



ASTM Consumer Product Standards: Enhancing Product Quality and Buyer Safety

Each and every day, consumers around the world use various products with the confidence that they will work in a reliable and safe manner. ASTM International consumer product standards play a critical role in building trust between manufacturers and consumers about the performance of a wide variety of goods. By helping to improve product reliability, ASTM standards empower manufacturers to deliver high quality products and ultimately give consumers confidence that the products they purchase are safe and ready to use.



ASTM PRODUCT SAFETY STANDARDS: FOCUS ON EMERGING HAZARDS

One of the most valuable contributions of ASTM consumer product safety standards is the manner in which they identify, address and mitigate emerging hazards in a multitude of products. To this end, ASTM standards advocate for consumer safety, helping to reduce and eliminate potentially unsafe products before they are placed on store shelves and arrive in our homes. Achieving this goal requires cooperation that goes beyond the responsibilities of an individual manufacturer. Safer products are ensured when all stakeholders work together: manufacturers, government regulators, trade and consumer groups, and individual consumers.

ASTM International has long been the consensus standards development forum that brings together diverse stakeholders with a shared interest in making consumer products as safe as possible. The open ASTM system allows all those concerned to engage directly in the standards development process and cooperate in achieving common goals. Through this openness and transparency, ASTM facilitates the development of standards that truly reflect the demands of the global marketplace. And while the use of ASTM standards is voluntary, government regulators have given them the force of law by citing them in legislation, regulations and codes, as evidenced in the Consumer Product Safety Improvement Act of 2008, discussed later.

In the consumer field, ASTM standards address a wide range of areas, including toys, other infant and child products such as cribs and playground equipment; household items like candles; cleaning-related tools such as vacuum cleaners, brooms and mops; sports equipment such as safety helmets; leisure activities like amusement rides; and many others. Several ASTM technical committees develop these standards, each of which contributes to enhancing product safety and building consumer confidence.

ASTM COMMITTEE F15: STANDARDS FOR CONSUMER PRODUCT SAFETY

ASTM International's largest consumer product standards committee is **F15 on Consumer Products**, a group that has played an important role in consumer product safety standards for more than 35 years. The committee's broad global membership of approximately 900 professionals includes stakeholders from the manufacturing and retail environment as well as representatives from government agencies and internationally respected trade and consumer groups. F15's activities encompass 50 standards-writing subcommittees, each of which focuses on a specific product area. F15 stakeholders work proactively in the public interest, forming new task groups on an ongoing basis to address urgent safety issues and newly identified hazards in various products.

ASTM F963: ENSURING SAFER TOYS

As new concerns about toys and other child-related safety issues have been raised during the last few years, the impact of ASTM International standards has again been brought to the forefront. With thousands of new toys introduced in the marketplace each year, ASTM standards play a vital role in supporting children's safety. An important contributor to that safety is ASTM **F963, Consumer Safety Specification for Toy Safety**, which establishes

safety requirements for toys intended for use by children under the age of 14.

The value of ASTM F963 was underscored in 2008 when it became mandatory through the landmark U.S. Consumer Product Safety Improvement Act. As part of this new law, all toys sold in the United States must meet F963 safety requirements.

ASTM F963, which is under the jurisdiction of Subcommittee F15.22 on Toy Safety, includes guidelines and test methods to prevent injuries from choking, sharp edges and other potential hazards. First drafted in 1971, the standard has been enhanced over the years to address new product technologies and innovations. The latest F963 revision issued at the end of 2008 addresses a wide range of hazards such as magnet ingestion, jaw entrapment, acoustics issues, flammability testing, impaction and other critical areas.

ASTM F2517: PROTECTING CHILDREN FROM GASOLINE BURNS

Another ASTM standard — **F2517, Specification for Determination of Child Resistance of Portable Fuel Containers for Consumer Use** — also became part of new legislation in 2008. The Children's Gasoline Burn Prevention Act requires that portable gasoline containers have child-resistant closures conforming to ASTM F2517. The law applies to all gasoline containers sold in the United States.

BROAD SCOPE OF CHILD SAFETY ACTIVITIES

Committee F15's child safety standards activities also extend to issues such as pool-related drownings, strangulation by clothing drawstrings, bunk bed injuries, crayon toxicity and much more.

