

not the nonaromatics which formed the bulk of the neutral portion. Mass spectrometry showed that the most volatile fraction of the light petroleum extract contained a series of 10 compounds with molecular weights from which a base, $C_{13}H_{15}N$, has been isolated. -- APCA Absts.

- 1207 Smog—Its Origin. G. T. Smith.
Rocky Mt. Med. J. 64, 55-58 (March, 1967).

Volatile materials produced by vegetation may be responsible for smog as well as man-made products. It has been calculated that one billion tons of volatile organic substances (terpenes) are released per year by vegetation over the surface of the earth. Throughout the world the terpenes are present in the air at concentrations of 2-20 parts per billion. It has been postulated that the dissipation of terpenes passes through the same cycle as that of gasoline vapors in producing a pollution haze. These blue hazes are seen especially in the mountain and desert regions of the U.S. There is some evidence to suggest that these terpenes may be toxic. In Reno, Nevada there was a close correlation between the occurrence of asthma attacks and the concentration of terpenes in the air as determined by monitoring with a gas chromatograph. White rats exposed to 40-60 ppm of alpha terpene became lethargic in 10 minutes. Symptoms progressed through agitation, staggering, and finally convulsions in 25 minutes with death in 30 minutes. At autopsy, the rats had focal loss of tracheal mucosa, pulmonary edema, and cerebral edema. The adult guinea pigs weighing more than the rats died on the first exposure in 35-45 minutes. The pilot study showed that alpha pinene is toxic in high concentrations to both humans and laboratory animals. The investigation is being continued to study the long term effects of lower concentrations found in nature to determine if pulmonary lesions are produced by prolonged exposure. -- APCA Absts.

- 1208 New Flue-Gas Scrubbing System Reduces Air Pollution. I. S. Shah.
Chem. Eng. 74, 84-86 (March 27, 1967).

Flue gases from the recovery boiler that enter the 2-stage system consisting of evaporator, scrubber, separator, and cooling tower are 99% + cleaner and 500° to 600° F. cooler when vented to the stack. -- Public Health Eng. Absts.

- 1209 The Use of Ammonia to Eliminate Acid Smuts From Oil-Fired Plant. P. Etoc.
J. Inst. Fuel 40, 249-251 (June, 1967).

The process of injecting ammonia into the flue gases from oil-fired boilers was developed initially to reduce the corrosion of low-temperature heat exchange surfaces by condensed sulfuric acid. It has been shown that sulfuric acid condensation is also a necessary precursor to the formation of acid smuts on these and other cold surfaces, such as chimney and duct walls. This paper describes the successful elimination of these smuts by injecting gaseous ammonia or ammonia solution into the flue ways of industrial and central heating boilers. -- Author's abst., APCA Absts.

- 1210 Air Pollution Control by Direct Flame Incineration in the Paint Industry. D. M. Benforado.
J. Paint Technol. 39, 265-266 (May, 1967).

Experience shows that direct-flame incineration is an effective and reliable method for controlling air pollution due to objectionable fumes and odors. The incorporation of heat recovery equipment reduces operation costs to acceptable levels and makes direct-flame incineration a practical control process. -- APCA Absts.

- 1211 Ozone Variability in Mountainous Terrain. J. J. B. Worth, L. A. Ripperton, and C. R. Berry.
J. Geophys. Res. 72, 2063-2068 (April 15, 1967).

Data from field studies have shown that the ozone concentrations in a complex environment do not exhibit the same mean values at mountain top and valley sites. The occurrences of the maximum value for the two types of sites are approximately 180° out of phase, the mountain-top maximum occurring at night. Their relative concentrations vary by a factor of 3 or 4. Ground-level NO_2 concentrations were comparable to reported values. The NO/NO_2 ratio was approximately 0.65. There are 10 references.

-- Authors' abst., Public Health Eng. Absts.