A Curious Observation during the Burning of Bulk Whistle Composition

L. Weinman
Schneier/Weinman Consultants, LLC
Huntsville, Alabama
Lawrence@Weinman.net

C. Dayton, and K. Lemon
Luna Tech, Inc.
Owens Cross Roads, Alabama
CDayton@Pyropak.com

As is common in pyrotechnic manufacturing operations, occasionally excess or sub-standard compositions need to be destroyed. This is usually, but not always, done by burning the composition.

Recently, in the course of burning several pounds of excess potassium perchlorate-potassium benzoate whistle mix, a curious noise was produced.

The fairly standard, 70%/30% (plus less than 1% carbon black), composition is prepared by dry mixing, then wet with water, granulated through a coarse sieve and dried. No additional binder is used.

The excess composition was laid directly on the ground in a trail approximately 8 to 10 ft (3 m) long × 2 inches (50 mm) wide × 1/4 inch (7 mm) thick. The trail was touching another trail of other pyrotechnic gerb composition. The gerb composition was ignited by means of an electric match.

Upon ignition, the gerb composition burned smoothly and relatively quietly. However, when the burning zone reached the whistle composition, a moderately loud and distinct sound was heard, which was much different from the normal burning bulk pyrotechnic "whoosh". The sound was a "screech", which seemed to mimic a very high-pitched pyrotechnic whistle.

It was not, however, as loud as a common 1/2-inch (12-mm) ID whistle would have produced.

The pitch and intensity of the sound remained fairly constant for the duration of the whistle composition burn, which was approximately 2 seconds.

While several people, who all commented on it, heard the sound, it was completely unexpected and no particular observation protocol had been established prior to the burn.

Since such a burn, at this facility, is a rare occurrence, and because in the past, as far as personnel can remember, there have usually been other items in the burn that may have produced noise, it is not known if this has ever happened before.

Another occasion for such a burn has not, as yet, been needed, but at such time as it is, more attention will be paid to establishing a better noise observation technique.

If, and the authors stress the "if", this sound was real, it might require a re-examination of the several proposed mechanisms by which pyrotechnic whistles are postulated to operate.

If any other similar events have been noted, the authors would be extremely interested in learning about them.