



U.S. CONSUMER PRODUCT SAFETY COMMISSION
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TRANSMITTED VIA EMAIL

Ms. Nancy Nord
Subcommittee Chairman for ASTM F15.77,
c/o ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

Dear Ms. Nord:

This letter responds to ASTM ballot F15.77 (19-01), item #1, *Specification for Marketing and Labeling Adult Magnet Sets Containing Small Loose, Powerful Magnets with a Flux Index 50 kG2mm2 WK68963*. Staff of the U.S. Consumer Product Safety Commission (CPSC) is voting negative on the ballot item.¹

Based on CPSC staff's technical expertise and its examination of magnet sets, incident reports, consumer reviews, and the available literature, staff concludes that relying only on the draft standard's proposed requirements for warnings, instructions, marketing, and packaging ("proposed requirements"), is unlikely to mitigate effectively the hazard associated with the ingestion of small, powerful magnets from magnet sets. The proposed requirements are inadequate because they depend on warnings to override the perception of the product as a suitable plaything for children. In addition, the proposed requirements depend on persuading consumers to consistently perform actions they otherwise might not perform to avoid the hazard. We expand on these points below. As an alternative to the proposed requirements, staff urges the subcommittee to continue efforts to expand the scope of the draft standard to include performance requirements that effectively mitigate the magnet ingestion hazard.

As discussed in staff's letter to the subcommittee on October 18, 2019, explaining staff's participation in the development of this standard, there are numerous factors that render the proposed requirements insufficient.

1. *Consumer Common Recognition*: Studies show that consumers are unlikely to consult and heed warning information for products and features they perceive as simple, familiar, and non-threatening, such as the subject magnet sets. Incident data and consumer reviews of magnet sets

¹16 C.F.R. part 1031, as amended in 2016, permits CPSC staff to vote and hold leadership positions on an optional basis, provided that such activities have the prior approval of CPSC's Office of the Executive Director. CPSC staff sought and received approval to vote in October 2019 on matters pertaining to ASTM subcommittee F15.77.

demonstrate that consumers commonly recognize magnet sets as suitable for children; warning information that suggests the contrary is unlikely to be perceived as credible. In addition, studies demonstrate that the more familiar consumers are with a product, the less likely they are to look for and read a warning; in contrast, consumers are more likely to discredit or ignore the warning. If caregivers have observed their child, or their child's peers, using the product, or a similar product, without incident, caregivers may conclude that their child can use the product safely, regardless of what the warnings state. Similarly, recommendations from other consumers and caregivers, including online reviews of magnet sets by others who have purchased these sets, can lead consumers to disregard the hazard.

2. *Required Repackaging:* Consumers are unlikely to repackage the sets in their entirety after each use, which is likely to be required to limit children's access to the sets and individual magnets. Magnet sets are designed and marketed to make complex sculptures, and for other purposes that discourage consumers from dismantling and repackaging the entire set. Magnet sets can have upwards of 1,000 tiny magnets, making the task of finding and collecting every individual magnet, after every use, difficult and time-consuming. Even small increases in time, effort, and other "costs," can have a substantial effect on compliance with a warning, and can quickly drive compliance rates to zero.
3. *Accessibility:* As evidenced in incident reports, magnets from magnet sets are often acquired by children without the packaging and instructions, such as from children sharing sets and children finding loose magnets in their environment. In such cases, any warning information limited to these sources, as well as packaging characteristics, are ineffective. Additionally, the proposed requirement for added complexity for opening the packaging is unlikely to be effective for older children.
4. *Misunderstood Hazard:* Consumers are unlikely to anticipate and appreciate the vulnerability of teens and children who do not have a history of mouthing inedible objects. Therefore, consumers are unlikely to keep the magnets away from these populations, regardless of warning information, which are likely to be perceived as not pertaining to these children.
5. *Access by Older Children:* Older children are unlikely to comply with the warnings. Although older children presumably would be capable of understanding the danger posed by magnet ingestion, they are likely to give in to peer pressure, test limits, bend rules, and underestimate the risk and consequences. In fact, warnings about keeping magnet sets away from all children could have the unintended effect of making the product more appealing to these older children.
6. *Historical Inadequacy of Similar Efforts:* While some magnet sets are sold absent warnings regarding the ingestion hazard, incidents and consumer reviews indicate that young children are continuing to access magnet sets even when there are prominent warnings, 14+ age labels, instructions, marketing, and packaging that attempt to communicate the appropriate user population and warn about the ingestion hazard.

