

WARNING: Serious Product Malfunction

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In 2003 a fireworks display company experienced two serious malfunctions of a product. The items were 5-inch White Tiger Tail shells under the brand name of Flower Basket (See Figure 1). These shells are spherical in shape and at the time were thought to be solid masses of comet composition, without a shell or other component inside the comet composition. The items were received in January of 2003. Forty of the comets were fired in a display. Two of these comets exploded with great violence within their HDPE mortars as they were being fired, destroying both the mortars and the wooden racks holding the mortars. (While there were no injuries in this instance, given the apparent power of the explosions, that certainly was a possibility.)

A complicating factor was that the 5-inch Tiger Tail comet shells are thought not to have been manufactured by Flower Basket, but rather by an unidentified subcontractor. Accordingly, there is some possibility that similar malfunc-

tioning comets may have been distributed under other brand names as well.

The cause of the problem with these tiger tail comets had not been determined at the time this article was originally published, but it was being investigated.^[1] (Pending further testing, the display company experiencing the malfunctions withdrew all of this product from inventory.)

Because of the great violence of these malfunctions, there was concern that the cause of the problem may be similar to that which led to a fatality and traumatic amputations in an accident involving 2-inch white comets in Roman candles in Australia (previously reported in *Fireworks Business*^[2,3]). In that case the 2-inch comet Roman candles were found to explode powerfully enough to shatter heavy steel support tubes.



Figure 1. Photos of a 5-inch Tiger Tail comet and a close-up of its product label.

References

- 1) For the results of this testing, see references 4 and 5; also included in this collection of reprinted articles.
 - 2) K. L. Kosanke, G. Down, and J. Harradine, "Impossible and Horrific Roman Candle Accident", *Fireworks Business*, No. 225, 2002; also in *Selected Pyrotechnic Publications of K. L. and B. J. Kosanke, Part 6 (2001 and 2002)*, Journal of Pyrotechnics, 2005.
 - 3) K. L. and B. J. Kosanke, G. Downs and J. Harradine, "Roman Candle Accident: Comet Characteristics", *Fireworks Business*, No. 228, 2003; also in *Selected Pyrotechnic Publications of K. L. and B. J. Kosanke, Part 7 (2003 and 2004)*, Journal of Pyrotechnics, 2006.
 - 4) K. L. Kosanke, "Report on the Initial Testing of Suspect Tiger Tail Comets", *Fireworks Business*, No. 233, 2003; also in *Selected Pyrotechnic Publications of K. L. and B. J. Kosanke, Part 7 (2003 and 2004)*, Journal of Pyrotechnics, 2006.
 - 5) K. L. and B. J. Kosanke, "Further Report on the Testing of Suspect Tiger Tail Comet", *Fireworks Business*, No. 237, 2003; also in *Selected Pyrotechnic Publications of K. L. and B. J. Kosanke, Part 7 (2003 and 2004)*, Journal of Pyrotechnics, 2006.
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