



March 25, 2022

Division of the Secretariat  
U.S. Consumer Product Safety Commission  
4330 East West-Highway  
Bethesda, MD 20814

**Comments of Consumer Reports to the  
Consumer Product Safety Commission on the  
Notice of Proposed Rulemaking: “Safety Standard for Magnets”  
Docket No. CPSC-2021-0037**

Consumer Reports (CR), the independent, non-profit member organization,<sup>1</sup> welcomes the opportunity to submit comments to the Consumer Product Safety Commission (CPSC) regarding the agency’s notice of proposed rulemaking to establish a mandatory safety standard for magnets. CR<sup>2</sup> supported the CPSC’s 2014 safety standard that regulated small high-powered magnet sets.<sup>3</sup> The rule was appropriate given the risks the magnets pose to children and teenagers. We commend the agency for again proposing a rule that would establish a mandatory safety standard for magnet products.

Sufficient data exist to demonstrate that high-powered magnets present a serious hazard. In the time since the CPSC’s previous safety standard was vacated, researchers have observed a significant increase in magnet ingestions among children, and concluded that rises in magnet-related injuries correlate to time periods in which high-powered magnets are on the market. Further, though these products are marketed for use by those 14 years of age and older, magnet-related injuries have increased across all age groups, and many of these injuries are life threatening.<sup>4</sup> It is clear that the agency’s previous rule was working to protect children, and that a strong rule is needed now. Accordingly, Consumer Reports fully supports the CPSC’s proposed rule, and urges the agency to finalize it expeditiously.

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<sup>1</sup> Founded in 1936, Consumer Reports (CR) is an independent, nonprofit, and nonpartisan organization that works with consumers to create a fair and just marketplace. Known for its rigorous testing and ratings of products, CR advocates for laws and company practices that put consumers first. CR is dedicated to amplifying the voices of consumers to promote safety, digital rights, financial fairness, and sustainability. The organization surveys millions of Americans every year, reports extensively on the challenges and opportunities for today’s consumers, and provides ad-free content and tools to 6 million members across the U.S.

<sup>2</sup> Consumers Union is the former name of the advocacy division of Consumer Reports as well as the former name of the organization as a whole.

<sup>3</sup> Consumer Reports, “CPSC issues final rule to protect children from hazardous high powered magnets” (Sept. 24, 2014) (online at: [www.advocacy.consumerreports.org/press\\_release/cpsc-issues-final-rule-to-protect-children-from-hazardous-high-powered-magnets](http://www.advocacy.consumerreports.org/press_release/cpsc-issues-final-rule-to-protect-children-from-hazardous-high-powered-magnets)).

<sup>4</sup> Middelberg LK, et al. Magnet Injuries in Children: An Analysis of the National Poison Data System from 2008 to 2019. *Journal of Pediatrics*. 2021 May;232:251-256.e2. doi: 10.1016/j.jpeds.2021.01.052. Epub 2021 Jan 29. (online at: [www.pubmed.ncbi.nlm.nih.gov/33516676](http://www.pubmed.ncbi.nlm.nih.gov/33516676)).

## I. High-Powered Magnets Pose an Unreasonable Risk of Injury to Children

The harm caused by ingesting high-powered magnets is indisputable. When two or more high-powered magnets are swallowed, they can connect across tissue and cause horrific—sometimes lifelong—injuries. Driven by our mission to work for a fair, just, and safe marketplace and to empower consumers to protect themselves, Consumer Reports always strives to provide people with the information they need to keep themselves and their families safe. Informed by the data and research done by experts around the country, we have worked for over a decade, as the CPSC has done, to educate the public of the dangers posed by high-powered magnets.<sup>5</sup>

However, some products simply pose so great a risk to the safety of the public, and take a toll so terrible, that information campaigns prove to be little more than window dressing. For these products, far stronger measures are needed. The data shows us that high-powered magnets are one such product. It is foreseeable that as long as these magnets remain on the market, they will continue to seriously injure children and put them at risk of lifelong harm or even death. In the United States, five deaths linked to the ingestion of hazardous magnets occurred between November 2005 and January 2021.<sup>6</sup> Three of these deaths, two of which involved young children, occurred after the U.S. Court of Appeals for the Tenth Circuit vacated the CPSC’s rule on magnet sets.

Recent research shows that the previous CPSC efforts to limit dangerous high-powered magnet sets in the marketplace were effective. As a part of this rulemaking, agency staff has found that for the periods of 2010-2013 and 2017-2020, “there were an estimated 2,300 [emergency department]-treated magnet ingestion incidents per year.” Comparatively, for the 2014 to 2016 period, while the rule was in effect, this number was “an estimated 1,300” such incidents per year.<sup>7</sup> Others have observed similar trends. In a 2021 *Journal of Pediatrics* paper examining data from the National Poison Data System between 2008 and 2019, researchers observed a “33% decrease in cases ... after high-powered magnet sets were removed from the market.” The same researchers observed a 444% increase in estimated cases per year in the 2018-2019 period. They noted that “[c]ases from 2018 and 2019 increased across all age groups and account for 39% of magnet cases since 2008.” From these findings, the researchers were able to conclude that “significant increases in magnet injuries correspond to time periods in which high-powered magnets were sold,” and the data reflects the urgent “need to protect children via preventative efforts” or government action.<sup>8</sup>

