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Development of a compact arc discharge light source for measurement of radicals HARUHIKO ITO, Nagoya Municipal Industrial Research Institute, SEIGO TAKASHIMA, Nagoya Univ., HIROYUKI KANO, NU Eco-Engineering, MASARU HORI, Nagoya Univ. — To measure the radicals in plasma processes by using ultraviolet absorption spectroscopy, the light source that has a continuous emission spectrum in ultraviolet range is necessary. However, the size of the light source that has been used so far is generally large. So, the installation of the measurement system to the process chamber was very difficult. Therefore, the miniaturization of the light source was required. In this study, the compact light source using an arc discharge has been developed. The size of the electrode of light source was 30mm or less in the diameter. The small slit on the cathode electrode could act as enhancement to keep arc discharge. However, when the arc discharge time became long, the fluctuation of arc discharge point at time was caused because the insulator was consumed, and stability was low. To improve the stabilization of the arc discharge, the insulator was removed. The decrease in the stability of the arc discharge caused by the consumption of the insulator could be evaded and so the stability of the light source was greatly improved.

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