# Article information:

粒径和气体环境对镀铝炸药爆炸和超压增强的影响 - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S1540748912000703>

# Article summary:

1. Aluminum has been added to explosives for decades in order to increase energy output and head performance.

2. There are four stages of aluminum combustion in plated aluminum explosives, each with its own effects on the target.

3. The reaction of aluminum can be enhanced by extreme pressure, high temperature, and turbulent mixing of the environment with the fireball.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable and trustworthy as it provides a comprehensive overview of the effects of particle size and gas environment on plated aluminum explosives. It cites relevant research studies to support its claims, such as Balas and Baker's work on "joint effect" formulas, Carney et al.'s work on turbulent mixing, and other studies that demonstrate how aluminum can enhance primary explosions. The article also acknowledges that there is still much to learn about the reaction mechanisms and dynamics of aluminum combustion, which suggests that it is open to further exploration into this topic.

The article does not appear to have any major biases or one-sided reporting; instead, it presents a balanced view of both the potential benefits and risks associated with using plated aluminum explosives. It also notes that while some physical effects may enhance early reactions, there may not be enough time for an effective reaction in certain cases due to the short duration of shock waves after detonation. This suggests that the author is aware of potential counterarguments and has taken them into consideration when discussing this topic.

In terms of missing points or evidence for claims made, there are no major issues with this article; all claims are supported by relevant research studies or experiments conducted by other authors in the field. Additionally, there does not appear to be any promotional content or partiality present in this article; instead, it provides an objective overview of how particle size and gas environment can affect plated aluminum explosives without favoring one side over another. Finally, possible risks associated with using plated aluminum explosives are noted throughout the article; these include reduced explosive performance if too much aluminum is added as well as increased fragmentation velocity at the edges due to early reactions from aluminum combustion.

# Topics for further research:

* Aluminum combustion reaction mechanisms
* Plated aluminum explosives safety
* Effects of particle size on aluminum explosives
* Turbulent mixing of aluminum explosives
* Joint effect formulas for aluminum explosives
* Fragmentation velocity of aluminum explosives

# Report location:

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