

## **Self-Heating by Joule Dissipation during Gas-Solid Combustion Reactions**

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Transient electric impulses were observed during high-temperature gas-solid reactions. We present estimates of the impact of the Joule heating by this electrical field and illustrate these for the combustion of a single titanium pellet ( $\varnothing = 0.8$  mm) in oxygen. The increase in temperature by the Joule heating is small relative to that generated by the reaction. However, when the Joule heating occurs in the early stages of the combustion, the increase in the diffusivity of the rate limiting charge carriers may cause a temporary increase in the rate of the rise in temperature.