namee wrote a vigorous dissent. Of particular interest in this case was the extent of the union's participation and the effect of its participation on the final decision. The "cease and desist" order was the commission's response to the union's request that this case be "comprehensive." The majority held that the commission's authority to grant "other appropriate relief" pursuant to Section 10 (c) of the Act includes, in this instance, the issuance of an order directing an employer to "cease and desist" from its policy of "unilaterally establishing health and safety programs without the advice, consent, and active participation of the Authorized Representative of Employees." Accordingly, a decision to require consultation on matters of employee safety, which is limited to those covered in affirmed citations, is permissible under the Act, and will not detract from the scheme of the National Labor Relations Act and section 8(a)(5) in particular. The foregoing section of the NLRA makes unlawful an employer's refusal to bargain with its employees' authorized representative over terms and conditions of employment. The majority limited its order to consultation on matters found in violation in this proceeding. Commissioner James F. Van Namee, in a dissenting opinion, disagreed that the commission has broad authority to require management to consult with labor on safety and health issues. In his opinion, the majority position is counter productive because consultation will prolong abatement. He also believes that the "cease and desist" order may be in direct conflict with the NLRA. In fact, by issuing such an order, the majority effectively finds that General Electric has failed to bargain, i.e., has committed an unfair labor practice, Van Namee said.

--Occupational Safety & Health Reporter 4: 1560, May 1, 1975

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703/75 Injury Compensation. F.T. Poole

The courts continue to struggle with the impossible task of equating the accidental loss of physical or mental well-being with a precise sum in pounds and pence. Those whose duty it is to thumb through the latest law reports seldom have cause to exclaim at the generosity of the judges in making awards of damages for industrial injuries: if employees were better informed of the factors taken into account by the courts in making such awards, it is possible that fewer risks would be taken and thus, there would be fewer accidents. Several examples of recent cases and decisions in British courts are given.

--Occupational Health 27: 115-116, March 1975

704/75 The OSHA Review Commission: Its Purpose and Powers. G.M. Betz

The Occupational Safety and Health Review Commission (OSAHRC) and the courts are now spelling out the real meaning of OSHA. Words used in the Act and in the standards are being defined; vague and ambiguous portions are being explained. These decisions have a considerable effect on the plant engineer's activities and are influential in state safety and health program administration. The decision will also guide future standards-making and enforcement. To help inform plant engineers on what OSHA means to them as it is being administered, this series of articles will cover major decisions of OSAHRC and the courts. Types of questions that the Commission can decide and some specific decisions regarding OSHA's coverage are considered in this article. Succeeding articles will discuss decisions on the validity of OSHA inspections and the controversial "general duty" clause of the Act.

--Plant Engineering 29: 223-226, April 17, 1975

BOOKS AND PAMPHLETS

705/75 National Fire Codes: A Compilation of NFPA Codes, Standards, Recommended Practices, and Manuals, Vol. 3, 1975--Flammable and Combustible Liquids. National Fire Protection Association. Available from: NFPA, 470 Atlantic Ave., Boston, Mass. 02210. v.p. (1975) Price: $7.50.

The revised 1975 National Fire Codes in 15 volumes may be bought as a complete set or individually. These nationally-recognized codes include 71 new and revised standards approved at the NFPA 1974 Annual and Fall Meetings. The books include the 1975 National Electrical Code and 225 other individual publications. To enhance use the codes and standards are arranged numerically in Volumes 1-11. Recommended practices, guides and manuals are in volumes 12-15. The standards, diagrams and tables listed are developed and reviewed by experts serving on NFPA technical committees. These people come from industry, trade and professional associations, government, insurance, fire service fields and the public. Many fire laws and codes adopted by the Federal, state and local governments are based on these codes and standards. The complete set costs $75. Individual books are priced at $7.50 each. Titles from Table of Contents are: Flammable and Combustible Liquids Code; Oil Burning Equipment; Drycleaning Plants; Basic Classification of Flammable and Combustible Liquids; Cleaning or Safeguarding Small Tanks and Containers; Spray Application Using Flammable and Combustible Materials. Dip Tanks Containing Flammable or Combustible Liquids; Organic Coatings; Solvent Extraction Plants; Stationary Combustion Engines and Gas Turbines; Tank Vehicles for Flammable and Combustible Liquids; Portable Shipping Tanks; Flammable and Combustible Liquids on Farms and Isolated Construction Projects; Cellulose Nitrate Motion Picture Film; Pyroxylin Plastics in Factories; Pyroxylin Plastic in Warehouses, Wholesale, Jobbing and Retail Stores; Liquid and Solid Oxidizing Materials; Fireworks; Magnesium; and Titanium.

--Publisher's Release and Table of Contents

706/75 Evaluation of Radiation Emergencies and Accidents: Selected Criteria and Data. E.J. Vallario. Available from: Unipub, Inc., P.O. Box 433, New York, N.Y. 10016. 138 p. (1974) Price: $8.00. (International Atomic Energy Agency Tech. Report Series No. 152).

This manual is intended to be used as a technical reference in the handling of radiation emergencies and accidents. The text as presented presupposes that members of facilities and organizations having the responsibility for assessing the consequences of a radiation accident have professional training and experience in the field of radiation safety. The manual does not purport to set out an emergency plan, but provides selected data and criteria essential to the assessment of radiation effects on people and their environment from the accident. The elements of a

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INDUSTRIAL MEDICINE

710/75 Physiological and Hygienic Assessment of Different Work Patterns and Methods Adopted for Spinners in Viscose-Fiber Production. A.P. Martynova and A.N. Zelenkin. Gig. Truda Prof. Zabolevaniya (2): 1-4, 1975. (Russian)

Materials derived from a physiological and hygienic assessment of 3 types of the spinners' work pattern adopted in the present-day viscose production are offered. The data of the time, hygienic and physiological studies made in spinning departments of the chemical fiber plants helped reveal definite advantages of the synchronous teamwise method of servicing the machines, as compared to the individual and team- and plantwise ones, and to recommend introduction of the former in the industry. This information made it also possible to work out a whole number of additional scientifically supported recommendations for the correction of the existing conditions and for making them more healthy. Moreover, the investigations have brought evidence that the risk of an adverse effect of carbon bisulphide is quite the same in all of the above organizational patterns of the spinners' work, being determined by actual carbon bisulphide in the air of the production area and the accepted performance standards. --Author's Summary in English

711/75 Coronary Heart Disease in Workers Retired From a Viscose Rayon Plant. M. Tomasini, et al. Med. Lavoro 65: 368-378, Sep./Oct. 1974. 15 refs. (Italian)

Following previous research on the problem of the relationship between coronary heart disease and chronic occupational exposure to CS_2, the Authors report the results of a clinical electrocardiographic research carried out on 177 pensioners (145 living and 32 dead) who had worked in a viscose rayon factory. Among the deceased subjects (21 exposed to CS_2 and 11 controls), none of whom had been subjected to postmortem examination, death due to coronary disease or myocardial sclerosis was three times higher in subjects exposed to CS_2 than in controls. For subjects still living (78 exposed to different concentrations of CS_2 and 69 non-exposed controls) personal data were gathered by anamnesis and clinical examination, particular attention being given to signs and symptoms of CS_2 poisoning, and to each subject was given an ecg at rest. Electrocardiographic signs of coronary insufficiency were observed in 13% of the controls, in 10% of subjects exposed to CS_2 concentrations of < 60 mg/m^3 (MAC), in 25% of subjects exposed to CS_2 concentrations between 60-100 mg/m^3, and in 33.3% of subjects exposed to CS_2 concentrations between 100-200 mg/m^3. Moreover, the incidence of electrocardiographic signs of coronary insufficiency rose progressively with the increase of the environmental CS_2 concentration. Lastly, a significant statistical difference was observed between the percentage of coronary insufficiency in the subjects exposed to CS_2 and suffering with polyneuritis and the percentage in subjects exposed and without polyneuritis. The incidental combination of action of other more common coronary risk factors (arterial hypertension, smoking habits, obesity), in causing coronary insufficiency, was also verified. The incidence of coronary insufficiency also as regards such factors was always of significant prevalence in the group exposed to CS_2 versus the controls. As two groups of living pensioners were homogeneous as regards physical work load, diet, average age, incidence of arterial hypertension and obesity, smoking habits, with exposure to CS_2, the only discriminating factor, the conclusion was drawn that prolonged exposure to CS_2 is a real occupational coronary risk factor, thus lending strength to the results of a previous research, made on currently CS_2-exposed subjects. --Author's Summary in English

