

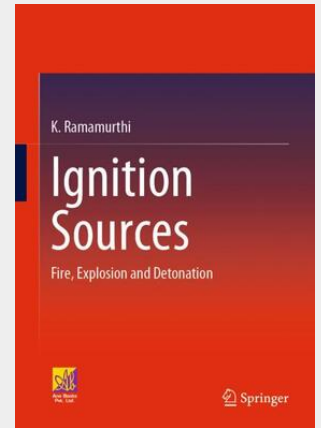
Ramamurthi

## Ignition Sources

Fire, Explosion and Detonation

This book discusses the different energy sources bringing about fires, explosions, and detonations in combustibles under different levels of confinement. Focus is on the initiation source for a combustible whether it is a gas, a liquid, or a solid in a given state of confinement. Incidents of oxygen-related fires in hospitals which were particularly evident with increased usage of oxygen therapy for the extremely ill COVID-19 patients in 2021 are discussed with details of formation, accumulation, and dissipation of charges and their discharges leading to fires and explosions. Sympathetic detonations, BLEVE explosions, cook-off tests of combustibles, the inadvertent ignition sources (threats), and their control are discussed. Sporadic Ignition of wildfires in a heat dome augmented by the reflection of expansion disturbances from the interfaces separating media of different acoustic impedances are explored. Spontaneous human combustion, pilot ignition, shock wave ignition, ignition of fuel droplets and conditions under which fires, explosions, and detonations take place are discussed. Different ways of mitigating the inadvertent initiation of explosions and detonations are given at the end.

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**106,99 €**  
99,99 € (zzgl. MwSt.)

*Lieferfrist: bis zu 10 Tage*

**Artikelnummer:** 9783031206863  
**Medium:** Buch  
**ISBN:** 978-3-031-20686-3  
**Verlag:** Springer International Publishing  
**Erscheinungstermin:** 02.01.2023  
**Sprache(n):** Englisch  
**Auflage:** 1. Auflage 2023  
**Produktform:** Gebunden  
**Gewicht:** 598 g  
**Seiten:** 201  
**Format (B x H):** 173 x 246 mm

