



# Interagency Aviation Tech Bulletin



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**Subject:** Plastic Aerial Ignition Spheres with Energetic Reactions

**Area of Concern:** Plastic Sphere Dispenser Operations

**Distribution:** All Aviation Operations

**Discussion:** Dragon Eggs (ignition spheres) manufactured between July 14-17, 2023, have been found to lack the slowing additive that stabilizes the exothermic reaction after spheres are injected with glycol. This is resulting in reactions of less than 10 seconds post-injection and can lead to potential non-ignition bursts or significant aerial propulsion. Use of these spheres could cause breaching of control lines, adversely affect ignition, and create a hazard to personnel.

Firefighters use “Dragon Eggs” as ignition tools when operating an uncrewed aircraft system (UAS) like the Drone Amplified Ignis II, as well as handheld devices such as the SEI Red Dragon and the PyroShot mechanisms. These devices are designed to help initiate controlled burns and manage wildfires.

Dragon Eggs contain an additive mixed with potassium permanganate to slow the reaction time after the spheres are injected with glycol. However, it has been confirmed no slowing additive was applied to the batches that are experiencing quick reactions. One pallet of 50 affected boxes was shipped to Type One Incident Support, a U.S. distributor located in Oregon. Each of the boxes of Dragon Egg spheres has a manufacture date stamped on the lower side (figure 1) to easily identify the known affected spheres.

This issue has been isolated to SEI Industries Dragon Egg plastic ignition spheres produced between July 14-17, 2023. A similar issue was discovered in 2013, when reaction was observed with SEI Industries (SEI) Premo plastic spheres and this issue was later resolved.



Figure 1 – The Dragon Egg plastic ignition sphere box includes a date of manufacture on the lower center of the box (circled in red).

**Recommendation:** Boxes stamped July 14-17, 2023, must be removed from service.

Users must utilize the best practice of a conducting a thorough bench test prior to ignition operations to help detect other date ranges or manufacturers that may be affected.

Be aware of the potential for other manufactured spheres such as Premo (larger sized, pink and white colored) to exhibit similar reactions.

Crews must follow these steps if fast, energetic reactions are experienced:

1. Note the date on the box and stop use.
2. Contact the company or the agency aerial ignition representative (listed below).
  - a. Upon reporting you may be asked to break a sphere open to reveal the contents and report the color of potassium permanganate. Affected spheres will have a darker colored potassium permanganate than spheres containing the additive that calms the reaction (figure2).
3. Replace affected product. Replacement of the spheres can be completed by contacting Type One Incident Support or SEI Industries.



Figure 2 – The photo displays potassium permanganate. On the left side, it is depicted in its normal, lighter shade. On the right side, the potassium permanganate appears darker, indicating it has been affected.

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