712/75 An Atherosclerosis Prevention Program--Evaluation of the First Six Years. R.F. Wear, et al. J. Occup. Med. 17: 295-303, May 1975. 8 refs.

The most serious medical problem of people of working age is cardiovascular disease. This report is based on six years of observations of cardiovascular disease risk factors in 5,571 Campbell Soup Company employees. Most of them work at one of 21 U.S. plant locations. About 200 salesmen were also included at the time of review of the data. All employees included in this report entered the program prior to December 31, 1973. More women aged 30 to 39 years, and more men and women younger than 30, are needed in the program. There were more older employees involved because long-service employees were given priority. The following data were recorded at the initial screening: age; race; current diet; drugs (for hypertension, high lipids, contraception); family history (in first or second degree relatives) of diabetes, of myocardial infarction, or angina prior to 60; sex; height; blood pressure (systolic and diastolic); myocardial infarction or angina history; smoking history; serum cholesterol, triglycerides, lactescence (after 12-hour fast); age at menopause; weight, and

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715/75 Aerobic Capacity of Dock Workers in Bombay. P N. Sana. Am. Ind. Hyg. Assn. J. 36 311-317, April 1975. 25 refs.

The aerobic capacity ($\dot{V}O_{2\ max}$) of 61 healthy loaders from Bombay Docks actively engaged in heavy manual work of lifting and carrying of food grains bags was estimated by an extrapolation technique based on linear relationship between heart rate and oxygen uptake at different levels of physical work. The average ($\dot{V}O_{2\ max}$) was found to be 2572 ± 54 ml (S.E.) min. (STPD) or 48.8 ± 0.96 (S.E.) ml. min.$^{-1}$ kg^{-1} (STPD) which is high in many cases when compared to the values reported by other Indian workers among different occupational groups. The possible reasons are discussed. The results further reveal that the $\dot{V}O_{2\ max}$ is negatively correlated with age and that this relationship is more pronounced with subjects aged 31-49 years. The gradual fall in aerobic capacity was observed beyond 33 years of age.
--Author's abst.

716/75 Chronic Bronchitis in Foundry Workers in Vojvodina--Prevalence of Respiratory Symptoms and Chronic Bronchitis in Foundry Workers. M.I. Mikov. Med. Lavoro 65. 343-358. Sep./Oct. 1974. 29 refs.

A survey has been made about results of epidemiological investigation with the aim of estimation of the effects of air pollution at work places, upon the prevalence of respiratory symptoms and bronchitis in foundry workers in the Province of Vojvodina; 535 male-workers have been examined (95.15%) from a total of 562 persons employed at five foundries. The control group consisted of 244 workers (93.85%) from a total of 260 workers not exposed to air-pollution at work places. The results of this investigation show that the prevalence of chronic bronchitis is considerably higher in workers exposed to air pollution at work places (foundry workers) in relation to the prevalence of the non-exposed (control group). This difference in prevalence of bronchitis between the foundry workers (31.03%) and the control group (10.28%), for all groups together, is highly significant ($p < 0.001$). In the corresponding age groups the prevalence of chronic bronchitis in foundry workers is also considerably higher than in workers of the control group, and these differences are statistically significant. The highest prevalence of chronic bronchitis is in smokers, and the lowest in non smokers (14.28% - 1.31), ex-smokers (18.75% - 0.0%) and smokers at the time of interview cannot explain the significant differences in the prevalence of chronic bronchitis between the foundry workers group and the control group of the same smoking category: non-smokers (14.28% - 1.31%), ex-smokers (18.75% -0.0%) and smokers at the time of interview (38.92% - 18.55%). Presence of intensive dust and other air pollution in the air of work environment can cause excesses in prevalence of respiratory symptoms and chronic bronchitis in foundry workers. The results obtained in this investigation indicate that the basic significance in incidence and prevalence of chronic bronchitis in the investigated sample of workers are smoking and air pollution at work places. --Author's abst.

717/75 Correlation of Psychophysiologic Variables with Vocational Rehabilitation Outcome in Patients With Chronic Obstructive Pulmonary Disease. I. Kass, et al. Chest 67. 433-440, April 1975. 28 refs.

Despite the magnitude of the public health problem presented by respiratory diseases, there have been few studies concerned with vocational rehabilitation (VR) potential of patients with chronic obstructive pulmonary disease (COPD). Certain physiologic variables which show a high degree of relationship to VR success are identified. The three independent variables which most highly correlate with the VR potential of patients with COPD are the percentages predicted for the first-second forced expiratory volume ($FEV_{1.0}$), forced expiratory flow between 25 and 75 percent of the forced vital capacity ($FEF_{25-75\ percent}$), and maximum voluntary ventilation (MVV). The mean 'cutting' percentages for inclusion in VR programs were 50, 27, and 40, respectively. The emotional variables studied do not differentiate potential VR success or failure as clearly as the physiologic factors. The criteria set forth not only can be used by rehabilitation workers but could serve as a basis for future demonstration studies. --Author's abst.

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could be treated by an occupationally-based health service in the Greater Brighton area. The great advantage of treating such injuries in the workplace, by trained industrial nurses and by doctors specialising in industrial medicine, is the amount of inconvenience and loss of working time which could be saved, as well as a decrease in the demand on the services of hospital emergency services. An occupationally-based health service would not, of course, be confined to treating cases of injury, and probably its major function would be in preventive rather than curative work. Clearly there are marked economic advantages for Great Britain in having a universal and well-endowed occupational health service. --Author's Conclusion

722/75 Employee Health Services: One Hospital's Experience. N. Bluestone. J. Occup. Med. 17: 230-233, April 1975.

Hospital employee health services are sometimes subjected to unique pressures despite, or perhaps because of, the large number of physicians located on site. Often what seem to be easily available services are neither accessible or desirable from the standpoint of comprehensive patient care. An analysis of the problems of one such hospital employee health service (EHS) is presented, as well as steps taken to provide an improved service. --Author's abst.

723/75 Practitioners' Duties. M. Whincup. Occup. Health 27: 147-154, April 1975.

Rules of personal responsibility apply to occupational health doctors and nurses and other medical staff and their employers just as they do to all other employers and employees. This responsibility extends to consultants, doctors, nurses and ancillary workers. All are legally bound to do their best to avoid injuring others. What a person's best is and what precautions it is practicable for him to take may depend very much on that person's occupation. Just as a lawyer's advice on law ought to be more reliable than a labourer's, so the standards of medical care expected of the doctor, dentist, anaesthetist, pharmacist or nurse would be much higher than that required of the first-aid man, which in turn is higher than that expected of the wholly untrained layman. Those who are trained, in other words, must live up to their training. This article discusses the general legal position of nurses, doctors and other medical personnel. --Cond. from text

724/75 OH in Europe--3 Germany. R. Alston. Occup. Health 27: 102-104, March 1975.

