



# CODE 4 ARMOR™

*"Code 4" is a police code that means "Situation under control; no assistance necessary."*

## TECHNOLOGY

### Code 4 Armor™ ...

- Can simply and affordably produce functionally graded materials for demanding applications
- Can be custom fit
- Weighs less than equivalent armor materials
- Provides the same stopping power as conventional steel armor—at half the weight
- Offers increased comfort
- Will not separate (unlike the glued layered construction of conventional armor, which has easily penetrable weak points)
- Does not fragment catastrophically
- Sustains multiple impacts
- Can be mass produced on an assembly line without the pricey required handwork for conventional armor

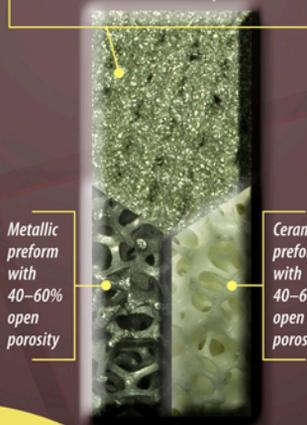
### Code 4 Armor™ Manufacturing Process

- Is production ready
- Generates tax revenue
- Creates jobs
- Increases potential for new business startups

### Manufacturing Steps

1. Make metallic preform of sintered metal 40–60% dense with interconnecting porosity
2. Make ceramic preform of sintered ceramic 40–60% dense with interconnecting porosity
3. Assemble the ceramic and metallic preforms
4. Infiltrate the assembly with a compatible wetting metal system to fill 100% of interstitial space, resulting in a cermet/metallic composite

*Code 4 Armor™ is a cermet/metallic composite*



## MARKETS

### Security and Counterterrorism

#### Code 4 Armor™: Enhanced Protection and Fewer Casualties

- **Helmets and Body Armor**
  - Police officers
  - Security and money-transfer personnel
  - Counterterrorism agents
- **Ballistic Protection—Structures and Barriers**
  - Embassies
  - Hotel lobbies
  - Checkpoints
  - Teller booths
  - Sniper shields
  - Fuel tanks

#### Exterior Surface Shielding for Vehicles

- **Land/Air Transport**
  - HMMWV (Humvee)
  - Mine Resistant Ambush Protected Vehicle
- **Aerospace**
  - Leading edges for hypersonic vehicles
  - Nose cones on hypersonic vehicles
  - High-temperature applications
- **Other Uses for Code 4 Armor™**
  - Sports equipment (helmets)
  - Military projectiles (bullets, penetrators)

## COMMERCIAL READINESS

### When will the technology be ready for commercialization?

Code 4 Armor™ technology is available for licensing now.

### How much investment and time are needed to advance the technology to commercial markets?

About 1 year of testing before commercialization; \$250K needed to advance Code 4 Armor™ to commercial market.

### Does the technology have the potential to be adopted by industry without a major capital investment?

Each Code 4 application is unique to the desired product and the manufacturing facility. Cooperative Research and Development Agreement or Work for Others arrangement with Y-12 is possible.

## INTELLECTUAL PROPERTY

The patent pending application 11/287,558 was filed November 23, 2005, for Code 4 Armor™ technology.

Patent Publication No. 2007/0116590 was published May 24, 2007.

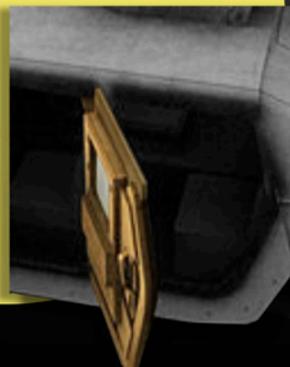
### Standard Military Vest



### Traditional armor is...

- Bulkier
- Heavier
- Difficult to manufacture

### Standard Armored Door



### Code 4 Armor™ is...

- A simple, flexible manufacturing process
- Easily tailored to application
- Thinner
- Lighter

### Code 4 Armor™ in Door



### Code 4 Armor™ in Vest