Additionally, in the appendix below, CPSC staff lists other concerns with the draft standard; however, resolution of these concerns would not, in staff's technical opinion, adequately address the hazard.

Magnet ingestion is a significant concern to CPSC staff, primarily due to the hidden nature of the hazard and the difficult-to-control chain of events that lead to injury and death. In staff's briefing package, *Final Rule on Safety Standard for Magnet Sets*, dated September 3, 2014, a multidisciplinary team of CPSC staff concluded that warnings, even strengthened warnings, as well as other methods of addressing consumer behavior (e.g., bitterants, child resistant packaging, and sales restrictions), will not

adequately reduce the hidden hazard and risk of injury associated with magnet sets.² CPSC has an open petition regarding magnet sets, Petition CP 17-1.^{3,4} Although staff appreciates the efforts of the ASTM F15.77 subcommittee, staff does not believe that this hazard can adequately be addressed by methods that rely only on encouraging consumers to alter their behavior in some way to avoid the hazard, especially given the unique challenges discussed above. Thus, CPSC staff cannot support the current ballot item. Staff looks forward to working with ASTM to develop requirements that effectively alleviate the hazard associated with the subject magnet sets.

Sincerely,

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Engineering Psychologist,
Division of Human Factors

CC: Molly Lynyak, Manager, Technical Committee Operations, ASTM International
Susan Bathalon, Magnet Sets Petition Project Manager, CPSC
Patricia L. Edwards, CPSC Voluntary Standards Coordinator
Ben Mordecai, CPSC Toy Program Lead Testing Engineer

² https://cpsc.gov/s3fs-public/pdfs/foia_SafetyStandardforMagnetSets-FinalRule.pdf

³ <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201910&RIN=3041-AD67>

⁴ <https://cpsc.gov/s3fs-public/Petition-CP-17-1-Requesting-Rulemaking-to-Establish-Safety-Standards-for-Magnet-Sets-September-20-2017.pdf?dl7e6H9QZHup2Vdi65og6udi3W2IAPab>

Appendix

Additional Concerns with the Proposed ASTM F15.77 Draft Standard

In addition to staff's above comments, staff notes the following concerns:

- The draft standard's title is limited to marketing and labeling; however, there are other requirements in the draft standard.
- Ambiguous language is used, which leaves important requirements open to interpretation. For example, regarding designs and techniques for assuring that all magnets have been collected, staff notes that some structures, such as cubes, can be challenging and time-consuming for consumers to construct.
- "Adults" are defined in the draft standard as including children 14 years of age or older. The legal age of adulthood is not below 18 in any U.S. state. Furthermore, staff notes that there have been incidents of magnet ingestion involving children 14 years of age and older.
- The minimum type size for the warning label is too small (*i.e.*, 0.06 inches for the warning text and 0.15 inches for the signal word) for this product; a product that is non-threatening in appearance and has a hidden hazard.
- The requirements in section 8 do not match the example warning label (Figure 3). The language in Figure 3 was recommended by the Marking and Labelling task group.
- Contacting the Poison Control Center should be considered for the warning label.⁵
- Aside from instructional literature, the draft standard does not address statements that contradict or confuse the meaning of the information required by the standard.
- The product can be marketed as a toy, which can reduce the perception of the product, which is non-threatening in appearance, as potentially hazardous, and support common recognition of the product as a suitable plaything for children.

⁵ Several members of the Instructional Literature task group voiced arguments in favor of contacting the Poison Control Center. For example, on October 30, 2019, one subcommittee member of the Instructional Literature task group stated the following points:

“1- We may not need to refer every child in. Ingestion of one high powered magnet may not be a problem. Ingestion of multiple is where we get concerned.

2- Telling the family member to seek immediate care also doesn't mean that the appropriate care (x-ray, serial abd exams, or surgery) will be done in the ED. There's probably a higher chance of appropriately recognizing the severity of the exposure if poison control is involved as compared to an average rural/community ED. Plus, the ED often calls poison control (esp in peds cases/peds EDs), so it doesn't obviate the need for us to have high confidence that poison control will appropriately manage these cases.

3- There is better public health tracking of data through poison centers.”