# SUPREME'S FLAME RETARDENT/FLAME RESISTANT, ANTI-BALLISTIC FABRIC AND PROTECTIVE UNDERGARMENT

### SUPREME COMPANY BACKGROUND

Supreme Corporation, incorporated in 1964, has been in business for over forty-five years and has consistently been on the leading edge of yarn fiber technology. Supreme Corporation's Tuff-N-Lite® product line is one of the cornerstones of the company's technology deployment. All of Tuff-N-Lite's® product lines are patent protected (and patent pending) as well as treated with our proprietary "Green" Micro-Texpur® antimicrobial application technique (patented in 2011) to prevent the growth and transfer of microbes.

## BACKGROUND:

The need for a protective undergarment or "PUG" to protect from injuries caused by sand and debris from IED's is best summed up by Tom Vanden Brook's December 11, 2012 article from USA Today where he explained:

"The underwear has resulted in a 40% reduction in wounds to troops' genitals, key arteries and abdomens."



Fortified underwear is in high demand among troops in the Middle East where any step on the battlefield can trigger a buried bomb that can blow off legs, destroy genitals and tear into abdomens. The Pentagon is rushing more Kevlar underwear, along with protective cups and strapped-on outer gear, to ensure that soldiers and Marines in the field have six pairs of the equipment. The need is acute because insurgents continue to plant more than 1,000 bombs per month and troops on foot lack the protection of armored vehicles. The underwear has resulted in a 40% reduction in wounds to troops' genitals, key arteries and abdomens, according to the Pentagon. [Article truncated due to size]. One of the challenges with currently available PUG technology is that they are heavy and uncomfortable to wear, and personnel fail to wear them because they restrict movement, which is crucial in combat situations. Supreme's Tuff-N-Lite® PUG is superior to currently available protective undergarments.

# **CURRENT PUG PRODUCTS**

Most of the available products today use layers of woven material to stop projectiles with the same technique that ballistic vests utilize to stop projectiles. These materials are thick, heavy and do not allow for stretch and comfort. Soldiers have complained that they look and feel like "diapers." They do not allow for comfort and freedom of movement. Several designs use removable ballistic panels. Some utilize the protective cups. None have the blend of safety and comfort required to be useful in combat. Further, many available PUG designs only protect the genitals, and peri anal area.

#### SUPREME'S TUFF-N-LITE® PUG

Supreme's patent pending PUG design catches projectiles in a radically new and innovative way. Much in the way that a baseball glove catches a fastball, our PUG uses the patent pending knit structure to absorb the energy of the projectile without using heavy woven layers. Our design uses one layer of lightweight, stretchable, breathable fabric to provide *comfortable* wearable protection that covers the entire area of the undergarment, not just the crotch and peri anal area.



This design surpassed all government specifications when tested with rip-stop BDU camouflage and achieved over 850 feet per second at v50 with a 2 grain RCC. Additionally, Supreme's Tuff-N-Lite® PUG far surpassed specifications for Ballistic Coverage, Flame Resistance, Antimicrobial Activity, System Average Aerial Density, Air Permeability, Moisture Vapor Transmission, Material Flexibility, Shrinkage, and Drying Time.

All testing has been performed at certified Laboratories, and data to date shows that Supreme's PUG is better than current solutions available in the market today.

# **OPPORTUNITIES**

We seek opportunities to further develop technology for the Military.