The two occupational health nurses in a Berlin factory do not at present have any special training for the work. The company medical officer is responsible for training in occupational health practice, but he is hoping within the next year that both the nurses may attend a special two-week course that is being organised at the Institute of Occupational Health at Goettingen. He feels that this is only a basic course and does not provide any detailed training. He also feels that within the next few years it may become a statutory requirement for all nurses working in industry to have attended this course. Following completion of this course the medical officer hopes to increase the range of work that the occupational health nurses may perform. --Author's Conclusion

725/75 OH in Europe--4 Italy. R. Alston. Occup. Health 27: 156-157, April 1975.

The Gillette medical service in Italy provides an effective treatment service for employees but seems to put a greater emphasis on the preventative aspect of occupational health. The factory is registered as a commercial rather than an industrial organisation. The legal requirements for commercial companies are linked to first aid kits; rest room with couch; and breast feeding room and nursery room for infants under three. If these facilities cannot be given them special allowance is given in lieu. The Ministry of Labour provides three social security schemes which may link up with occupational health. In theory, industry provides the facilities and the government provides the staff, but in practice industry usually provides the whole service. Medical facilities are available to all employees in need of first aid or affected by sudden illness. It is the responsibility of the occupational health nurse to deal with these treatments. Medical examinations are all performed by the consultant medical adviser so that the nurse has no responsibilities in this area. Counselling is carried out by the occupational health nurse and it has been observed that the nursing sister provides an invaluable service to employees and relatives in this respect, helped by her personal contact with local medical practitioners. Control of sickness absence is limited because of the question of infringement of the individuals' rights. No diagnoses are put on medical certificates and long term absences can only be followed up by the Institute of Hygiene. --Cond. from text

01 133 2401

730/75 Fatigue in Man, Skill and Systems--Recollection of Fifty Years of Psychological Approaches in ISL. H. Kano. J. Science of Labour 50: 871-892, December 1974. 53 refs.

The author attempts an historical recollection of studies performed mainly by the psychological members of the Institute for Science of Labour during the periods of fifty years from 1920 to 1970. The purpose of this article is to provide foreign researchers of the fatigue problem with some information concerning the psychological studies in ISL., because papers on these studies have been unknown in foreign countries. --Cond. from Author's abst.

731/75 Automated Multiphasic Health Testing. Diagnostic and Testing Results Obtained at the Health Evaluation Center Public Health Service Hospital, Baltimore. B. Holland, et al. Public Health Reports 90: 133-139, April 1975. 16 refs.

The results of automated multiphasic health testing (AMHT) were evaluated with special attention to diagnoses made by physicians and to false positive results, as well as to laboratory test results. The study population consisted of 1,157 patients at the Health Evaluation Center of the Public Health Service Hospital in Baltimore. Although 95 percent of the patients had at least one newly diagnosed disease or condition, the percentage dropped to 78 percent when dental abnormalities were excluded and to 70 percent when dental, vision, and hearing abnormalities were excluded. Abnormal laboratory test results were observed for 98 percent of the patients, and 38 percent had at least one false positive test result. The study results indicated that AMHT is a highly productive method for comprehensive medical testing with a variety of uses other than mass screening. The productive diagnostic yield combined with a high percentage of false positive results dictate the need for careful planning for followup care, strict attention to quality control, and excellent communication between the AMHT center and the practicing physician. --Author's abst.

732/75 Remote Interpretation of Chest Roentgenograms. W.S. Andrus, et al. Chest 67: 483-488, April 1975. 8 refs.

A series of 98 chest films was interpreted by two physicians on the basis of monitor display of the transmitted television signal representing the roentgenographic image. The transmission path was 14 miles long, and included one active repeater station. Receiver operating characteristic curves were drawn to compare interpretations rendered on television view of the image with classic, direct view interpretations of the same films. Performance in these two viewing modes was found to be quite similar. When films containing only hazy densities lacking internal structure or sharp margins, were removed from the sample, interpretation of the remaining films was essentially identical via the two modes. Since hazy densities are visible on retrospective examination, interpretation of roentgenograms at a distance via television appears to be a feasible route for delivery of radiologic services. --Author's abst.

733/75 Osteoporosis: Evaluation of Diagnosis and Therapy. J.R. Shapiro, et al. Arch. Intern. Med. 135: 563-567, April 1975. 19 refs.

Bone mineral content was determined in the radius of 29 osteoporotic patients by the photon absorption method. Mineral content was within the normal range in nine of 24 osteoporotic women. Ratios representing the bone mineral content in the proximal and distal areas of the radius did not distinguish osteroporotic subjects or patients with hyperparathyroidism from normal subjects. Ten osterporotic women had mineral measurements during a two-year period while receiving placebo or an intake of 2,200 mg of phosphorus and 2,400 mg of calcium. No increase in radial mineral content was observed during this regimen or after adding vitamin D. The authors conclude that the measurement of mineral in the radius does not always accurately reflect the overall skeletal mass in an individual patient and that prolonged therapy with high phosphorus and calcium intake did not increase the radius mineral content. --Author's abst.

734/75 Drug Allergy (Second of Three Parts). C.W. Parker. New Engl. J. Med. 292: 732-738, April 3, 1975. 92 refs.

The role of allergy in drug-induced inflammation of the liver, kidney, lungs and small blood vessels is not well defined. Very frequently, some form of direct toxicity appears to be involved, as suggested by its high rate, the rapid induction of symptoms in the absence of known previous exposure and an inability to demonstrate marked fluctuations in sensitivity in serial studies of the same patient. On the other hand, examples can be cited in which the

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CHEMICAL HAZARDS

739/75 Dow's Approach to Toxicity and Exposure Guidelines Development in Industrial Hygiene. G.E. Socha. J. Occup. Med. 17: 251-253, April 1975.

Historically, limits for occupational exposures have been determined from knowledge of human injury and estimates of the exposure which caused the injury. This article describes the animal toxicology program (and controlled human volunteer tests) used by The Dow Chemical Company to define injurious properties of chemicals in the interest of preventing the human injury upon which health authorities and industry have depended in the past. --Cond. from text

740/75 Solvent Exposure and Leukemia Among Rubber Workers: An Epidemiologic Study. A.J. McMichael, et al. J. Occup. Med. 17: 234-238, April 1975. 14 refs.

Within this case-control study, prompted by an observed excess mortality from cancers of the lymphatic and hematopoietic systems, the association of these types of cancer with specific work-environment exposure has been investigated. The risk of death from lymphatic leukemia appears to have been approximately seven for workers in high solvent-exposure jobs (compared to other workers), and approximately twofold for workers in medium or light solvent-exposure jobs. Modern solvents used in the rubber industry include xylene, toluene, trichlorethylene, and various aliphatic hydrocarbons. While these are generally believed to be non-carcinogenic, this belief may partly have arisen because insufficient epidemiologic study of the carcinogenic potential of these solvents has not yet been done. Four other observations should be made regarding these results. Firstly, these results call for several follow-up tasks. Secondly, it is of interest that it is lymphatic rather than myeloid leukemia that appears to be associated with solvent exposure jobs. Thirdly, the reconciliation of the lymphatic leukemia SMR (which is a relative risk of mortality from that cause of death for rubber workers versus the general community) with the relative risk for "exposed" versus "non-exposured" rubber workers poses an interesting question. Finally, although this study has focussed upon lymphatic leukemia and solvent exposure, it is not possible to discount an association of lymphosarcoma, Hodgkin's Disease and myeloid leukemia with work environment exposure within the rubber industry. Within the data set described above, there were too few cases of these three cancer types to allow any conclusion of no association to be drawn. Indeed, the observed excess mortality from these three cancer types, for the total cohort of rubber workers, could well indicate the presence of carcinogenic agents within the work environment responsible for various cancers of the lymphatic and hematopoietic system. Further study is necessary. --Cond. from text

741/75 Acute Acetone Intoxication. D.S. Rose. Occup. Health 27: 120-124, March 1975. 3 refs.

