

## Relationship between Gas Chromatographic Data for the Gas Components in Head Space of ABS-copolymer and its Odor Perception

<sup>1</sup>Yasuyuki Hoshika\* and Yoshimasa Nihei

<sup>1</sup>Department of Hygiene, Shinshu University School of Medicine

3-1-1, Matsumoto-shi, Nagano, 390-8621, Japan

<sup>2</sup>Institute of Industrial Science, the University of Tokyo

7-22-1, Roppongi, Minato-ku, Tokyo, 106, Japan

FAX: +81-90-8773-3899

The purpose of present paper is to analyze the relationship between odorant determination data of gas component in head space of ABS-copolymer raw materials (gray color, white plastic and black gummy material powder: and red pellet) (sample 21 g/in 100ml flask) and its odor perception. As chemical components (odorants) in the head space gas of the ABS-copolymer raw materials, acrylonitrile, butadiene, ethylbenzene, alpha-methyl styrene and styrene were analyzed by gas chromatography. The quantitative data for two main odorants are as follows: acrylonitrile, 100 ppm (odor recognition threshold value 21.4 ppm; the ratio of detected concentration vs o. r. t. v., 4.67) and styrene, 60 ppm (o. r. t. v., 0.2 ppm; the ratio, 300). When the grey sample material was heated at 150 °C, the peak area of each component showed the increase of one hundred times as compared with the values at a room temperature, respectively. Vigorous odor perception was styrene-like but not acrylonitrile-like. Pretreatment for IR spectrum of the ABS-copolymer was carried out fine crush, dissoluble to acetone, column chromatographic separation (1.5 cm × 10 cm activated alumina), elution, evaporation and followed by film process. The identification of ABS-copolymer was carried out by IR spectra film phase, and specific data are as follows: 4.4 u (acrylonitrile), 10.36 u (butadiene) and 6.2 9.3 u (styrene)