

# **HOT BURNING OXIDISER/METAL FLARES FOR IRRITATION AND DECOY APPLICATIONS**

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## **ABSTRACT**

The existing conflicts in various areas of the world involve asymmetric capabilities of the opponents. Examples are peace-keeping missions, achievement of justice and law enforcement. Flares which are widely used as decoys for anti-missile warheads might be also useful for protection against man-pad rockets which such opponent might fire on aeroplanes, camps or crowded places. The optical and acoustic effects of the pyrotechnic mixtures of these flares can also be applied for irritation, blinding of single persons or crowds to attract their attention or for threatening and warning.

Pyrotechnics are composed of 2 or more energetic components used as mixed granulated powders, pressed consolidated materials or extruded forms. They might be composed of crystalline inorganic or organic oxidizers, metallic and/or organic fuels and additives (catalysts, inhibitors). Important phenomena are related to the chemistry which means the reactions of the substances and the reaction products including energy balance which are analysed. They are the basis for development of pyrotechnic charges to achieve properties related to the effects required by the mission. Some mixtures are investigated and the results are evaluated against relevant applications. The optical results e.g. of the evaluated time-resolved UV/Vis/NIR spectra consist of information on flame emitted radiation intensity, temperature and type of emission. They are used for a design of flares for warhead sensor decoys or for optical irritation.