

Destruction of CHF<sub>3</sub> in a dielectric barrier discharge reactor: Effect of dilution gas on characteristic electrical power

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Effect of dilution gas (He, Ar and N<sub>2</sub>) on the characteristic electrical power was investigated in the decomposition of CHF<sub>3</sub> in a dielectric barrier discharge reactor. A comparison between the dilution gases considered in terms of average power, apparent power, power factor, impedance, and power efficiency on the conversion of CHF<sub>3</sub> and selectivity of products. The results indicated that He dilution provided a more homogeneous discharge than the other dilution gases. However, Ar dilution showed a higher conversion of CHF<sub>3</sub> under the same power delivery. It suggested that decomposition of CHF<sub>3</sub> with Ar as dilution gas obtained a greater energy efficiency.