Characteristic Study of Gliding Arc Discharge

Antonius Indarto, 최재욱, 이화웅, 송형근*
한국과학기술연구원
(hksong@kist.re.kr*)

The gliding arc discharge ('Glidarc') is the renewed interest subject in application to the various kinds of chemical reactions. It exhibits itself as a plasma string sliding between two electrodes in a gas flow at atmospheric pressure.

One of challenging works in gliding arc discharge is finding the region in which the chemical reactions occur optimally. In order to investigate the characteristics of gliding arc, 40 cm long glass tube was used with various kinds of electrodes, power supplies, electrode arrangements, input gas species, and gas flow rates. The gliding arc formation is visible and can be observed from the first of its ignition to that of its last expansion. The property of the discharge was described by measuring voltage, current, and other parameters, such as temperatures, velocity, and breakdown voltage. Thus, it was possible to determine how gliding arc plasma production is affected by experimental variables.

Secondly, an application of gliding arc discharge on chemical reaction was examined. The gliding arc discharge was applied to decompose toxic gas especially chlorinated methane compounds.