

- HEAD IMPACT PROTECTION
- SIDE IMPACT PROTECTION
- SEAT BOTTOMS
- FLOORING BLAST OR CRASH IMPACT MATS
- UNDER SIDE IMPACT ATTENUATION

Proteckt™ EA Blast Mats were simulated mine blast tested on June 8-9, 2011 at MGA research to determine the structural integrity, energy mitigation characteristics, and occupant injury values. Testing was conducted with change in velocity of 7 (m/s) 5.9 (ms) peak load 304 G's impact level. A seat and secured Hybrid III Anthropomorphic Test Device (ATD) 50th percentile male with military outfitting having a net total mass of 180 lbs was used for the tests. Tabulated data listing average and left right upper and lower tibia peak loads is listed in the following tables and included comparison to Skydex mine blast mat currently used on some tactical vehicles, and to a steel plate (no protection).

Testing indicated that utilization of our system will reduce the likelihood of tibia, foot, and ankle damage to a level that meets the Stanag 4569 threshold limit at the mine blast test simulation parameters. Results indicate that Proteckt blast mat absorbed 2.6 times more energy and is 67% lighter at the same thickness than the Skydex product. The plot on page 2 shows these results versus Stanag 4569 tolerance threshold by age with ATD average right and left leg peak tibia forces for the Skydex product and TRI/Austin Proteckt. No tibia adjusting bending moments were made to the data to account for un-humanlike ATD bending under axial loading.

MGA Simulated Mine Blast Test Results

Sample ID	Tibia Fz (N)				Average Tibia Compression Force (N)	Tibia Force Reduction (N)
	Upper Left	Lower Left	Upper Right	Lower Right		
Steel Plate	9891	10550	7661	9893	9498.75	--
Skydex 1.25 inch	9162	9357	7995	8955	8867.25	631.5
Proteckt 1 inch	8527	8101	7418	7242	7822	1676.75
Proteckt 1.5 inch	8450	7535	7033	6763	7445.25	2053.5

Date	Sample Description	Peak Amp. (G's)	Time (ms)	~ V (m/s)	Post-Test Comments
6/8/11	Baseline	304.7	5.9	6.96	• No visible damage.
6/9/11	Skydex	304.1	5.9	6.97	• No visible damage.
6/9/11	Proteckt 1"	303.9	5.8	6.85	• No visible damage.
6/9/11	Proteckt 1.5"	304.8	5.8	6.84	• No visible damage.