

MINE BOGGLERS@ BY SARKAR

THE PRODUCT:

Sarkar is the world leader in production of anti-personnel mine protective footwear. Sarkar produces both mine protective boots and over boots, with either solid rubber soles, or, as in the latest development, the Mine Bugglers, with a combination polyurethane (towards the foot) and rubber (towards the ground). These products are designed to reduce injury from activation of anti-personnel mines which all-too-frequently results in amputation.



USES:

All of Sarkar protective boots are designed to be functional in mud, sand and rocks.

The protective over boot is designed to be worn over a standard combat boot or over a Sarkar protective boot.

Sarkar's mine protective boot is designed to be worn all day in all terrains, as well as being a protection against anti-personnel mine detonation. Sarkar Mine Bugglers boots are extremely comfortable to wear all day. Their weight is equal to or less than most standard combat boots.

The wearing of both the blast protective boot and the blast protective over boot simultaneously doubles the protection, and is used mostly when mapping or clearing mine fields.

CONSTRUCTION:

All the Mine Boggler boots and over-boots have similar sole construction. The rubber cleats elevate the sole, and the sidewise wedge shaped sole design directs much of the force from the mine to go to the side instead of sending the force up into the foot and leg.



Inside the polyurethane sole is a wedge shaped attenuator constructed from stainless steel and aluminum honeycomb. The upward force makes the stainless steel compress the honeycomb and thereby absorb energy that otherwise would have continued into the foot. The thick polyurethane sole between the upper and the rubber cleats is of a special blend which can also absorb large amounts of force before being ripped apart, which is part of the hard force resistance in Sarkar protective boots and over boots. The use of polyurethane allows the sole to be thicker without adding weight. Because there is more distance between the blast and the foot, the blast's force has more area to dissipate before reaching the foot and leg.

The boot upper can be of any type that is desirable, such as all leather, insulated, hot weather, desert type, etc. All boots have protective insoles from multi layers of KEVLAR7. In addition, the over boot has KEVLAR7 in the upper side panels. KEVLAR7 in the side panels of the boot was tested extensively, but was never liked by soldiers; since it substantially reduces comfort in this boot, which is designed for all day, wear.



HISTORY:

Sarkar has been a manufacturer of anti-personnel mine blast protective footwear for a long time. The US Army has purchased the rubber bottomed over boot since 1970. About twenty (20) other countries are buyers of boots and over boots, either with all rubber bottoms or the new PU/Rubber combination. More recently, Sarkar has been supplying these products for humanitarian de-mining work in several countries around the world.

In an effort to continually improve and develop protective footwear, Sarkar has performed blast tests at Fort Benning, as well as at Aberdeen Proving Grounds. These tests compare new materials and constructions versus earlier models. Only when the results are equal or better will a change to a boot or over boot be accepted. The incorporation of KEVLAR7 and Polyurethane was a result of this testing. Comfort has always been a factor and we now have a lightweight, comfortable boot that is more protective than ever and which can be worn full time, especially when in mine infested areas.

LEVEL OF PROTECTION:

Injury to a soldier's foot and leg when stepping on a mine, even with protective footwear, is in many cases, unavoidable. It is the severity of the injury, which in the worst case results in amputation of limb, which the Sarkar products are designed to protect against.



The original mine protective boot, back in 1969, was designed to save a soldier from amputation if he stepped on an antipersonnel mine of the size made up from 28 grams of C-4 explosive. Improvements over the years have increased the level of protection and usability. Sarkar has been told of several anti-personnel mine activations, in which personnel were wearing Sarkar's protective footwear, and amputation was avoided. There are many variables that affect the level of injury from anti-personnel mine activation, and, because of this, Sarkar cannot guarantee a level of protection. Perhaps the best indicator of the protection provided by these products is the significant number of re-orders received by Sarkar.

OTHER:

Sarkar's protective footwear is being used by Human Factors and Medicine Task Group for its Test Methodologies for Personal Protective Equipment Against Anti-Personnel Mine Blast@ program. This program's purpose includes publishing a description of available protective measures to be used for protection against anti-personnel mines.

The attached pictures are from testing at Aberdeen Proving Grounds. The charge for each blast was 25 grams of C-4.

All the protective boots and over boots are individually made in order to keep assurance that every item and operation is completed as specified and that the final item is as previously tested at the U.S. military's test facility in Aberdeen, Maryland.

Sarkar sells these Blast Protective Boots (or Blast Protective Overboots) in individual pairs or in quantities.