412 Sulfur Removal: For Air Pollution Control. T. T. Frankenburg. Mech. Eng. 87, 36-41 (Aug. 1965).

Sulfur removal from fuel and flue gases is discussed, with emphasis on processes that recc a usable sulfur byproduct. No process appears profitable as yet. Removal of sulfur from coal by use of centrifugal and magnetic forces are discussed. Wet and dry separations fror flue gas are considered. Among the separation methods mentioned are gas scrubbing, adsorption, and catalytic gas-phase oxidation. The author discusses the possibility of removing sulfur from both coal and flue gas, so that final effluents meet air pollution standards and overall processes are economical. -- Public Health Eng. Ab

413 What Does It Cost to Desulfurize Fuel Oil? L. S. Galstaun, et al. Chem. Eng. Progr. 61, 49-58 (Sept. 1965).

Although sulfur dioxide has long been considered a major air pollutant, only recently has it been recognized as a health hazard in concentrations found in urban atmospheres. Recent statistical studies have shown a strong correlation between atmospheric sulfur pollution and respiratory illness. Investigators in both the United States and England have shown that the buildup of pollution during periods of air stagnation can cause illness and death, especially to the aged and those suffering from chronic impairments of the lungs or heart. The toxicit of sulfur dioxide appears to be increased by the presence of many aerosols found in urban air, and there is evidence that the rate of conversion of sulfur dioxide to the more toxic sulfur trioxide can be high in stack plumes and when dispersed in the atmosphere. The purpos of this study was to establish realistic costs that might result if restrictions were placed on the sulfur content of residual fuel oil manufactured in the United States. The results of an economic study of the cost of producing low sulfur fuel oil are discussed. A linear programming analysis was used to evaluate possible refinery schemes. Manufacture of low sulfur residual fuel oil requires an incentive pricing of 42 cents to 65 cents per barrel above fuel oil produced without sulfur restriction. There are 14 references.
-- Public Health Eng. Abstr.

414 Size Distribution of Sulfur-Containing Compounds in Urban Aerosols. F. L. Ludwig and E. Robinson. J. Colloid Sci. 20, 571-584 (Aug. 1965).

Sulfur-compound aerosols in urban atmospheres are considered by some to be significant factors in public health. Particle size may be an important parameter in the effects of these aerosols, i.e., respiratory effects on guinea pigs of zinc sulfate and zinc ammonium sulfate particles have been shown to be size-dependent. A program was instituted to measure size distributions of particulate sulfur compounds using the Goetz Aerosol Spectrometer, which had been successfully employed in size studies of lead aerosols. Much of the program was devoted to adapting aerosol spectrometer techniques to the specific problem of sulfur-compound size determinations. Subsequently, size distributions were obtained at two Los Angeles and two northern California locations. An aerosol spectrometer was used to determine the size distribution of sulfur-containing particulate materials in urban areas of northern and southern California. Based on a limited number of summer daytime samples, a typical Menlo Park size distribution had a mass median diameter of about 0.3 micron with upper and lower quartiles at about 0.9 and 0.1 microns respectively. A typical Pasadena size distribution would be about 0.1 micron larger. The diameters given are for equivalent unit-density spheres of the same settling velocities as the sampled particles. There are 12 references. -- Public Health Eng. Abstr

415 Contamination of a Laboratory Building by Air Filters. M. Blumer. J. Am. Assn. Contamination Control 4, 13, 15 (Sept. 1965).

Air filters, impregnated with high boiling phthalates, were found to be the source of air contamination in a marine research laboratory. After moving to a newly constructed building, gas chromatographic analyses of hydrocarbons in sea water samples became too complex and airborne contamination was suspected. When the contaminant was identified and the source of the contamination was located, the laboratory's fresh air filters were replaced with fiber-glass filters, backed with activated carbon filters. A waiting period of seven months was required before the phthalate residues were reduced to a less volatile level. Desorption from walls and ducts or introduction from other parts of the building could account for the remaining contamination. -- Public Health Eng. Abstr