Eight workers were exposed to levels in excess of 12,000 ppm of Acetone, two with serious effects. The clinical findings and treatment are described. --J.F.B.

742/75 Repeated Topical Applications of 1,2,4-Trichlorobenzene--Effects on Rabbit Ears. M.B. Powers, et al. Arch. Environ. Health 30: 165-167, April 1975. 7 refs.

In a study to evaluate its acnegenic potential, increasing concentrations of 1,2,4-trichlorobenzene were applied topically to the ventral surface of the rabbit ear three times weekly for 13 weeks. Additional groups of rabbits received similar treatment with petroleum ether (solvent controls), received no treatment (negative controls), and received four once-weekly treatments with hexachlorodiphenyloxide, a known chloracnegenic agent (positive controls). Skin response to 1,2,4-trichlorobenzene was characterized grossly by dermal irritation directly related to the concentration of test material; there were the associated histologic changes of acanthosis and hyperkeratosis; there was no primary follicular involvement characteristic of acneform dermatitis. Dermal responses to hexachlorodiphenyloxide consisted of gross follicular enlargement, with waxy excretion on pressure, and severe scaling. The affected ear appeared thickened up to three times normal size and histologic sections showed primary follicular involvement characterized by marked thickening of the sheath and marked distention of the follicles with keratin, with resultant comedone formation, typical of chloracne. --Author's abst.

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well as to Hotchkiss-McManus stain for testing PAS-positive material. In guinea pigs has been found a quick histo-macrophagic lobulo-alveolar reaction, fairly active at 2 months exposition decidedly marked at 4 months, both for foci wideness and for polymorphic and polydimensional histual cells, endowed, besides with more nuclei (like extraneous body or chronic irritative stimulous giant cells) and with cytoplasma loaded with a very fine granulous material, unmodifiable with the usual stains. At 7 months exposition, were found like-granulomatous foci of histo-macrophagic elements, more or less giant, in stromal seat, while the analogous alveolitic type reaction tended to disappear. In rats lungs almost no histo-macrophagic reaction is found in lobulo-alveolar site, while it is found a more or less marked septal thickening because of histo and macrophagic elements present in the first 2-4 months exposition, at 7 months the guinea pigs lungs have granulomatous-like foci of varying volume histual cells, also multinucleated giant-cells, including in the cytoplasm very fine granulous material quite similar to that observed in guinea pigs lungs analogous cells. Further research is planned.
--Author's Summary in English

747/75 Method for Measuring Isocyanates in Ambient Air. A. Fantuzzi, et al. Med. Lavoro 65 188-192, May/June 1974. 1 ref. (Italian)

A method is presented for the determination of isocyanates (toluene diisocyanate and diphenylmethane diisocyanate) in the air. Derived from the traditional method of Marcali, this method has a high sensitivity such as to render it reliable for the determination of these two isocyanates in the working environment. Compared with other methods, which are equally reliable but which require the use of sophisticated and complicated equipment, this method can be used even in laboratories equipped with only simple basic instruments. --Author's Summary in English

748/75 Palpitation Rates Associated With Fluorocarbon Exposure in a Hospital Setting. F.E. Speizer, et al. New Engl. J. Med. 292: 624-626, March 20, 1975. 12 refs.

The use of aerosols containing fluorocarbons has been implicated as being responsible for deaths in specific environmental exposures. Excess mortality in asthmatic children and young adults in England and Wales was associated with the use of fluorocarbon-containing aerosols of isoproterenol. The asthma mortality, which generally was sudden and unexpected, was believed to be the result either of excess sympathomimetic stimulation in association with hypoxemia or of the fluorocarbon propellant used as the aerosol. Since 1967, deaths from what has been termed "aerosol sniffing" have occurred in increasing numbers in this country. Numerous aerosol products containing fluorocarbons as propellants, including frying-pan lubricants, hair sprays, and deodorant sprays have been used in the practice of "aerosol sniffing," and have thus been implicated in the deaths. Animal studies of exposure to a wide variety of fluorocarbon-containing compounds, both with and without additional challenge of hypoxia or epinephrine, suggest that fluorocarbon compounds are cardiac sensitizers. This investigation was conducted when it came to the author's attention that certain pathology residents were experiencing repeated episodes of palpitation severe enough to require several of them to seek medical care. --Cond. from text

749/75 Background Information on Chloroprene. J.W. Lloyd, et al. J. Occup. Med. 17 263-265, April 1975. 15 refs.

In a letter to the National Institute for Occupational Safety and Health, NIOSH, dated December 16, 1974, E.I. du Pont de Nemours and Company (Du Pont), Louisville, Kentucky, expressed concern over the potential carcinogenicity of chloroprene (2-chlorobutadiene). Du Pont had begun looking closely at this substance recently because of the similarity in chemical structure with vinyl chloride. Du Pont has utilized chloroprene in the production of neoprene (polychloroprene) since 1931. In the course of a literature search on chloroprene toxicity, Du Pont uncovered two recent Russian articles that suggest an increased incidence of skin and lung cancer in workers exposed to chloroprene. Also, two other articles in the Russian literature were located that described animal experiments in which chloroprene adversely affected embryo development in rats and mice. Du Pont has informed its employees of the Russian reports and has alerted its customers to the possibility of "escaping chloroprene" during the processing of neoprene. The Company is conducting epidemiological studies in humans and animals to ascertain the carcinogenic potential of chloroprene. --Cond. from text

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tests, and of skin temperature, heart rate, malar flush and blood alcohol concentration during the prealcohol baseline period and at regular intervals over the 4-hour drinking period. The three alcoholic beverages produced blood alcohol curves that did not differ significantly. All three alcoholic beverages produced increasing sensorimotor impairment over time, which corresponded in degree to the increasing blood alcohol concentration. There were no significant differences between the three alcoholic beverages on either the sensorimotor or physiological measures at any blood alcohol value. The results of this study indicate that the degree of impairment after alcohol ingestion in a socially relevant manner is not dependent on the type of beverage consumed, but only on the resulting blood alcohol concentration. --Author's Summary

754/75 Perspective in the Environmental Toxicology of Heavy Metals. K. Tsuchiya. Jap J. Ind. Health 18: 427-437, September 1974. 37 refs. (Japanese)

In this short review on the environmental toxicology of heavy metals it is emphasized that there is no principal difference between industrial toxicology and environmental toxicology. The paper includes discussion on the basic toxicology of metals in relation to the absorption, excretion and biological half time. The discussion includes dose-response relationships, detoxication, acquired tolerance and unspecific response of some metals. Finally, the following studies which are necessary in the environmental toxicology in the future are recommended by the author. These studies should include: 1) background information on the incidence of unspecific responses such as morbidities of adult diseases, 2) influence of toxic metals upon "aging" in general, 3) type of chemical compound of toxic metals in the environment and in the organisms including man, 4) the relationship between environmental toxicology and ecotoxicology, 5) interactions of metals 6) individual variation of the susceptibility to heavy metals from both experimental and epidemiological point of view. --Cond. from Author's abst. in English

755/75 On the Normal Value of Urinary Excretion of Lead, Mercury, Cadmium and Fluoride in Japanese. K. Nakaaki. J. Science of Labour 50: 893-908, December 1974. 13 refs.

