

Coaxial plasma burner for burning raw biogas and wastewater consists of a housing, electrodes connected to a power source, permanent magnets, an air supply line, a water mist generator, and air channels with a helical path. The burner housing consists of two connected parts: the first serves as the first outer electrode and is made of an electrically conductive material, while the second part of the housing is a hollow cylinder made of a dielectric diamagnetic material. A first permanent magnet is coaxially mounted on the outer surface of the second part of the housing; the first inner electrode is coaxially positioned within the burner housing and attached at one end to the second part of the housing. A hemispherical concentrator is attached to the other end of the first inner electrode. Helical air channels are formed on the outer surface of the first inner electrode. The burner contains a second permanent magnet, which is coaxially mounted on the outside of the second outer electrode; a second inner electrode, which is coaxially positioned inside the second outer electrode and has the shape of a tapered cone on one side, while on the other side it is attached to an electrically insulating sleeve; and a cyclone, whose inlet is connected to the raw biogas conversion chamber, and whose outlet is connected to the first inlet pipe of the burner housing.