



MEETING LOG

SUBJECT: ASTM F15.22 Emerging Hazards Task Group Meeting Concerning Water Beads

FY 23 OP PLAN ENTRY: Toys

DATE OF MEETING: 3/25/2024

LOCATION OF MEETING: Virtual

CPSC STAFF FILING MEETING LOG: Benjamin Mordecai (bmordecai@cpsc.gov, 301-987-2506)

FILING DATE: 4/4/24

CPSC ATTENDEE(S): Benjamin Mordecai (LSM), Jill Hurley (ESHF), Matthew Kresse (LSM), Matthew Cho (HSTR), Eric Hooker (HS), Ashley Johnson (HSPP), Lauren Carter Bosse (LSC), Emily Matthews (LSC), Suad Wanna Nakamura (HSPP)

NON-CPSC ATTENDEE(S): Contact Molly Lynyak of ASTM for a complete list of attendees.

Summary of Meeting:

The task group met to discuss recently acquired new information from medical experts and to propose changing the performance requirements for water beads.

The task group first reviewed information received from experts in order to obtain data on the relevant dimensions of the gastrointestinal system for children. Dr. Barker was consulted previously on the limiting dimension of the gastrointestinal tract of an 18-month-old to base the expanding material gauge, which was determined to be the pyloric sphincter, located at the end of the stomach, at that time. She was again consulted on this issue and, based on new information, determined that it was the ileocecal sphincter, located at the end of the small intestines, that would be a more appropriate anatomical structure to base the expanding material gauge.

The Queensland ER data, which is similar to CPSC's NEISS data, was then reviewed. Many incidents were eye injuries related to gel blasters, which currently do not meet the performance requirements of the ASTM F963 standard, or ISO 8124, which has the same projectile performance requirements, due to the projectiles being small parts.

The working group is proposing to decrease the size of the expanding materials gauge, only for water beads, from 20 mm to a range between 10 mm - 15 mm. Another medical expert, Dr. Weak, provided inputs about the gastrointestinal force and suggested 0.4 N – 0.5 N, which is roughly 0.1 lbf, be used for water beads in the expanding materials gauge.

CPSC staff spoke to the incident data where the beads were not expanding in the stomach, but in the small intestine, where the pH levels are more basic than in the stomach. Unfortunately, water beads do not remain in



the acidic environment of the stomach, where they may have limited expansion. Instead, they pass through the pyloric sphincter, grow in the small intestine, and eventually cause a small bowel obstruction when they cannot pass through the ileocecal valve due to size. CPSC staff additionally explained that water beads, in a lab environment, expand roughly 50% in hydrochloric acid (HCl) and cease to grow any further. If left too long in such an environment, the beads can no longer grow, even if placed in water.

Task group members raised the issue of accessibility and CPSC staff stated performance requirements should apply to all water beads (classified as toys), whether they are accessible or not. An example provided was toy stress balls, which contain water beads and have incidents associated with them.

The task group discussed the prototype gauge CPSC provided in the letter, dated 11/28/2023, and suggested PTFE instead of aluminum, which was what CPSC had on hand at the time. Concerns about PFAS were raised and another material, polyethylene, was suggested.

Next Steps:

ASTM will work on a draft ballot and schedule another meeting for water beads in the next month or two.