

# P24 ANFO and TNT Anti-vehicle Mine Blast: Experimental and Numerical Observations

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## **Abstract:**

Anti-vehicle (AV) mines and Improvised Explosive Devices (IEDs) pose a major threat in recent and current missions. In the latest operational theatres of Iraq and Afghanistan they have been responsible for a significant proportion of all casualties.

Understanding both the characteristics and magnitude of the loading from these devices is essential for both the design and evaluation of blast resistant vehicles. As part of this process TNO evaluated a range of TNT and ANFO buried bare charges experimentally. A selection of the results from these tests are reported here.

A buried charge will focus the blast towards the vehicle due to the explosive interaction with the soil. The loading characteristic from the detonated charge is a combination of the power (brisance) and strength (heave effect) of the explosive. Whilst TNT is more powerful than ANFO with a higher brisance, ANFO has a higher observed strength than TNT with a higher heaving effect.

The ANFO and TNT experimental results have been used to validate a user defined mine blast model implemented into the commercial code LSDYNA [1]. This provides an numerically efficient and robust method for simulating a buried mine blast.

## **Notes:**