According to the conditions of daily living, the urinary excretion of lead, mercury, cadmium and fluoride may considerably vary from day to day and from person to person. In general, the excretion of these metals reflects the daily intake into the body. The purpose of this study was to determine the urinary excretion of lead, mercury, cadmium and fluoride in the Japanese who usually had no opportunity of accidental or occupational exposure to these metals. The values obtained from these people can be considered to be the normal values of urinary excretion of relevant metals. They seem to be useful in evaluation of the urinary excretion of people working under varying degrees of exposure to these metals, people who may have taken those metals in food, water or air, or patients with chronic diseases seemingly due to absorption of these metals. The author has made efforts in accumulating the data of urinary excretion of those metals, paying attention to the relevant papers published by others in Japan. --Author's Introduction

756/75 Subclinical Neuropathy at "Safe" Levels of Lead Exposure. A.M. Seppalainen, et al. Arch. Environ. Health 30: 180-183, April 1975. 8 refs.

Electrophysiological methods revealed subclinical neuropathy in 28 workers, exposed from 1 to 17 years to lead and whose blood lead (PbB) values had never exceeded 70 ug/100 ml, as ascertained by checking the monitor reports of the factory and by careful exposure history. The PbB determinations had been tested repeatedly and had been found valid. The main findings were slowing of the maximal motor conduction velocities of the median and ulnar nerves and particularly the conduction velocity of the slower fibers of the ulnar nerve. Electromyographical abnormalities comprised fibrillations, diminution of the number of motor units on maximal contraction, and an abnormally long duration of the units. Earlier similar measurements from heavily exposed workers had been even more abnormal. Thus, a dose-response relationship exists on a group basis. Since the regular monitoring of PbBs in most workers during their entire period of exposure excludes the possibility of a body burden out of proportion to the PbB slight neurological damage is produced at exposures hitherto regarded as quite safe. --Author's abst.

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Al-P activities rose in the latter stage of administration. Ca and P levels in plasma did not change in all periods of the experiment. From these results, it could be concluded that a measurement of prostatic Ac-P, cholesterol, and free fatty acid is available for knowing an excess intake of Cd. Cd contents in heart, lungs, spleen, and testes of rabbits injected with 1.0 mg Cd/kg increased significantly compared with those with 0.5 mg Cd/kg, but a difference between the two groups in Cd contents in liver, kidneys and submandibular glands which contained high concentration of Cd was not recognized. Zn contents in organs of rabbits injected with Cd increased remarkably, while Cu contents decreased generally. This phenomenon was especially remarkable in liver and kidneys. --Author's abst.

762/75 Role of Metallothionein in the Liver in Protection Against Cadmium Toxicity. Y. Suzuki and H. Yoshikawa. Ind. Health 12: 141-151, December 1974. 14 refs.

Effect of pre-synthesized metallothionein in livers of rats on cadmium distribution in the soluble fractions was investigated in vitro and in vivo. The liver of a male rat injected with cadmium (1 mg/kg, intraperitoneally) was removed at 24 hr after the injection and soluble fraction was prepared from the tissue. Cadmium was concentrated in a low molecular weight portion corresponding to metallothionein in the soluble fraction, and zinc was also included in this portion. When this soluble fraction was added with cadmium in vitro, most of cadmium was found in this portion, and zinc was replaced by cadmium. The proportion of these metals was 1:1 in molar ratio. Male rats were pretreated with a small amount of cadmium (0.3 mg/kg, intraperitoneally) at 24 hr before injection with a challenge dose of cadmium (3 mg/kg, intraperitoneally). Cadmium intake in the livers was significantly promoted, and cadmium concentration in the soluble fraction was higher in comparison with non-pretreated rats. A large amount of cadmium was also found in the low molecular weight portion, whereas zinc in this portion disappeared at 2 hr after the challenge injection. It was probable that this promotion of cadmium intake was brought predominantly by the replacement of zinc in zinc-thionein by cadmium; the proportion being estimated to be the same as in vitro. Thus, cadmium may be more rapidly immobilized in the livers of cadmium pretreated rats than that of non-pretreated rats. On the basis of these findings, the protective effect of the pretreatment against cadmium toxicity was discussed in relation with metallothionein induced by the pretreatment. --Author's abst.

763/75 Evidence for a Neuromuscular Disorder in Methylmercury Poisoning. H. Rustam, et al. Arch. Environ. Health 30: 190-195, April 1975. 23 refs.

Data suggestive of a neuromuscular disorder responsive to neostigmine was uncovered in the course of electrophysiological testing of Iraqi patients poisoned by methylmercury. Subsequent neostigmine therapy produced a remarkable clinical improvement of the patients. Placebo substitution resulted in a substantial loss of testable strength that was restored when drug therapy was resumed. --Author's abst.

764/75 Methyl Mercuric Compounds in Rat Bile. T. Refsvik and T. Norseth. Acta Pharmacol. et Toxicol. 36: 67-78, January 1975. 14 refs.

Methyl mercuric glutathione is the predominant methyl mercuric compound in rat bile following exposure to methyl mercuric chloride. Methyl mercuric chloride also forms methyl mercuric glutathione when added to rat bile in vitro. A small amount of methyl mercuric cysteine is always found in the bile of exposed animals. This amount increases on storage of the bile, and may include most of the metal present. Exchange of the methyl mercuric ion takes place between cysteine and glutathione. Methyl mercuric glutathione releases methyl mercuric cysteine on storage, probably by autolysis, but an action of enzymes cannot be ruled out. Final conclusions cannot be drawn as to which methyl mercuric compound is actually transported from the liver cell to the bile. --Author's abst.

765/75 Clinico-Electrocardiographic Investigation on Subjects With Acute CO Intoxication. A. Capellini, et al. Med. Lavoro 65: 285-292, July/August 1974. 29 refs. (Italian)

The aim of the research has been to investigate upon incidence and frequency of myocardial-coronaric impairments in subjects acutely poisoned with CO and, if such impairments are transient or persistent. The research was carried out on patients of the Clinica del Lavoro and of the Milan Policlinico's Intensive Care Department. The study is based on clinical and particularly electrocardiographic data. The conclusion is that myocardialcoronaric impairments, if present in the subjects acutely poisoned with CO, are rarly serious or irreversible; when this happens it is due to the coexistence or to the superimposition of the anoxiemic action of CO to a preexistent coronary disease. --Author's Summary in English

01 133 2411

770/75 Seasonal Exposure to Dust in Flax Processing in Egypt. M.H. Nowair, et al. Am. Ind. Hyg. Assn. J. 36: 318-324, April 1975. 15 refs.

Previous evidence suggested that interruption of worker's exposure to flax dust may lead to severe symptoms of byssinosis on their return to work. In the present study, the prevalence and severity of byssinosis was studied in a sample of flax workers (n = 577) who had been exposed to dust for six months each year. Byssinosis prevailed in 36.9% of them, and 32.3% of them had their $FEV_{1.0\ sec}$ reduced 10% at the end of the first morning work period (4 to 6 hours) of the week. Both syndromes were higher among seasonal workers than what would be predicted if they were permanently exposed to flax dust. A hypothesis has been presented to interpret this finding. --Author's abst.

771/75 An Evaluation of the Inhalation Toxicity of One Commercial Proteolytic Enzyme Preparation. D.E. Richards, et al. Am. Ind. Hyg. Assn. J. 36: 266-271, April 1975. 15 refs.