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<sup>5</sup> Consumer Reports, “Still Not Safe: New Recalls Underline Need for Strong Hazardous Product Legislation” (May 15, 2008) (online at: [www.advocacy.consumerreports.org/wp-content/uploads/2013/04/StillNotSafe.pdf](http://www.advocacy.consumerreports.org/wp-content/uploads/2013/04/StillNotSafe.pdf)); Consumer Reports, “Despite Thousands of Injuries, Super-Strong Magnets Are Still Sold as Desk Toys” (Dec. 22, 2020) (online at: [www.consumerreports.org/child-safety/super-strong-magnets-are-still-sold-as-desk-toys-despite-thousands-of-injuries-a3867809643](http://www.consumerreports.org/child-safety/super-strong-magnets-are-still-sold-as-desk-toys-despite-thousands-of-injuries-a3867809643)).

<sup>6</sup> CPSC, Notice of Proposed Rulemaking: “Safety Standard for Magnets” (Jan. 10, 2022) (Docket No. CPSC-2021-0037) (online at: [www.govinfo.gov/content/pkg/FR-2022-01-10/pdf/2021-27826.pdf](http://www.govinfo.gov/content/pkg/FR-2022-01-10/pdf/2021-27826.pdf)).

<sup>7</sup> *Id.*

<sup>8</sup> Middelberg LK, et al., *supra* note 4.

A multi-cohort study published in February 2022 expanded on this research. Led by researchers at Nationwide Children’s Hospital in Columbus and twenty-four other children’s hospitals across the country, this study examined 596 cases of high-powered-magnet-related injuries that occurred between 2017 and 2019. The study, which looked at patients through age twenty-one, found that 55.7% required hospitalization, 46.3% required an endoscopy, surgery, or both, and 9.6% had a life-threatening condition. The researchers concluded that “despite being intended for use by those >14 years of age, high-powered magnets frequently cause morbidity and lead to high need for invasive intervention and hospitalization in children of all ages.”<sup>9</sup>

Children of any age are at risk of exposure to these magnets. It would be unrealistic to expect magnet sets to remain in their original packaging, or to assume that simple age grading would keep them away from younger children. It also is improbable that packaging could clearly indicate to an adult whether all the many tiny magnets that comprise magnet sets have been returned to the package after each use. Child-resistant packaging, designed to be difficult for children under five to open, would be inadequate to reduce the magnet ingestion hazard. This is true not only because many victims are five years old or older, but also because the CPSC’s data shows that in a majority of ingestion cases, children did not access full magnet sets at the time of ingestion, but rather acquired loose magnets in the home, at daycares, at school, or from friends.

In examining incidents that involved victims under age eight, CPSC staff have noted that these children often found magnets belonging to family members on floors, in furniture, in bags and elsewhere.<sup>10</sup> This also underscores why no packaging changes or labeling, warnings, or instruction booklets, alone, can sufficiently mitigate the associated risks or adequately convey potential hazards to children. These magnets, by their nature, are likely to be left around in a number of environments—in contrast to many household products that must come with child-resistant packaging, such as cleaners typically stored under the sink or medicine in a bathroom cabinet.

## **II. Proposed Size and Strength Requirements Would Adequately Address Magnet Hazard, but Magnet Composition Should Be More Thoroughly Studied**

As proposed, the CPSC should restrict the marketing and sale of magnets to those in which each individual magnet has a flux index of less than 50 kG<sup>2</sup> mm<sup>2</sup> if it fits completely within the agency’s small parts cylinder. The agency’s 2014 rule on magnet sets similarly codified this strength measurement requirement, and magnet ingestion incident data demonstrates that it was effective in substantially reducing health complications resulting from ingestion.<sup>11</sup> Either the magnets must be weak enough in power so as not to have the ability to reconnect to each other and damage a child’s organs once ingested, or they must be too large to be swallowed by a child. The proposed strength measurement and the utilization of the small

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<sup>9</sup> Middelberg LK, et al.; High-Powered Magnet Exposures in Children: A Multi-Center Cohort Study. *Pediatrics* March 2022; 149 (3): e2021054543. 10.1542/peds.2021-054543. (online at: [www.publications.aap.org/pediatrics/article-abstract/149/3/e2021054543/184737/High-Powered-Magnet-Exposures-in-Children-A-Multi](http://www.publications.aap.org/pediatrics/article-abstract/149/3/e2021054543/184737/High-Powered-Magnet-Exposures-in-Children-A-Multi)).

<sup>10</sup> CPSC, *supra* note 6.

<sup>11</sup> Middelberg LK, et al., *supra* note 4.

parts cylinder, in combination, address both of these factors. Therefore, Consumer Reports finds the proposed strength measurement appropriate.

