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13—CHEMICAL INDUSTRY AND MISCELLANEOUS INDUSTRIAL PRODUCTS

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Chemical synthesis and world trade. R. P. Linstead. *Discovery* 8, 366–9(1947).—Antiknock petrol is made by introducing branched-chain hydrocarbons rather than metallic compds. Butadiene (synthetic rubber) is synthesized by condensing C_2H_2 with formaldehyde in presence of copper acetylide. This yields 2-butyne-1,4-diol, which is hydrogenated to 1,4-butanediol, which is in turn dehydrated to butadiene. There still remains a large field, notably foodstuffs, in which large-scale synthesis has not yet been found practicable. N. Corcoran

Partners in research. Anon. *Chem. Eng. News* 26, 994–6(1948).—Excerpts from the 11th annual report of the Armour Research Foundation. Various research projects are outlined. E. J. C.

The industrial hygiene services of the Illinois State Department of Public Health. Kenneth M. Morse (Illinois Dept. of Pub. Health, Chicago). *What's New in Ind. Hyg.* 3, No. 1, 6–7(1946).—Descriptive. Leopold Scheflan

Industrial ventilation. Kenneth M. Morse (Illinois Dept. of Pub. Health, Chicago). *What's New in Ind. Hyg.* 3, No. 2, 6–11, No. 4, 7–15(1948).—Descriptive. Leopold Scheflan

Electrostatic precipitation of industrial dust, fumes, and vapors for hygienic purposes. D. Parris. *Rass. med. ind.* 16, 16(1947); *Brit. J. Ind. Med.* 5, 47(1948).—Electrostatic pptn. is of great value for sepg. arsenical vapors in H_2SO_4 plants and for removing finely divided valuable or dangerous products from coke ovens. Its efficiency is 90–100%. Marion Horn Peskin

Determination of chlorinated hydrocarbons in industrial atmospheres. Alfred N. Setterlind (Illinois Dept. of Pub. Health, Chicago). *What's New in Ind. Hyg.* 4, No. 1, 9–17(1947).—The construction is described in detail of a light-wt. app. suitable for field work which is built around the principle that when vaporized chlorinated hydrocarbons are passed together with air over incandescently heated Pt and then through a soln. of a reducing agent, HCl is formed in amt. equiv. to the Cl present in the hydrocarbon vapors. If the absorption medium is a liquid of definite vol. and alky., the amt. of HCl obtained during sampling may be detd. by direct titration to a neutral point with HCl of convenient strength. The absorbing reagent actually used was an accurately measured vol. of a soln. of Na metaarsenite. Detailed information is given on the microfurnace, winding the quartz rod, the absorption assembly, the Aloxite nozzle, calibration of the capacity of the pump, sampling technique, the chem. detn., and the titration. Leopold Scheflan

Asbestosis. P. Luton and J. Champfix. *Arch. maladies profess. méd. travail et sécurité sociale* 7, 365(1946); *Brit. J. Ind. Med.* 5, 44(1948).—In a factory processing waste asbestos, the atm. dust concn. was 6–74 mg./cu.m., and the dust contained 2–14.6% free silica; most of the particles were large. When raw Canadian asbestos was substituted for the waste asbestos, the atm. dust concn. fell to 6–11 mg./cu.m., there was no free silica, and 90% of the particles were not larger than 1μ. Asbestosis bodies appeared in the sputum within 3 months after exposure and persisted for as long as 15 years after exposure had ceased. Although these bodies were found in all exposed to the dust, their presence in numerous amts. and massed arrangement in the sputum provided partial diagnostic evidence of pulmonary asbestosis. M. H. Peskin

Copper fever. L. Friberg and E. Thrysin. *Nord. Hyg. Tid.* 28, 5(1947); *Brit. J. Ind. Med.* 5, 31(1948).—Fever and various other signs of poisoning occurred for a few days in workmen after they cleaned a dusty oven contg. 1–15μ particles of Cu and its oxides, in a factory producing BuOH from crotonaldehyde. The cleaning process was preceded by the blowing of steam through the oven to rid it of certain gases; the cleaning itself took usually 2–8 hrs., occasionally up to 24 hrs. No permanent sequels to the poisoning were noted in 50 workers examd. Masks were found satisfactory for preventing further accidents. Marion Horn Peskin

Monsanto products in Canada. L. K. La Flamme, E. O. Gould, and A. Monsaroff. *Can. Chem. Process Inds.* 32, 253–4, 257(1948).—A progress report. W. H. B.

