

Chemical Reactions in d.c. Arc Plasmas and Radial Temperature Distribution

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Heat and electric conductivity in d.c. arc plasma depend on chemical reactions in plasma. The curve of heat conductivity has a significant maximum in the temperature region where a reaction occurs. The influence of heat and electric conductivity on radial temperature distribution can be interpreted by Elenbaas-Heller equation of energy balance. Also, vice-versa, based on the measurement of radial temperature distribution and the electric field in the plasma, it is possible to obtain the temperature function of heat and electric conductivity. The slopes of these curves give some data about chemical reactions in plasma.

These considerations are treated on the example of  $\text{CO}_2$  - are plasma.

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