

Notes from market surveillance authorities:

small magnetic balls and magnetic building kits

Within the category of magnets in toys, small ⁽¹⁾ magnetic balls and magnetic building kits have been identified by EU market surveillance authorities as particularly dangerous toys because of the risk they pose to children during play: when ingested, they snap together and can cause intestinal obstruction and perforation.

Small magnetic balls and magnetic building kits have been the object of discussion among EU market surveillance authorities since 2012, when they already agreed on the classification of small magnetic balls and magnetic building kits as toys even when they are intended for adults.

A recent [CASP project](#) (Coordinated Activities on the Safety of Products) run by the European Commission in cooperation with a group of EU market surveillance authorities confirmed the high magnetic flux index of these small magnetic balls and rods. Results showed that in some cases, depending on the paint and/or the coating colour, the magnetic flux indexes could differ: when the magnetic paint was slightly accumulated on one point of a ball, the magnetic flux index became even higher. Results highlighted also that it is important to correctly carry out the testing of these products because the measured magnetic flux index could vary considerably with the measurement.

The harmonised standard for toy safety EN 71 ⁽²⁾ is applied to this kind of products, since they are to be considered as toys, and even if they are not considered as toys, no other harmonised standard exists for them. However, in CASP it was highlighted that it is also important to correctly carry out the testing of these products because the result may differ significantly. The standard requires that only one ball is tested (instead of a range of balls to check whether any difference in the magnetic flux is detected). The tested magnetic balls gave different magnetic flux index depending on the color of the ball and on the thickness of the magnetic coating, i.e. depending on where on the product the measuring rod was placed. Moreover, some concern was expressed that EN 71-1 is currently not adequate for testing the magnetic balls because these magnets can snap together forming loops. As it is impossible to measure the magnetic flux index when more than two magnets are

⁽¹⁾ For the purpose of this note 'small' refers to toys and toy components/parts that fit entirely within the cylinder when tested according to clause 8.2 (small parts cylinder) of EN 71-1.

⁽²⁾ A specific clause (4.23) on magnets in toys in the toy safety standard EN 71-1:2014+A1:2018 specifies that magnets in toys, if they are loose (or become loose following a tension test, or a torque test, or several other tests),

- must either have a magnetic flux index less than 50 kG2mm2 (0,5 T2mm2) (to prevent intestinal blockage),
- or must not fit entirely in the small parts cylinder (to prevent choking).

assembled/combined, it was suggested that the standard should also take this feature of magnetic balls into account and that an improved measurement method should be developed and/or additional requirements should be set for toy sets containing more than 2 magnets which can be assembled into a structure fitting in the small parts cylinder.

Several Member States authorities and other countries have already prohibited and withdrawn these products from the market: however, they can still be found on online marketplaces and platforms. The danger that authorities identified is that, even where the magnetic flux index is under the limit set in the relevant standard, the magnets are still very strong and dangerous when ingested and attached to each other in the inner parts of the body, causing perforation that can lead to death.

As concerns the TSD, the general safety requirement in Article 10.2 shall apply.

The Explanatory Guidance document provides the following with regard to the general safety requirement in Article 10(2) of the TSD (emphasis added):

*‘Article 10 (2) sets the general safety requirement which applies to risks that toys may present which are not covered by any particular safety requirement. The general safety requirement may be used as legal basis for taking measures against toys which present risks that are not covered by any particular safety requirement. An example of such a risk was the recently discovered **hazard presented by certain strong magnets which could present the risk of intestinal injuries if swallowed**. When this risk from magnetic toys was discovered in 2007, Directive 88/378/EEC did not contain any particular safety requirement applying to this kind of risk of intestinal injury, and there were no technical requirements in the toy standard EN 71 either at that time. Therefore, the general safety requirement of Directive 88/378/EEC was used as a legal base for taking some dangerous toys with magnets out of the market. Subsequently, a standard has been developed to ensure the safety of magnetic toys (see EN 71-1:2005+A8:2009, now EN 71-1:2014+A1:2018).’*

Moreover, according to Article 42 of the TSD ‘[where] the market surveillance authorities of one Member State have ... sufficient reason to believe that a toy covered by this Directive presents a risk to the health or safety of persons, they shall carry out an evaluation in relation to the toy concerned covering all the requirements laid down in this Directive ...

Where, in the course of that evaluation, the market surveillance authorities find that the toy does not comply with the requirements laid down in this Directive, they shall without delay require the relevant economic operator to take appropriate corrective action to bring the toy into compliance with those requirements, to withdraw the toy from the market, or to recall it within a reasonable period, commensurate with the nature of the risk, as they may prescribe...

Where the market surveillance authorities consider that non-compliance is not restricted to their national territory, they shall inform the Commission and the other Member States of the results of the evaluation and of the actions which they have required the relevant economic operator to take....

Where the relevant economic operator does not take adequate corrective action within the [reasonable] period [referred to above] ..., the market surveillance authorities shall take appropriate provisional measures to prohibit or restrict the toy being made available on their national market, to withdraw the toy from that market or to recall it.

They shall inform the Commission and the other Member States, without delay, of those measures.'

Other Member States should take the necessary measures with respect to the same product if it is found in their territory.

In conclusion, if small magnetic balls and magnetic building kits are found (online or in brick-and-mortar shops) on the EU market which, on the basis of an evaluation carried out by the market surveillance authorities of a Member State, do not comply with the general safety requirement in Article 10 (2) of the TSD, immediate action shall be taken by those authorities on the basis of Article 42.