However, given the significant variation in flux strengths across magnets observed by agency staff, the CPSC should work with magnet manufacturers to ensure that they are striving to produce products that are not only consistent in their size and shape, but consistent and uniform in their composition. This consistency and uniformity facilitates the repeatable mass production of magnets with consistent magnetic flux, from individual unit to individual unit.

CPSC staff have noted that the observed flux index variation, seen in magnets of the same set and to an even greater degree across sets, is “potentially due to manufacturing variation.”<sup>12</sup> Indeed, uniform material density across units is essential to producing magnets with consistent flux strengths. If there is variation in material density prior to the magnetization process, once the units have been magnetized, there will be observable variation in the flux indexes of individual magnets. The agency should thus encourage magnet manufacturers to decrease the tolerance of composition in their products, which would result in decreased variability in flux indexes across magnets.

CPSC staff also found that the observed variations in flux strengths “may have implications for the number of magnets in a product that should be tested” and that the determination of whether a product is violative of the flux limit may be “affected by the number or sample of magnets tested.”<sup>13</sup> Given the significant levels of variation observed, and the potential for sets to contain magnets that meet the flux limit as well as magnets that exceed it, the CPSC should strongly consider requiring larger sample sizes. Because flux variation was most significant in magnets from different sets, it is important for compliance testing and sampling to be representative of a given production batch. For example, methods such as simple random sampling, cluster sampling, and systematic sampling could be used. These various selection methods would provide a manufacturer with the flexibility to select a random sampling process that most appropriately fits their production setting while meeting the compliance requirements of the population of product units. One way manufacturers could proceed is to ensure they test magnets not just from the first few, or last few, batches produced, but instead from batches created at various beginning, middle, and end points of a given production run.

### **III. The Proposed Scope Would Sufficiently Address the Magnet Hazard**

Consumer Reports agrees with the scope of the proposed rule, and finds the CPSC’s reasoning – and in particular why home and kitchen magnets and educational products should not be included – to be compelling. However, in the multi-cohort study mentioned above, researchers found that in magnet exposure cases where size could be identified, while the median size of magnets was 5 mm, 32.8% were larger than 5 mm in diameter.<sup>14</sup> In CPSC staff’s review of flux strength test results for magnets (2.5 mm and 3mm in size) associated with internal interaction incidents, the results, although inconclusive (staff was unable to identify, with certainty, the flux indexes of the magnets actually involved in internal interaction injures),

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<sup>12</sup> CPSC, *supra* note 6.

<sup>13</sup> *Id.*

<sup>14</sup> Middelberg, LK, et al., *supra* note 9.

indicated that “magnets that may have flux indexes lower than 50 kG<sup>2</sup> mm<sup>2</sup> may have caused internal interaction injuries,” suggesting that a lower flux index limit may be appropriate.<sup>15</sup> Therefore, the CPSC should continue to study whether larger magnets, and magnets with flux indexes lower than 50 kG<sup>2</sup> mm<sup>2</sup>, may also pose an unreasonable risk of injury to children and therefore should be brought within the scope of this rule at a later time.

#### **IV. Societal Benefits Are Likely To Greatly Exceed Costs**

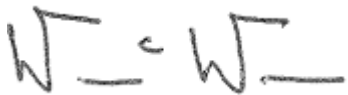
The CPSC’s estimates of net benefits strike us as reasonably and fairly reached; if anything, they are conservative in estimating the rule’s benefits. Nevertheless, the economic analysis conducted for this proposed rule clearly indicates that its benefits are likely to exceed its costs—perhaps by a substantial amount, yielding monetized benefits of \$62.5 million per year or more.<sup>16</sup> From a cost-benefit perspective, finalizing this rule should be an uncontentious decision. Furthermore, we find compelling the CPSC’s conclusion that none of the considered alternatives to the proposed rule, including safety messaging and packaging requirements, would adequately reduce the risk of injury or death in the absence of a performance standard for the magnets themselves.

#### **VI. Conclusion**

Sufficient data demonstrates the safety hazard that high-powered magnets pose to children. Simply put, when these products are on the market, injuries increase. When they are removed from the market, injuries decrease. Regardless of how high-powered magnets are marketed, how they are packaged, or what warning labels they include, they are attractive to children as something to play with. As the past decade has demonstrated, in the absence of an agency rule, children will gain access to them, and they will ingest them. Many of the resulting injuries are life-threatening. Thankfully, a strong safety standard for magnets has already proven effective. It is vital for the CPSC to institute such a standard once again. As the independent agency that consumers rely on to help keep their families safe from unreasonable product hazards, it is imperative, and core to the CPSC’s mission, for the agency to finalize a strong safety standard without delay.

Thank you for your consideration of our comments.

Respectfully submitted,



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<sup>15</sup> CPSC, *supra* note 6.

<sup>16</sup> CPSC, Staff Briefing Package. “Draft Notice of Proposed Rulemaking for Hazardous Magnet Products” (Oct. 6, 2021) (online at: [www.cpsc.gov/s3fs-public/Proposed-Rule-Safety-Standard-for-Magnets.pdf](http://www.cpsc.gov/s3fs-public/Proposed-Rule-Safety-Standard-for-Magnets.pdf)).