801 Plating Room Tank Ventilation Equipment. F. W. Arndt. Reprinted from 43rd Annual Proceedings, American Electroplaters' Society. 9 pp. (1956).

A successful exhaust system for plating tanks is based on the proper rate of fume removal and the most economical mechanical system for handling the fumes. The economics of an exhaust system dictate that the proper selection of the hood is important. The most serious error is likely to be improper selection of materials of the components of the system. Initial cost of the equipment must be balanced with maintenance or replacement costs and operating costs before a good system can be determined. Suggestions are given for the design of hoods, ducts, fans, scrubbers, and stacks with discussion of various factors that affect their efficiency and cost. Recommended exhaust rates are given for open top process tanks for a number of degreasing, plating, pickling, cleaning, and other materials.

802 Fume Combustion for Metal Lithographing Ovens. R. J. Ruff. Products Finishing 21, 24-28, 31 (Oct. 1956).

Vaporized solvent released during baking of lithograph plates causes air pollution and heat loss problems. The fumes can be fully oxidized by a catalytic process. A number of totally different types of active surfaces can be used in the process. Metals of the platinum family are normally used. The equipment is described, and the performance characteristics of standard fume combustion systems recently installed on coating ovens are given. The effluent gases were reported free of color, objectionable odors, or eye irritants. Methods of heat recovery are discussed.

COMMUNITY AIR HYGIENE

803 Nitrogen Oxides, Combustion, and Engine Deposits. R. S. Spindt, C. L. Wolfe, and D. R. Stevens. J. Air Poll. Control Assn. 6, 127-133 (Nov. 1956).

The authors show that oxides of nitrogen formed during combustion play an important part in the formation of engine deposits. The discussion is primarily concerned with that subject. The results, however, are also of interest in the air pollution field. Data and charts show the effect of spark setting, motor load, and engine speed on the nitric oxide content of exhaust gases. The authors conclude that lean fuel mixtures produce appreciable nitric oxide (up to 0.4%) in the exhaust gases, depending upon the motor load. There appears to be little hope for a reduction in nitrogen oxides from changes in engine conditions, since optimum economical operation seems to be in the range of high nitrogen fixation.

804 Control of Fluorine and Hydrofluoric Acid Discharges. J. Stris. APCA News 5 3 (Apr. 1957).

In a plant making hydrofluoric acid from fluorspar, the problem of the escape of hydrofluoric acid and hydrofluosilicic acid from the purification process was encountered. It was solved by the construction of spray tower chambers which allowed cocurrent and countercurrent flow of the effluent gas to the water spray. The bottom of each chamber is open but submerged in water. The water not only acts as a seal but also allows the waste to be discharged in a liquid state and redissolves the silica gel formed in the tower. All parts of the apparatus in contact with the acid are now constructed of polyethylene. The process has proved entirely successful and no fluorides are detected in the atmosphere. Another possible source of discharge to the atmosphere was in the handling of the fluorspar. Dust collectors separated the coarse from the fine materials and unloaded considerable quantities of fines periodically. Now a totally enclosed system without dust collectors is used.

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