

username

**LOGIN**

New Account »  
Forgot Password?

Aluminum oxide



Advanced Search »

Ads by Google

**US Army - Official Site**

Earn \$2,000 when you refer someone to the Army. Details inside!  
[www.army.mil](http://www.army.mil)

**Aluminum Custom Binders**

Aluminum Binders, folders, boxes, Tabs. Customizable. Call now.  
[www.salespack.com](http://www.salespack.com)

**Aluminator**

Aluminum Brightener, Oxide Remover Cleans and Brightens Bare Aluminum  
[www.orisonmarketing.com](http://www.orisonmarketing.com)

**Aluminum Framing System**

T-Slot Aluminum Framing Solutions Low Prices. Fast Service.  
[www.mkprofiles.com](http://www.mkprofiles.com)

Guns and Ordnance ■ Ammunition and Explosives

**Simulations of Energetic Materials for Rocket Propulsion: Obtaining More "Bang for the Buck"**

Authors: [Dan C. Sorescu](#); [Donald L. Thompson](#); [Jerry Boatz](#); AIR FORCE RESEARCH LAB EDWARDS AFB CA PROPULSION DIRECTORATE WEST

**Abstract:** Powderized **aluminum** has long been used as an energetic ingredient in rocket propellant formulations, comprising approximately 15-20% of some conventional ammonium perchlorate solid propellant formulations. However, the performance of **aluminum** is reduced by the rapid formation of an **aluminum oxide** overcoat on **aluminum** particles prior to combustion, which also inhibits efficient burning. Furthermore, formation of the **oxide** overcoat severely reduces the potential advantages of using high surface-to-volume-ratio ultrafine **aluminum** particles, which would otherwise have highly desirable properties such as enhanced burn rates. In order to inhibit the rapid formation of an **oxide** overcoat on the ultrafine **aluminum** particles without simultaneously degrading performance, it has been proposed to coat the **aluminum** particles with an energetic material such as HMX.

Adobe PDF - \$7.95

Printed Format - \$9.95

**ADD TO CART**

Please check the box for the format you wish to order.

[Shipping Terms](#)  
[About Electronic Delivery](#)

[Email This Abstract](#)

**Limitations:**  APPROVED FOR PUBLIC RELEASE

**Description:** Technical paper

**Pages:** 5

**Report Date:** 29 APR 2002

**Report Number:** A728014

**Keywords relating to this report:**

- ✦ [ALUMINUM](#)
- ✦ [BURNING RATE](#)
- ✦ [COATINGS](#)
- ✦ [COMBUSTION](#)
- ✦ [ENERGETIC PROPERTIES](#)
- ✦ [HMX](#)
- ✦ [NITROMETHANE](#)
- ✦ [PARTICLES](#)
- ✦ [ROCKET PROPELLANTS](#)
- ✦ [ROCKET PROPULSION](#)
- ✦ [SIMULATION](#)
- ✦ [ULTRAFINES](#)

[« Back to search](#)