



Catalytic Combustion of Soot

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Message from the Guest Editor

Soot emission sources can be divided into two groups: stationary (factories, energy plants, domestic heating) and mobile (cars, planes, ships), the latter creating more problems. The most promising solution seems to be particulate filters (DPF for diesel and GPF for gasoline), combined with a catalyst. As both soot and the catalyst are in the solid state, the most important challenge for catalyst design is to ensure a high degree of contact between them, as soot/catalyst contact is a key factor in the case of activity. Three main mechanisms of catalytic soot combustion can be found in the literature—the activation of an oxygen molecule, usage of NO_2 formed by the oxidation of NO , and the mobility of the catalytic phase. Many catalytic systems have been explored so far, but numerous investigations still have to be conducted in the case of basic research as well as applied studies to ultimately solve the problem of soot removal from exhaust gases.

