

Who Knows What— About Chemical Safety

Knowledge originates from widely scattered sources, and the literature of chemical safety is no exception

by H. H. Fawcett, Research Laboratory, General Electric Co.

OCCASIONALLY a flash bulletin on radio and television announces that, in spite of all precautions, an emergency has occurred at an industrial plant or a scientific laboratory. The next edition of the local paper then publishes a short article about the incident, which usually concludes with the phrase "the cause is under investigation." In most cases, no follow-up article is published.

Professional personnel, who would find the technical aspects of the incident of value so they may apply the lessons learned to the protection of life and property, rarely have access to the reports of these investigations. They are usually issued months afterwards and have limited distribution. Where chemicals and allied substances are involved, however, several specialized organizations eventually learn of the incident. They study, digest, and disseminate the technical information to their members and to others who consult them, with a view to preventing similar incidents in the future. In very few cases do these reports reach the normal technical literature.

This article describes briefly several of these relatively little-known groups whose excellent work is often filed away without reaching the chemist or engineer who could most profit by it. By contacting these groups by phone, by telegram, or by letter, it is possible to obtain authoritative safety data and specific information on hundreds of chemicals and mixtures, either free or at a nominal cost, in a much shorter time than a literature search would

require. Wider use of the services of these groups would aid greatly in advancing safety, health, and fire protection practices where chemicals and allied substances are made, handled, and used.

Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N.W., Washington 9, D. C. (phone HUdson 3-6126) is the trade association representing many of the major producers and users of chemicals. Long aware of the importance of proper instructions for safe handling and proper use of chemicals, various M.C.A. committees have developed a large volume of authoritative information on specific substances, as well as on general topics, such as air pollution, waste disposal, tank cars, and laboratory safety. For example, 77 Chemical Safety Data Sheets have been issued, each on a specific large-volume chemical. A new series of Safety Guides is now being issued, the first of which is entitled "Health Factors in Safe Handling of Chemicals." A book "Safety in the Chemical Laboratory," 234 pages, was published by D. Van Nostrand Co., Inc., 250 Fourth Ave., New York 3, N. Y. in 1954 after preparation by the General Safety Committee of M.C.A.

The M.C.A. offers a free information service dealing with any aspect of chemical safety. It also furnishes a free list of the various publications which are sold at nominal charge. F. Gordon Stephenson is staff secretary of the M.C.A. general safety committee.

National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill. (phone WHitehall 4-4800) is a nonprofit organization chartered by the Congress of the United States to work for the prevention of injuries and deaths on the highway, in the home, and on the job. The monthly *National Safety News* frequently contains articles on chemical safety (such as Chemical Safety References, Data Sheet 486, Vol. 81, No. 2, pp. 36-9, February 1960).

The Chemical Section of the Council, which is one of the largest of the many divisions of the Industrial Division, attempts to coordinate and develop educational material for use by persons using chemicals and allied substances. *The Chemical Section Monthly Safety Newsletter* is devoted exclusively to chemical safety, and is edited by Earl Wallace, Safety and Fire Protection Department, Kodak Park Works, Eastman Kodak Co., Rochester, N. Y.

A directory of N.S.C. services is available on request. Jerry T. Siedlecki is staff representative for the Chemical Section as well as Industrial Hygienist for the Council.

Air Traffic Conference of America is a division of the Air Transport Association of America, 1000 Connecticut Ave., N.W., Washington 6, D. C. (phone EXecutive 3-6161). This group obtains information on chemicals and other items which may be offered for transport by air or carried on commercial airlines, and issues bulletins outlining the proper handling or

prohibiting their transport. These bulletins are sent to subscribers of tariff 6-C. In view of the current interest in the role of cargo or baggage in air safety, restrictions and rules of this group, which are observed by commercial airlines, are of much significance. B. H. Smith is cargo traffic agent.

American Conference of Governmental Industrial Hygienists, Charles D. Yaffe, Secretary-Treasurer, 1014 Broadway, Cincinnati 2, Ohio (phone DUNbar 1-2200, ext. 684), is a group concerned with coordination of standards for safe use of chemicals insofar as governmental control is possible. Most widely known annual activity of this group is preparation of a revised threshold limit value (or maximum allowable concentration) for several hundred different gases, vapors, dusts, fumes, and mists. These values are based on experience or information which attempts to estimate the concentration level at which it is believed injury will not occur during normal work exposures. Further information about the listing and other work of this group should be referred to Mr. Yaffe.

