



DESCRIPTION:

Martec Limited has developed considerable expertise in modelling the effects of landmines on people and equipment. Martec's software, Chinook, includes the ability to accurately predict target loading due to landmines buried in different soil types and conditions. The software's capabilities include the ability to accurately capture the explosion physics using state-of-the-art models. Of particular importance to developing protective measures is the effect that soil composition has on target loading. Typically, wet soils transfer more energy from the initial blast to nearby targets than corresponding dry soil mixtures. This can mean the difference between a vehicle being slightly damaged or being completely disabled.

These modelling capabilities have been validated through comparisons with experiments performed at Canadian Department of National Defence test facilities. This includes simulations of trials involving a ballistic pendulum apparatus, where the maximum height obtained by a pendulum arm subjected to a landmine blast is measured to determine the energy transferred by a buried charge. Martec has also successfully predicted the response of armoured plating to typical anti-vehicular landmines.

References:

1. L. Donahue, R. Link, T. Josey, S. Hlady, D. Bergeron, R. Durocher, K. Williams, "Structural Response to Land Mines", 74th Shock and Vibration Symposium, October 2003, San Diego, California.
 2. L. Donahue, R. Link, S. Hlady, "Numerical Modelling of Soils Subjected to Explosive Loading", 18th International Symposium on the Military Aspects of Blast and Shock, September 2004, Bad Reichenhall, Germany.
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