



Designation: F2641 – 23

Standard Consumer Safety Specification for Recreational Powered Scooters and Pocket Bikes¹

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INTRODUCTION

The U.S. Consumer Product Safety Commission (CPSC) staff is aware of 68 e-scooter related fatalities from 2017 to 2021. CPSC staff estimates a total of 117,600 e-scooter related emergency department (ED) visits from 2017 through 2021. Estimated ED visits increased from 7700 in 2017 to 42,200 in 2021. CPSC staff conducted 48 in-depth investigations related to e-scooters. The investigations described brake problems, fire hazards, unexpected power loss, users losing control, and environmental conditions.²

This consumer safety specification addresses incidents associated with recreational powered scooters and pocket bikes identified by the CPSC. In response to incident data compiled by the CPSC, this specification attempts to minimize the hazards identified by the CPSC. This specification is intended to cover normal use and reasonably foreseeable misuse or abuse of the product(s).

This specification is written within the current state-of-the-art of recreational powered scooters and pocket bikes technology and is intended to be updated whenever substantive information becomes available that necessitates additional requirements or justifies the revision of existing requirements.

1. Scope

1.1 This consumer safety specification establishes performance requirements, test methods and marking requirements to promote safe use of recreational powered scooters and pocket bikes intended for use by children age eight to twelve years, and adolescents age thirteen and above. This consumer safety specification is intended to minimize the risk of injury to an occupant from the normal use and reasonably foreseeable misuse of these e-mobility products.

1.2 For purposes of definition, a recreational powered scooter is a battery-powered motorized recreational vehicle that has two or more wheels, a low platform, a vertical element for the user to grasp, and a method of steering. Recreational powered scooters for children and adolescents are limited to speeds of 16 km/h (10 mph) or less for children age eight to twelve years, and adolescents age thirteen and above for fast-moving products capable of achieving speeds of 32 km/h (20 mph).

1.3 For purposes of definition, a pocket bike is a motorized two-wheel vehicle designed for a single occupant in the seated position typically designed to look like a motorcycle but scaled down to one quarter to one half the size of a typical motorcycle and not intended for use on public roads. Pocket bikes for children and adolescents are limited to speeds of 16 km/h (10 mph) or less for children age eight to twelve years, and adolescents age thirteen and above for fast-moving products capable of achieving speeds of 32 km/h (20 mph).

1.4 This consumer safety specification is not intended for:

1.4.1 Products designed and sold as “Adult Use Only” and are prominently labeled and marked as such;

1.4.2 Commercial electric-powered scooters (for example, shared or rented devices) for adults;

1.4.3 Bicycles tricycles;

1.4.4 Non-powered scooters (Consumer Safety Specification F2264);

1.4.5 Battery powered ride-on toys (Consumer Safety Specification F963);

1.4.6 Motorcycles, skateboards, all-terrain vehicles, go-karts (Practice F2007);

1.4.7 Concession go-karts;

1.4.8 Recreational and commercial fun-karts;

1.4.9 Snowmobiles, motorized trail bikes, lawn mowers, motorized wheelchairs including mobility scooters; or

1.4.10 Products designed or licensed for roadway use regulated by transportation regulations (such as those promulgated

¹ This consumer safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.58 on Powered Scooters & Skateboards.

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² https://www.cpsc.gov/s3fs-public/Micromobility-Products-Related-Deaths-Injuries-and-Hazard-Patterns-2017-2021.pdf?VersionId=Zw1brSm70AOuwb4de8h1Vrn63Jx_SB.e

by the U.S. Department of Transportation or similar state agencies or the National Highway Traffic Safety Administration).

1.5 This consumer safety specification is not intended to address incidents and injuries resulting from the interaction of other persons or objects with recreational powered scooters and pocket bikes and the user while these are in use.

1.6 No product covered by this specification produced after the approval date of this consumer safety specification shall, by label, marking, or other means, indicate compliance with this consumer safety specification unless it conforms to all requirements herein.

1.7 The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.8 The following precautionary caveat pertains only to the test methods portion (Section 7) of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:³

D3359 Test Methods for Rating Adhesion by Tape Test
F963 Consumer Safety Specification for Toy Safety
F2007 Practice for Design, Manufacture, and Operation of Concession Go-Karts and Facilities
F2264 Consumer Safety Specification for Non-Powered Scooters

2.2 Federal Standards:⁴

16 CFR 1303 Lead Containing Paints
16 CFR 1500.48 Technical requirements for determining a sharp point in toys and other articles intended for use by children under 8 years of age
16 CFR 1500.49 Technical requirements for determining a sharp metal or glass edge in toys and other articles intended for use by children under 8 years of age

2.3 ANSI Standard:⁵

ANSI/OPEI B71.1–1998 Consumer Turf Care Equipment
ANSI Z535.1 Safety Colors

2.4 UL Standards:⁶

UL 2271 Standard for Batteries for Use in Light Electric Vehicle Application
UL 2272 Standard for Electrical Systems for Personal E-Mobility Devices

2.5 SAE Standard:⁷

SAE J3230/1_2021–02 Kinematic Performance Metrics for Powered Standing Scooters

2.6 IEC Standards:⁸

IEC 62133-2 Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications
IEC 50604-1 Secondary lithium batteries for light EV (electric vehicle) applications—Part 1: General safety requirements and test methods

2.7 International Protection Code (IPC) Standards:⁹

IP67 Waterproof

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *accelerator system, n*—mechanical system that is used to control the throttle position.

3.1.2 *axle guard, n*—device that covers the drive axle so that the possibility of injury resulting from hand, hair, body parts, or loose clothing contacting the axle is reduced.

3.1.3 *conspicuous, adj*—visible when the product is assembled.

3.1.4 *deck, n*—generally, low horizontal platform upon which the user places one or both feet.

3.1.5 *deck plate, n*—form of guarding through the use of relatively flat barriers to cover rotating components.

3.1.6 *dynamic load, n*—force applied to an item by means of motion or impact.

3.1.7 *locking fastener, n*—includes prevailing torque locknuts, cotter pins, serrated surface lock nuts, pal nuts, safety wire, and similar hardware intended to prevent unintended loosening when properly used.

3.1.8 *manufacturer's recommended use position, n*—any position that is presented as a normal, allowable, or acceptable configuration for use of the product by the manufacturer in any descriptive or instructional literature; this specifically excludes conditions such as when the product is unassembled (completely or partially) or folded and positions that the manufacturer shows or explains as being unacceptable, unsafe, or not recommended.

3.1.9 *manufacturers recommended weight rating, n*—the maximum suggested load that the product can be subjected to during operation.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

⁵ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>

⁶ Available from Underwriters Laboratories (UL), UL Headquarters, 333 Pfingsten Road, Northbrook, IL, 60062, <http://www.ul.com>.

⁷ Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001, <http://www.sae.org>.

⁸ Available from International Electrotechnical Commission (IEC), 3, rue de Varembe, 1st floor, P.O. Box 131, CH-1211, Geneva 20, Switzerland, <https://www.iec.ch>.

⁹ Available from <https://www.iec.ch/ip-ratings>.