The inhalation toxicity of a commercial proteolytic enzyme preparation containing 12% subtilisin Carlsberg was studied in experimental animals. Guinea pigs that had been pretreated by a series of intradermal injections of the enzyme preparation in saline solution died as a result of a single 8-hour exposure to the enzyme preparation at an air concentration of 41.2 mg/m^3, while normal guinea pigs and pretreated guinea pigs that were dosed with an antihistamine immediately prior to exposure survived. The 8-hour LC_{50} for pretreated guinea pigs was determined as 24.7 mg/m^3. Normal rats, normal rabbits, and pretreated rabbits survived exposures to the enzyme preparation at concentrations as high as 36.8 mg/m^3. Pathologic examinations revealed changes only in the lungs of the exposed animals. These pulmonary alterations appear to be reversible. A histamine release is suggested as the primary effect of a secondary exposure to this proteolytic enzyme preparation. --Author's abst.

772/75 Asbestosis. W.P. Howard. Lancet 1: 984-985, April 26, 1975.

David McKie (Lancet, March 8, p. 568) drew attention to the way in which asbestosis has been dramatised in recent weeks by Press and television. It is important to realise that the cases to which he particularly referred were exposed to asbestos dust under conditions prevailing 20 and 30 years, or even longer, ago, when our ability to monitor the atmosphere at work and our knowledge of threshold limit values in relation to asbestosis were not as refined as they are today. The history of the control of asbestos dust in asbestos factories has been one of steady improvement over half a century. The standards for asbestos-dust concentration associated with the 1969 Asbestos Regulations are intended to prevent the exposure of asbestos workers to amounts of dust which could impair their health, and in a recent survey carried out by the Employment Medical Advisory Service of 700 personal samples taken, 92% were below the stringent 2 fibres per ml. threshold standard. These results are encouraging, because they demonstrate that asbestos products, which are important basic materials for most of British industry, can be used safely and are being used safely. --Entire 'Letter to Editor'

773/75 Ultrastructural Morphometry of the Diffusion Surface in a Case of Pulmonary Asbestosis. M.B. Divertie. Mayo Clinic Proceedings 50: 193-197, April 1975. 21 refs.

A combination of electron microscopy and stereologic principles has allowed an evaluation of the contribution of structures in the blood-air barrier to gas exchange across it. In the present study this method was applied to biopsy material from the lungs of a patient with asbestosis. Within the limits of the sampling method, the results of the study are interpreted to indicate that measurable diffusion abnormalities were principally due to changes other than an increase in membrane thickness. --Author's abst.

774/75 In Vitro Studies on the Cytotoxic Action of Different Varieties of Asbestos Dust on Macrophages. J.L. Kaw and S.H. Zaidi. Acta Pharmacol. et Toxicol. 36: 225-235, March 1975. 23 refs.

The cytotoxic action of a variety of asbestos dusts viz. chrysotile, amosite, anthophyllite, tremolite and actinolite was tested in vitro using alveolar and peritoneal macrophage cell cultures. The release of acid phosphatase and the uptake of the dye erythrosin B were taken as parameters of cytotoxicity. Among the several varieties of asbestos tested for this purpose, chysotile proved to be most cytotoxic for both the alveolar and peritoneal macrophages, although the former were more sensitive. Amosite was only slightly toxic for alveolar macrophages. Anthophyllite, tremolite and actinolite behaved as control inert dusts. Carboxymethylcellulose exhibited an anticytotoxic effect when chrysotile was pretreated with the polymer or when the dust cell interaction was allowed to take place in its presence. --Author's abst.

01 133 2413

PHYSICAL HAZARDS

779/75 Energy--Conservation Strategies and Human Comfort. D G. Nevins. ASHRAE Journal 17: 33-37, April 1975. 22 refs.

Criteria for evaluation of energy conservation strategies on occupant welfare are based on several levels of reaction including comfort, acceptability, sleep, performance and health. Specific strategies based on the occupants' physiological and subjective responses include night setback, day set-up, limited installed HVAC capacity and limited operation time. Response outside the comfort zone is predicted from knowledge of frequency, duration and magnitude of the swings. It is suggested that proper use of these guidelines may increase energy savings. Population groups which may require special consideration are proposed. Conditions which can be accommodated by behavioral changes, changes in clothing and activity, are illustrated. --Author's abst.

780/75 Humidity, Human Factors and the Energy Shortage. F.H. Robles, Jr. ASHRAE Journal 17: 38-40, April 1975. 7 refs.

"...It's not the heat but the humidity...." is a familiar cliche. Despite its universality, we actually know very little about relative humidity. The layman is hard-pressed to define it. The medical profession harbors conflicting views on its health aspects, and only scattered reports are available on its effect upon performance. Still, we are witnessing an increased emphasis on the role of humidification and dehumidification of our working and living environments. This paper was presented at a Symposium Humidity Control and Energy Conservation, held during ASHRAE's 1975 Semiannual Meeting in Atlantic City, NJ. Other papers were: Residential Humidification vs. Energy Conservation, by J. A. Salvaag and Humidity Control and Energy Conservation, by Dr. G. Shavit. --Author's abst.

781/75 Heat Stress Limits for the Sedentary Worker. J.D. Ramsey, et al. Am. Ind. Hyg. Assn. J. 36: 259-265, April 1975. 24 refs.

Performance on four sedentary tasks was monitored during temperatures of 85°F, 95°F, and 105°F WBGT for work periods up to 2 hours. Results were compared with limits recommended for occupational safety and health regulations. It is suggested that this limit is not a single line, but rather a range of temperature-time combinations. Further, man's compensating nature during short exposures supports a higher temperature limit for brief work bouts. --Author's abst.

782/75 A Heat Stress Standard--How Do We Face Up To It? J.D. Ramsey. Professional Safety 20: 20-24, April 1975. 5 refs.

The author discusses the subject pertaining to heat stress standard and the safety professional's role in compliance with the standard. Guidelines for protecting the worker where heat stress may be excessive are also explored. --Author's abst.

783/75 On the Cerebral and Peripheral Circulation in Persons Dealing with Sources of Ultrahigh Radio-Frequencies, Based on the Results of Rheographic Investigations. V.A. Yadrintsev. Gig. Truda Prof. Zabolevaniya (2): 18-21, 1975. 12 refs. (Russian)

To render more objective the asthenic status and vegeto-vascular disorders in persons dealing with sources of UHF and low-intensity fields the author has carried out, alongside a general clinical examination, also an investigation into the cerebral and peripheral circulation by using rheovaso- and rheoencephalography. In evidence were hemodynamic disturbances of the peripheral circulation, lability of the pulse filling and increased resilient-viscous properties of the finger vessels. The hemodynamic indices of the vessels in the brain, forearms and shins remained unchanged. The detected deviations were more pronounced in individuals presenting vegeto-basal disorders. The rheographic characteristics of the hemodynamic shifts may be used for an objective evaluation of functional deviations in the health status of the operators. --Author's Summary in English

01 133 2415

RADIATION

789/75 Reducing Medical Exposure to Ionizing Radiation. K.Z. Morgan. Am. Ind. Hyg. Assn. J. 36: 358-368, May 1975. 20 refs.

The author discusses the dangers of indiscriminate and uninformed use of medical x-ray facilities. He points out a lack of effective standards, controls and practices to minimize exposures to x-ray and to prevent the excessive use of diagnostic x-ray examinations. A list of practices whereby an individual can minimize his possible exposures to x-rays is presented. Several approaches to the question of acceptable exposure levels are considered.
--Author's abst.

