

# BlastSax Trials with Fairfax County Bomb Squad

---

## Introduction

Apex Global US along with the Fairfax County Bomb Squad, trial BlastSax against eight pipe bombs. BlastSax were primarily designed as a rapid means of providing protection from small explosive devices, containing the blast of such devices and preserving the maximum amount of evidence from said devices. The bags consist of a semi porous non woven cover stock and the fill consists of super absorbent fluff material and water polymer crystals. The contents of the bags allow water to be absorbed without releasing it. This process takes three minutes or less for each bag when fully submerged. The BlastSax are slightly larger than traditional sandbags but are stored flat in a box when not activated and can be rolled or folded without damage.

## Trials

Two each, of four different main charges, Pyrodex, Black Powder, Green Dot & Ammonium Nitrate were chosen for this trial. A half pound of each propellant was contained in PVC Pipe Bombs for the demos. The main charges will be initiated by electric blasting caps.

Using a step up approach, trials begin with five BlastSax for the Low Explosive main charge devices and begin with fifteen and twenty BlastSax for the High Explosive main charge devices, then step up the number of BlastSax until the desired results are achieved. After each trial, the team walks down range to assess the results then sets the second charge with a determined number of BlastSax in order to improve the results. The team will then repeat this process on the remaining charges.



## BlastSax Trials with Fairfax County Bomb Squad

---

1. The first trial was with Pyrodex. A half pound of this main charge was contained in a PVC Pipe Bomb and placed in a surround of five BlastSax for detonation. While the Sax were thrown outward to a distance of up to twenty-five feet, the pieces of fill did contain frag from the pipe. Still, the results concluded that a step up to ten BlastSax with two of them placed on the device, would be more sufficient. The ten BlastSax contained the blast and localized the bag fill and frag to a much smaller radius than the previous test. Substantial size pieces of the PVC pipe were recovered and the test was determined to be a success.
2. The second trial was with Black Powder. A half pound of this main charge was contained in a PVC Pipe Bomb and placed in a surround of five BlastSax for detonation. While the Sax were thrown outward to a distance of up to twenty-five feet, the pieces of fill did contain frag from the pipe. Still, the results concluded that a step up to ten BlastSax with two of them placed on the device, would be more sufficient. This test was not done as we agreed the result would be similar to the Pyrodex's second test and we felt the need to move on to the bigger concerns.
3. The third trial was with Green Dot Powder. A half pound of this main charge was contained in a PVC Pipe Bomb and placed in a surround of fifteen BlastSax for detonation with two of them placed on the device. While the Sax were thrown upward to a height of fifty feet and outward to a distance of the same, the pieces of fill did contain larger frag from the pipe. Still, the results concluded that a step up to twenty-four BlastSax with two of them placed on the device, would be more sufficient. The twenty-four BlastSax muffled the acoustics, contained the blast and localized the bag fill and frag to a much smaller radius than the previous test. More than substantial size pieces of the PVC pipe were recovered as an entire half of pipe with end cap was found inside one of the BlastSax only a few feet from ground zero. The test was determined to be a success.
4. The fourth trial was with Ammonium Nitrate. A half pound of this main charge was contained in a PVC Pipe Bomb and placed in a surround of twenty BlastSax for detonation. This is a slightly more intense compound and resulted in a more intense acoustics and both upward and outward thrust of the Sax. While the Sax were thrown slightly higher upward but not so much further outward, the pieces of fill contained larger, long and narrow pieces of frag from the pipe. Also, half a

## BlastSax Trials with Fairfax County Bomb Squad

---

dozen Sax were just thrown and appeared to receive NO damage from the blast. During this time, two bomb techs observed that the placement of the two Sax directly on top of the device created a more intense explosion. The results concluded that a step up to twenty seven BlastSax with the last two placed OVER the device rather than ON TOP OF the device would be more sufficient. Also at this time, it was felt that four witness screens consisting of cardboard human torso targets was needed to obtain a better understanding of what would happen in a real time situation. The targets were placed a distances from one meter up to three meters around the BlastSax surround. The twenty seven BlastSax substantially muffled the acoustics compared to earlier firings. It was concluded that the gap of air created by placing the last two Sax over and not on top of the device, made an efficient dissipater of the explosive blast. Along with the friction created by the moving soil and water bags. The BlastSax contained the blast and a much more localized pattern was observed with at least one dozen whole Sax that seemed to be just thrown out of the way and with half of a pipe with the end cap stuck inside one of the Sax just feet from ground zero. Three of the targets were knocked over from the shockwave but sustained zero holes from frag. The fourth target and farthest from the device, remained standing with zero holes from frag. This test was determined to be the greatest success.

### **Conclusion**

This was a well thought out and a very well planned trial that seemed to prove the effectiveness of the BlastSax in a blast mitigation roll, more specifically in reducing the blast wave and capturing the fragmentation for forensics. The bags absorbed water very quickly and were deployed very quickly. While prepping charges, no water loss occurred. In an urban environment, BlastSax would have limited the damage to surrounding buildings and other structures. They would also be effective as an aide or a first line of defense in case something inadvertently went off while waiting for the Disposal Unit. BlastSax proved 100% effective for this trial.

### **Recommendations**

The BlastSax system could prove effective against Uxo's, IED's, small incendiary devices, small dirty bombs (when the water used is combined with a Tropical Bleach) and other small scale Homeland Security threats. Size of the device would dictate the configuration of the surround. BlastSax can be used anywhere, water supply willing.

# BlastSax Trials with Fairfax County Bomb Squad

---

## **Who should use BlastSax?**

- Local City and County Bomb Squads
- Emergency Management and Planning Officials
- Port Authority Officials
- Law Enforcement
- Armed Forces Disaster Preparedness Officials
- Transportation Officials
- DHS Officials
- Counter Terrorism Divisions
- EOD
- Demining Organizations

.....And the list goes on!

\*\* These trials were conducted along with Apex Global US and the Fairfax County Bomb Squad.