

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	NSC
TOPIC NUMBER	A06-175
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-175-0107
TITLE	Highly Conducting Textile Fibers for Electro-Textile Applications.
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COMPANY	Engineered Yarns Co. Div. of Pascale Industries, Inc. 939 Currant Road Fall River MA 02720 Minority Owned: No Veteran Owned: No Number of Employees: 75
KEYWORDS	Electronic textile, Conductive fibers, Ultra fine conductors, Conductive textiles, Conductive fabrics, Textile grade fine conductors, Coated fine wires, Wired fabrics
ABSTRACT	The integration of electronics functionality to the textile structures offers a new and unique way to fabricate wearable military and commercial systems that sense, communicate, compute, and carry power and data both on the battlefield and on the work environment. The textiles provide the lightweight and comfort while electrical materials provide the conductivity with secondary consideration given to properties such as flexibility. The electro-textiles with attached cables have been introduced in the past. These cable based fabrics do not exhibit intrinsic qualities of textiles and have difficulty gaining user acceptance. With technological innovations appearing in both textile and electronics, textile manufacturers are eager to introduce fabrics with embedded electronics. One major hurdle in producing these fabrics is the lack of ultra fine conductors. To date, no fine wires of 10 – 25 micron are commercialized due to many manufacturing challenges. Once these challenges are overcome, fine wires can be mass produced at low cost at relatively high production rates. One objective of this proposal is to achieve textile grade wires by means of promising processes. We suggest, with great confidence, three potential processes that will lead to successful productions of textile grade wires that are less than 25 microns (1 mil).
BENEFITS	Conductive fabrics have many commercial applications both in the defense and consumer applications. Electronic textile are already considered in consumers markets for wearable computers, MP3 player incorporated musical jackets, flexible heating pads, sensors that map users' whereabouts, health monitoring systems. and for body-borne communication and global positioning antennas.

	<p>Current products based on cables have number of serious drawbacks since they are not incorporated directly into the fabric but attached to the fabric. The successful production of ultra fine fibers opens up a new era to numerous products that can be useful in many different disciplines.</p>
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