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Development DC Plasma Torch for High-temperature Processing

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In this work, the 5 kW DC plasma torch system has been developed which is composed of the DC power supply unit and plasma torch head. The power supply unit provides the DC current up to 50 A, 5 kW. The plasma torch head is concentric type, whose cathode electrode is in the center of hollow cylindrical anode electrode. The anode is 10 cm long and its inner diameter is 5 mm. The gap between both electrodes is 3 mm. When the 0.5 MPa compressed air has been applied to the head and the 50 A, 90 V DC current has been supplied, the thermal plasma torch has been generated. The torch is 10 cm long and its diameter is 1 cm wide. The knowledge of this work will be used for up scaling the system to be suitable for disposal of infectious wastes.

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