Council on Occupational Health, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill. (phone WHItell 4-1500) serves primarily member physicians. It does not act as an information center for inquiries by laymen. Howard N. Schulz is staff assistant.

One of the A.M.A. specialty journals is the A.M.A. Archives of Industrial Health. This monthly publication contains numerous articles on health, safety, and toxicology of chemicals, as well as on other factors in industrial hygiene control. Subscriptions are available from the American Medical Association.

American Petroleum Institute, 1271 Ave. of the Americas, New York 20, N. Y. (phone JUdson 6-4200), is concerned with technical aspects of the petroleum and related industries. Various committees develop information and reports for sale at a nominal price on chemicals and other substances derived from or related to petroleum. Many of the practices and proce-

dures apply in large measure to chemical operations, such as storage tanks, piping, cleaning of tanks and tank cars, static prevention, fire protection, industrial hygiene practices, air pollution, and waste disposal. A 59-page booklet entitled "List of Publications and Materials, American Petroleum Institute" is available from publications section of the A.P.I. F. G. Wilson is accident prevention assistant to the director of technical services.

American Standards Association, Inc., 10 E. 40th St., New York 16, N. Y. (phone MUrray Hill 3-3058) is the U. S. member of the International Organization for Standardization. The source of information on toxic dusts and gases, classed as Z37, is from a technical committee charged with responsibility for developing standards. These standards are sold at a nominal cost, and include several on exposures to chemicals. A list of available American Safety Standards will be furnished on request. Henry G. Lamb is safety engineer for the A.S.A.

Association of Casualty and Surety Co., Accident Prevention Department, 60 John St., New York 38, N. Y. (phone HANover 2-9420) obtains information on accident prevention from varied sources and makes it available to the 130 casualty insurance companies which constitute its membership. Chemical information is published in a Chemical Hazards Information Series, which has been indexed covering 1949-59, in March 1960. Another group of reports which includes some chemicals is the Special Hazard Bulletin series, an index for which covering 1948-59 has also been issued under March 1960 date.

Copies of reports may be obtained from a member company or agent. Robert Hagopian is the assistant manager.

Compressed Gas Association, Inc., 11 West 42nd St., New York 36, N. Y. (phone LACKawanna 4-4796) is a nonprofit membership organization which coordinates activity in the safe handling and use of

various compressed and liquefied gases. These include the large tonnage gases, such as oxygen, nitrogen, carbon dioxide, Freons, hydrogen, acetylene, ammonia, and medical gases, as well as standards on valves, cylinder testing, and related subjects. A list of pamphlets which are sold at a nominal price is available on request.

Frank Fetherston is secretary-treasurer.

Environmental Research Laboratory, Department of Public Health and Preventive Medicine, School of Medicine, Room E 314 Health Sciences Building, University of Washington, Seattle 5, Wash. (Lakeview 4-6000, ext. 3518) is a service primarily for Washington State, but its monthly *Occupational Health Newsletter* is nationally distributed and is highly respected throughout the United States. Most of the material, including the Newsletter, is free on request, while some bulletins are sold at nominal fees. Peter A. Breyse is acting director.

Factory Mutuals Engineering Division, 1151 Boston-Providence Turnpike, Norwood, Mass. (phone NORwood 7-4300) is the inspection and engineering service for several mutual fire insurance companies which write industrial fire insurance. Most of the data on chemicals and other industrial fire sources is available in the "Handbook of Industrial Loss Prevention," published by McGraw-Hill Book Co., New York, 1959. A monthly newsletter, *Factory Mutual Record*, is available by subscription, and frequently contains articles on the fire safety aspects of chemicals and other industrial hazards. H. E. Magnuson is director of publications.

Industrial Hygiene Foundation of America, Inc., 4400 Fifth Ave., Pittsburgh 13, Pa. (phone MAYflower 1-1100), is an association of industries and groups interested in industrial health. Sources of information are current literature and reports of the research studies conducted in the foundation's laboratories. These are primarily toxicological, biochemical, and histopathological investigations. The *Industrial Hygiene Digest* is a monthly abstract service of the current litera-

ture, which is published primarily for members. H. H. Schrenk is managing director.

International Acetylene Association, 270 Park Ave., New York, N. Y. (phone LL 1-2345) is a technical and safety organization whose primary interest has been with acetylene, oxygen, and their use in oxyacetylene processes. Recently attention has also been given to the production and transmission of acetylene to a reaction vessel for use in chemical synthesis. In the near future this data will be published as "Acetylene Transmission for Chemical Synthesis (Recommended Minimum Safety Practices for Piping Systems)." A listing of the other publications for sale, which relate to the safe handling of acetylene, oxygen, and to welding and cutting equipment, is available. L. G. Mathews is secretary of the I.A.A.