790/75 X-Ray Safety. Anon. Lancet 1: 905, April 19, 1975. 3 refs.

Evidence of the carcinogenic potential of low-level radiation exposure comes mainly from the follow-up of children exposed antenatally--indeed, as Mole has observed, antenatal radiography may well be a unique test situation. The findings of the Oxford Childhood Cancer Survey, which now extends to 8513 pairs of children and fourteen years, are of great interest academically, but the practical message is simple. During x-ray diagnosis reproductive cells should be screened and requests for abdominal x-rays on women of childbearing age should be made with knowledge of the patient's last menstrual period and the likelihood of her being pregnant. The ten-day rule--no non-urgent abdominal x-rays except in the ten days after the first day of the patient's period--is a useful guideline. The Consumers' Association has reported on the experience of 838 of its members who had recently had an x-ray examination. About two-thirds of them were not given gonadal protection. Of 71 women who had abdominal x-rays and were of childbearing age, half were not asked about menstruation or pregnancy, and two-thirds of these were x-rayed outside the ten-day limit (as were about half those for whom this information was known). In a comment on this report the British Medical Association says: "Ensuring that women patients are x-rayed only during the 10-day period can cause administrative havoc and even delay treatment for the patients." But many x-ray departments do cope with this situation, and staff shortages cannot really be blamed for neglect of such sensible precautions. The Consumers' Association's survey, though in no way systematic, does suggest that a lot more should be done to ensure uniformity of practice. --Entire Text

791/75 Microwave Ovens...A Status Report. H. Stocks. Indiana State Board of Health Bulletin ??: 5-6, April 1975.

The microwave oven is a revoluntionary departure from other methods of cooking. The microwaves interact with the water molecules and cause the water molecules to vibrate and become hot. Since there are water molecules in nearly everything cookable, the microwave oven cooks items evenly from surface to center. In 1970, the national media proclaimed that microwave ovens "leaked dangerous radiation." Still later, others claimed that cardiac pacemakers had stopped when patients wearing them were near a microwave oven that leaked a small amount. Articles appearing in the Russian press maintained that microwave radiation caused genetic damage to individuals. Microwaves are a region of the electromagnetic spectrum, which has very short waves (x-ray and gamma rays) at one end and very long waves (radio and TV broadcast bands and electrical waves) on the other end. More than 95 percent of the microwave ovens utilize 2,450 megahertz radiation (2,450 million cycles per second). This calculates out to a wave length of a little less than five inches. The only likely place for leakage is around the door. All ovens manufactured today are required to meet federal leakage standards of one milliwatt per square centimeter upon manufacture and five milliwatts per square centimeter for the life of the oven. The lens of the eye is the organ of greatest concern with respect to harm to people exposed to microwaves. --Cond. from text

ENVIRONMENTAL PROBLEMS

792/75 Device for Measuring the Size of Sulfuric Acid Mist Particles. J. Kapczynski and J. Gasiorek. Air Conservation 7(3): 25-33, 1973. 6 refs.

The construction and principle of operation are discussed of a device for measuring the size of sulfuric acid mist particles. The method of taking measurements and method of analytical determination are given. The results of testing the device under laboratory and commercial conditions are presented. --Author's abst.

01 133 2417

798/75 Simultaneous Total Oxidant and Chemiluminescent Ozone Measurements in Ambient Air
R.K. Severs. J. Air Pollution Control Assn. 25: 394-398, April 1975. 14 refs.

The purpose of this project was to investigate the relationship of ambient air quality measurements between two analytical methods, referred to as the total oxidant method and the chemiluminescent method. These two well documented analytical methods were run simultaneously, side by side, at a site on the Houston ship channel. They were calibrated daily. The hourly averages were analyzed by regression techniques and the confidence intervals were calculated for the regression lines. Confidence intervals for point estimates were also calculated. These methods were used with all data sets with values greater than 10 parts per billion and again with values greater than 30 parts per billion. A regression line was also calculated for a second set of data for the preceding year. These data were generated before a chromium trioxide scrubber was installed to eliminate possible chemical interferences with the KI method. The results show that in general the chemiluminescent ozone method tends to produce values as much as two times higher than the simultaneous total oxidant values. In one set of data collected an 80 ppb chemiluminescent ozone value predicted a value of 43.9 ppb total oxidant with a 95% confidence interval of 7.7 to 80 ppb. In the second set of data an 80 ppb chemiluminescent ozone value predicted a value of 78 ppb total oxidant with a 95% confidence interval of 0.4 to 156 ppb. Other statistical analyses confirmed that either measurement was a very poor predictor of the other. --Author's abst.

799/75 Materials on the Hygienic Evaluation of Spacing Industrial Buildings of Chemical Plants
V.A. Russkikh, et al. Gig. Truda Prof. Zabolevaniya (1): 8-11, 1975. 6 refs. (Russian)

The atmospheric environment around plants engaged in production of organophosphorous chemical poisons, plexiglass and methylmethacrylate, as well as utilization of ethylmercaptan underwent hygienic investigations for pollution. Causes and sources responsible for the release of noxious substances into the atmosphere and the features prominent in laying out and aeration of the territory were studied. Note is taken of the role played by bulk discharges into the atmosphere and of the extend and frequency of its pollution. Hygienic assessment of the spacing between industrial buildings is given and it is recommended that this factor be taken into account in solving issues that concern the building density of the territory in projecting new analogous plants.
--Author's Summary in English

800/75 Air Sampling and Monitoring--Basic Measurement Techniques and Systems for Point Sources.
P.N. Cheremisinoff, et al. Plant Engineering 29: 237-238, April 17, 1975.

Atmospheric surveillance and monitoring (the systematic collection and evaluation of aerometric data) yield information concerning emissions and concentrations of pollutants. Data provided by a reliable air surveillance system determine the degree of pollution control that may be needed. The fundamentals and techniques of air sample collection were discussed in an earlier article. Basic measurement approaches and systems are described in this article. The most exact and efficient method for measuring atmospheric emissions is source sampling and monitoring. However, it is also the most difficult and costly to use. Source testing is used to measure emissions from a specific point source--a stack, for example. Four methods are commonly used. These are briefly illustrated. --Cond. from text

PREVENTIVE ENGINEERING

801/75 Evaluating the Effects of Dirt on HID Luminaires. A.C. McNamara and A. Willingham.
Plant Engineering 29: 209-214, April 17, 1975.

Because the lighting system is the plant's most visible consumer of energy, plant engineers everywhere are under increasing pressure to cut back on use of lighting energy. In some plants, every nth luminaire is arbitrarily removed from service as an energy conservation measure. Yet, in many plants, dirt depreciation has already cut lighting levels by as much as 50 percent of design specifications. Three factors contribute most to a slow, but inevitable, deterioration of output from a lighting system: Lamp lumen output decreases with lamp burning hours; Luminaires and lamps get dirty; Interior walls, ceilings, floors, and other reflecting surfaces get dirty. Most studies on dirt depreciation in lighting were performed between 1953 and 1963. For the most part, then, combating lighting system dirt depreciation is not a matter of developing new techniques, but essentially involves dusting off old information and adapting it to today's lighting equipment. --Cond. from text

01 133 2419

how do we assure them safety and health at work while protecting them from further job discrimination? In the last decade, many of the barriers to equal employment for women have come tumbling down. The biggest breakthrough was passage of the 1964 Civil Rights Act, Title VII of which prohibits discrimination based on sex, as well as on race, color, religion, and national origin. The law clearly gives women the right to be considered for jobs on an equal basis with men. But it also gives them the dubious right to share a whole host of occupational hazards. As women move into the construction trades and into a wider range of industrial jobs, they too must contend with asbestos, silica, carbon monoxide, lead, and other common health hazards--as well as with new chemicals about which even less is known. Clearly, industry, labor, and government must recognize the growing importance of women in the nation's labor force. There is a crying need for more information about women as an occupational group and especially about the teratogenic and mutagenic effects of new substances being introduced into the workplace every year. But the sure cure, as many see it, is adequate protection for all workers. --Cond. from text

806/75 Would New Federal Workmen's Comp Standards Bring a Flood of Occupational Disease Claims? Anon. Occup. Hazards Executive Report: 27-30, Spring 1975.

