That's electric!

Malcolm Horner, Toy Technical Consultant at Bureau Veritas Consumer Products Services looks at the EU requirements for electric toys

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In addition to complying with EN 71, electric toys need to meet the specific electrical requirements of the Toy Safety Directive. By electric toys, we mean toys that are operated either by batteries or by a mains operated transformer. If an electric toy is operated by a transformer, the transformer must be separate from the toy (not be integral with the toy). The transformer itself is not classified as a toy and should comply with EN 61558-2-7 for linear transformers or EN 61558-2-7 and EN 61558-2-16 for switch mode types. If the toy is powered by rechargeable batteries and a battery charger is included with it, the charger should comply with EN 60335-2-29.

The electrical safety requirements of the Toy Safety Directive include the following main principles:

- **Toys shall not be powered by more than 24 volts (DC), although higher voltages may be generated internally if the voltage and current combination generated do not lead to any harmful electric shock, even when the toy is broken, regardless of the age of the child.**
- **Toys that are connected to an external source of electricity, capable of causing an electric shock, must be properly insulated. This applies to cables and connectors linking the toy to the source.**
- **Electric toys must be designed in such a way to ensure the maximum temperature reached by any accessible surface would not cause burns.**
- **Electric toys must be designed such that any generated electric, magnetic and electromagnetic fields are limited and must operate at a safe level.**
- **Any lasers, LEDs or other types of radiation must be limited to prevent risk of injury to eyes or skin.**

The electrical safety standard for toys is EN 62115. As with EN 71, EN 62115 is a harmonised standard for the purposes of the Toy Safety Directive.

Therefore compliance with the standard would, in most cases, mean that the toy complies with the electrical essential safety requirements of the Toy Safety Directive. However, as with any other types of toys, the manufacturer should carry out a safety assessment to ensure that all electrical aspects of the toy are addressed by EN 62115. If not, an EC-type of examination would be required.

The scope of EN 62115 covers toys that have at least one function dependent on electricity (including constructional sets, experimental sets, functional toys, video toys if operated under 24 volts) and toys using electricity for secondary functions. For example, a dolls house with an interior lamp or a teddy bear fitted with sound chip.

In addition to the Toy Safety Directive, electrical toys would also have to comply with the EMC, WEEE and RoHS Directives. Any batteries supplied with the toy will have to comply with the Batteries and Accumulators Directive.

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