Sulfuric acid index of production follows industrial activity. C. C. Concannon and F. M. Hoffheins (Office of Domestic Commerce, Washington, D.C.). *Chem. Eng. News* 26, 1072–3(1948). E. J. C.

Milk as a chemical raw material. Herbert Kuntscher. *Mitt. chem. Forschungsinst. Ind. Österr.* 1, 99–102(1947).—A review with 25 references. E. H.

Studies on aerosols. I. Reduction of dust deposition in lungs of rabbits by aqueous aerosols. L. Dautrebande, B. Highman, and W. C. Alford (Natl. Inst. of Health, Bethesda, Md.). *J. Ind. Hyg. Toxicol.* 30, 103–7(1948).—Inhaled fine dust particles may cause injurious effects which are lessened by the use of aq. Aerosol O. T. This is shown by the less severe pathol. pulmonary changes and particularly by the striking absence of severe respiratory embarrassment in rabbits exposed to dust when this aerosol is used. The amt. of dust deposited, particularly in the alveolar ducts and alveoli, is greatly reduced by this aerosol. These data were obtained with a willemite dust suspension of av. diam. 0.90μ. The particles are readily identified by their fluorescence under ultraviolet radiation. A considerable part of the effect of the aerosol is due to the increase in the diam. of the individual dust particles when they are coated with water and to the aggregation of such wetted particles. **II. Coating and agglutinating of dust particles by aqueous aerosols.** L. Dautrebande, W. C. Alford, and B. Highman. *Ibid.* 108–13.—Clouds of willemite and quartz particles were produced, with av. particle diams. <1μ. When the dust clouds were mixed with aerosols generated from distd. water and from eosin solns., the mean particle diam. increased 50–100%, owing to a liquid coating. There were aggregates of much larger diam. These results suggest that aerosols may be found useful for supplementing (but not to replace) current methods used for the control of dust hazards in occupations where large amts. of fine dust are dispersed, such as drilling, smelting, and cement making. G. M. Petty

Filtration of aerosols by granular charcoal. Sidney H. Katz and Duncan Macrae (Army Chem. Center, Edgewood, Md.). *J. Phys. & Colloid Chem.* 52, 695–7(1948).—The absorption of vapors by gas-mask charcoal is known (Klotz, *C.A.* 41, 234*e*) to be characterized by a const. that is proportional to the 0.41 power of the product of the granule diam., mass rate of flow, and fluidity of the vapor. Data for the absorption of a dioctyl phthalate aerosol with particle diam. of 0.3μ give a similar const. that is proportional to the 0.41 power of the same product. The agreement between exponents indicates that granular charcoal filters aerosol particles and vapor mols. by much the same mechanism, even though the diffusion consts. involved differ by a factor of 100,000. H. K. L.

Utilization of short-chain paraffins and olefins in chem. industry (Nelson) 22. *Patents:* Prepn. of fluoroalkanes [ingredients of refrigerants] (Hoehn) 10. Halogenation of fluorinated compds. [as solvents] (Barrick) 24.

Begeman, M. L.: Manufacturing Processes. 2nd ed. New York: John Wiley & Sons. 1947. 626 pp. Reviewed in *Chimie & industrie* 58, 144(1947).

Brandenberger, E.: Grundlagen der Werkstoffchemie. Zurich: Rascher-Verlag. 1947. Fr. 21.

Aerosols. Irving Langmuir and Vincent J. Schaefer (to General Electric Co.). U.S. 2,437,963, Mar. 16, 1948. An aerosol is produced by vaporizing a material which does not tend to evap. at ordinary atm. temps. in