National Fire Protection Association, International, 60 Battery-march St., Boston 10, Mass. (phone HUbbard 2-1630) is a nonprofit technical and educational organization with a total membership of 17,000. Its sole objective is the reduction of loss of life and property by fires and explosions. In addition to the regular publications issued (including the *Quarterly*, which is the technical journal of fire protection), the N.F.P.A. has several active technical committees which develop standards of good practice and other recommendations to safeguard life and property. The N.F.P.A. committee on chemicals and explosives, for example, consists of 44 members, and has underway several projects involving the safe handling and use of chemicals and related substances. Among these projects are a revision of the table of common hazardous chemicals, a code on explosives and blasting agents, a compilation of hazardous chemical reactions, and a standard for storage and handling ammonium nitrate. C. I. Babcock, Jr., is staff chemist and also manager of the fire records department.

National Clearinghouse for Poison Control Centers, Accident Prevention Program, Division of Special Health Services, Bureau of State Services, Public Health Service, U. S.

Department of Health, Education and Welfare, Washington 25, D. C. (phone EXecutive 3-6300, ext. 7512 or 7513). This group obtains information on the various chemical constituents of household products and their toxicity from many sources. It welcomes submitted data on composition and emergency treatment of any substance that may be accidentally eaten, breathed, or otherwise find its way into a human body. The information is disseminated to over 200 member poison control centers in the U. S. and Canada on 5 x 8 index file cards. These cards are available to operating poison control centers, usually designated by state health departments. A monthly newsletter is available to anyone working in the area of poisoning, other accidents, or clinical medicine. Dr. Howard M. Cann is director of the national clearinghouse.

The various poison control centers in large cities maintain their files open 24 hours-a-day for emergency consultation by physicians who are called to treat a poisoning case. In addition, an active program of public education on prevention of poisonings from chemicals is underway.

Underwriters' Laboratories, Inc., 207 East Ohio St., Chicago 11, Ill. (phone MIchigan 2-6969) is a nonprofit organization to establish, maintain, and operate laboratories for the examination and testing of devices, systems, and materials. Founded in 1894, it is sponsored by the National Board of Fire Underwriters, and is operated for service, not for profit. Examination and tests of submitted products are conducted by a staff of technically trained and experienced engineers in the following departments: electrical, fire protection, gases and oils, chemicals, casualty and automotive, burglary protection, and inspection control. Chemicals of a proprietary type (trade-name labeled) are investigated for fire hazard and the results are published in the Gas and Oil Equipment List, the most recent of which was issued in November 1959. Lists are published annually, along with bimonthly Supplements, and are available free of charge to per-

sons requesting them. R. W. Malcomson is project engineer of the fire protection department of U.L.

U. S. Army Chemical Corps, Safety Branch, Administration Division, Office of the Chief Chemical Officer, Gravelly Point, Washington 25, D. C. (phone OXford 5-5924) obtains information from scientific papers, data compiled at the Army laboratories and production facilities, and published data from sources outside the Army. This information is published as U. S. Army Chemical Corps Safety Directives, which are free on request, limited by the classification of the items requested. Three recent directives deal with shipping criteria for etiologic agents and material, shipping criteria for chemical agents, chemical ammunition, poisons and other dangerous articles, and safety criteria for processing, filling, handling, and decontamination of nerve gases. G. Landon Feazell is director for safety.

U. S. Bureau of Mines, U. S. Department of the Interior, Washington 25, D. C. (phone REpublic 7-1820) is the central administrative group for all activities of the bureau. The Explosives Research Laboratory is part of the Central Experiment Station of the bureau and is located at 4800 Forbes Ave., Pittsburgh 13, Pa. (phone MAYflower 1-4500). Information and reports on chemicals result from the laboratory investigations, and publications appear as Information Circulars, as Reports of Investigations, or in the outside literature. Robert W. Van Dolah is chief, Explosives Research Laboratory.

The Health and Safety Activity of the Bureau of Mines also has laboratory facilities at the Central Experiment Station in Pittsburgh. This group tests and publishes approval lists of respiratory protective equipment ranging from dust respirators to self-contained breathing apparatus. Selden J. Pearce is chief, Branch of Health Research.

All publications of the Bureau of Mines are listed in "New Publications, Bureau of Mines," which is issued monthly. Some publications are free, while others are sold at a nominal fee.