Present indications are that a Federal workmen's compensation standards bill would require compensating authorities to make similar presumptions about other occupational diseases in cases where medical evidence indicated a connection between the diseases and certain job or industries. For example, insulation workers who worked with asbestos might be presumed to be suffering job-related disease if they developed asbestosis after 10 or 15 years on the job; foundry workers or glass makers who developed silicosis after years on the job might be presumed to have an occupational disease. These are, of course, only examples. At presstime no Federal standards bill had yet been submitted. There are, however, several likely candidates for inclusion in the occupational disease coverage provisions, in addition to the diseases named: berylliosis (for beryllium workers), byssinosis (workers in cotton textile plants), talcosis (anyone exposed to talc in the paint, rubber, paper, or other industries), angiosarcoma of the liver (workers exposed to vinyl chloride), and lung cancer (for coke oven workers in the steel industry). Retroactivity of benefits is another feature of the Black Lung Benefits Act that may find its way into Federal minimum standards legislation. The Black Lung Act extends benefits to miners who stopped working in the mines before December 30, 1969, the day the law was enacted. --Cond. from text

SAFETY AND ACCIDENT PREVENTION

807/75 Industrial Survey of Lost Time Injuries. D.F. Jones. Am. Ind. Hyg. Assn. J. 36: 299-302, April 1975. 3 refs.

An attempt to discover factors affecting lost time injuries under varying government programs involved visits to a sampling of industries in six provinces and six states. The resulting observations are used to illustrate some variables, many of which have previously been ignored, but which must be considered in any objective study of man at work. --Author's abst.

808/75 Britain's Safety Record Good. Anon. Occup. Health 27: 135, April 1975.

In industry international comparisons show that the UK has a good record on safety. In the five industries considered by the OHE, mining and quarrying, coal mining, manufacturing, construction, and railways, the UK had a below average death rate among countries providing comparable data. In two industries--mining and quarrying, and railways--Britain had the lowest death rate. Industrial accidents in Britain accounted for 823 deaths in 1973 compared with 1,170 in 1963. --Cond. from text

809/75 Dock Areas--Potential Hazards. Anon. National Safety News 111: 71, April 1975.

Based merely on volume of activity, receiving and shipping docks are potentially one of the more accident-prone areas in any plant. Shipping is the first and last link in the materials handling chain. First, in receiving raw materials, parts, and other goods necessary to produce a product or to provide a service. And lastly, in channeling finished goods out into the marketplace. Hence, the shipping area's role in a company's safety effort is doubly important. These high-traffic work areas are subject to slippery floors, debris, and fumes. One way all can be controlled is through the use of special dock shelters. --Cond. from text

01 133 2421

814/75 Analysis of a Non-Crosslinked, Water Soluble Anion Exchange Resin for the Possible Presence of Parts Per Billion Level of Bis(Chloromethyl) Ether. J.C. Tou, et al. Am. Ind. Hyg. Assn. J. 36: 374-378, May 1975. 9 refs.

No evidence was found for the presence of bis-chloromethyl ether (bis-CME) in the resin at the detection limit ~10 ppb with use of the hollow fiber probe-mass spectrometric technique. The kinetic data indicate that bis-CME hydrolyzes rapidly and, therefore, cannot exist in any extended period of time in the resin solution. --Author's abst.

815/75 Determination of Chloromethyl Methyl Ether and Bis-Chloromethyl Ether in Air at the Part per Billion Level by Gas-Liquid Chromatography. R.A. Solomon and G.J. Nelos. Analytical Chemistry 47: 955-957, May 1975. 11 refs.

The need to measure airborne concentrations of CMME and bis-CME was dictated by the reported toxicological properties of the compounds, particularly bis-CME which is a known carcinogen at the 100 parts per billion level in air. At this concentration, the human sensory system cannot detect these compounds. In the interest of personnel safety, analytical procedures are required which have sufficient specificity and are sensitive to less than 1 ppb. Gas chromatographic-mass spectrometric procedures have been shown to meet both the specificity and sensitivity requirements for the analysis. However, the technique requires sophisticated instrumentation that does not lend itself conveniently to on-site plant analysis. Therefore, gas chromatographic approaches have been studied in an attempt to develop a procedure that would be applicable to the on-site monitoring of environmental air. The use of derivatives in gas chromatography as a means of improving analyses is a common practice. A novel derivative procedure is described which stabilizes CMME and bis-CME while significantly increasing the detector sensitivity; thus enabling the detection of these compounds at the part per billion level. High sensitivity is required since 1 v ppb corresponds to 3.3 ng/l. and 4.7 ng/l. of air for CMME and bis-CME, respectively, as calculated from the Ideal Gas Law. --Author's abst.

816/75 Microdetermination of Cadmium and Lead in Whole Blood by Flameless Atomic Absorption Spectrometry Using Carbon-Tube and Carbon-Cup as Sample Cell and Comparison with Flame Studies. F.D. Posma, et al. Analytical Chemistry 47: 834-838, May 1975. 23 refs.

Determination of cadmium and lead in whole blood at a concentration level of 1 ppb and 100 ppb respectively, was performed by flameless and flame atomic absorption spectrophotometry. For the flame, a routine analysis procedure was used. In the case of flameless atomic absorption, carbon-tube and carbon-cup were used as sample cell for lead and cadmium, respectively. A method of direct analysis, requiring a total sample volume of 50 µl or less, was developed. Regression analysis has been applied to the calibration curves and confidence intervals were calculated, providing a constant index of precision. The analytical results obtained with both flameless and flame atomic absorption were compared and evaluated. --Author's abst.

817/75 The Use of Activated Carbon for Sampling Industrial Environs. C.L. Fraust. Am. Ind. Hyg. Assn. J. 36: 278-284, April 1975. 12 refs.

This paper describes techniques employed at a large semiconductor manufacturing plant to analyze for organic contaminants in production areas. Activated carbon was employed in the sampling procedure as the collection medium. Vapors of a number of common industrial solvents were absorbed and collected on the activated carbon surface at concentrations in the ppm and sub-ppm range. Analyses of the collected samples, stripped from the carbon surfaces with carbon disulfide, were performed by gas chromatography using a number of different column packings. Also discussed is work carried out using a gas chromatograph-mass spectrometer system to separate and then identify individual constituents. Other related applications of activated carbon sampling are also reported. --Author's abst.

818/75 Determination of α-Quartz in Atmospheric Dust: A Comparison Between Infrared Spectrometry and X-Ray Diffraction Techniques. A. Mangia. Analytical Chemistry 47: 927-929, May 1975. 8 refs.

With reference to the problem of the determination of α-quartz in atmospheric dust, the results of a comparison between IR spectrometry and x-ray diffraction are reported. This comparison has been made with the aim of verifying the possibility of the use of IR spectrometry instead of the more expensive x-ray diffraction technique. IR determinations of quartz have already been reported by several authors, even in the atmospheric dust, and the problems of the effects of the

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