A particularly important set of standards addresses playground equipment for both public and home use, including issues such as head and neck entrapment, playground layout, accessibility, maintenance and labeling. These standards include ASTM **F1487, Consumer Safety Performance Specification for Playground Equipment for Public Use**, which covers equipment used by children from 2 to 12 years old; and **F2373, Consumer Safety Performance Specification for Public Use Play Equipment for Children 6 Months through 23 Months**, which provides a standard covering products intended for children 2 years old and younger. The residential play equipment industry is addressed by standard **F1148, Consumer Safety Performance Specification for Home Playground Equipment**. As of January



2010, all three of these standards were being revised to reflect the latest industry developments.

KEEPING PEOPLE SAFE AT HOME

Numerous F15 standards also facilitate the safe use of products for children and adults in and around the home. ASTM **F2208, Safety Specification for Residential Pool Alarms**, helps lower the risk of children drowning in family swimming pools. This important standard provides performance requirements for residential swimming pool and spa alarms; it covers devices that provide for rapid, automatic detection and alarm in cases of a 1-year-old or older child entering a swimming pool either unintentionally, unsupervised or accidentally.

Inside the home, F15 safety standards address a wide range of indoor items, including bed rails, bunk beds, mattresses, wall coverings, bathtub and shower structures, bean bag chairs, dressers and many other product areas. Among the many notable standards is ASTM **F2057, Safety Specification for Chests, Door Chests and Dressers**, which is intended to reduce injuries and deaths of children from hazards associated with clothing storage units. A revision to F2057 has been approved that requires tip restraints and addresses labeling.

Another emerging safety issue around the home is preventing falls from windows. Here, two companion ASTM standards help keep small children safe. ASTM **F2006, Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows**, establishes device requirements intended to address the risk of injury and death to children 5 years old and younger through accidental falls from open windows more than 75 feet (23 m) above the ground. ASTM **F2090, Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms**, addresses the requirement for release mechanisms on window fall prevention devices applied to windows located at less than 75 feet (23 m) above the ground.

F11 STANDARDS ENHANCE QUALITY OF VACUUM CLEANER SYSTEMS

While the standards of Committee F15 cover a wide variety of products used in and around the home, another ASTM committee is specifically focused on one familiar household product. **Committee F11 on Vacuum Cleaners**, formed in 1972, develops standards that enhance the filtration efficiency, durability and air performance characteristics of vacuum cleaners. Among the 27 standards published by Committee F11 is the widely referenced **F608, Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners**. Two additional F11 test methods have recently been published: **F2608, Test Method for Determining the Change in Room Air Particulate Counts as a Result of the Vacuum Cleaning Process**, and **F2756, Test Method for Determining Energy Consumption of Vacuum Cleaners**.

SAFER SPORTS, THANKS TO COMMITTEE F08

Whether aimed at serious professional athletes, or the millions of people who enjoy various recreational activities, the standards

of ASTM **Committee F08 on Sports Equipment and Facilities** assist in making sports safer for all who participate. Formed in 1969, Committee F08 focuses on the development of standards, test methods and practices for sports equipment, surfaces and facilities to reduce the inherent risk of injuries. Committee F08 includes approximately 650 members who participate on one or more of 25 technical subcommittees that have responsibility for 130 standards. These standards cover a wide scope of sports areas, including headgear and helmets, bicycles, gymnastics and wrestling equipment, athletic footwear, eye safety, baseball and softball equipment, camping, fitness products, playing surfaces and much more.

Committee F08 works closely with third-party certifiers who certify products according to ASTM International or other standards. It is important for the certifying bodies to be involved in ASTM to understand the intent of the test methods and specifications so they can better implement testing practices in their facilities. In addition, many rules from the National Collegiate Athletic Association and the National Federation of State High School Associations reference F08 standards.

BETTER HEADGEAR AND HELMETS

Committee F08's most active subcommittee is F08.53 on Headgear and Helmets. This group is responsible for 19 standards, including headgear for martial arts, soccer, bicycling, football, baseball, pole vaulting, speed skating and other sports. For example, ASTM **F1447, Specification for Helmets Used in Recreational Bicycling or Roller Skating**, covers performance requirements for head protection used in these sports. Similarly, **F1849, Specification for Helmets Used in Short Track Speed Ice Skating (Not to Include Hockey)**, focuses on helmets used in this internationally popular winter sport. In soccer, where minor head injuries among players are common, **F2439, Specification for Headgear Used in Soccer**, covers performance requirements for headgear that are intended to reduce the forces reaching the impact area of the head.

IMPROVING SPORTS EQUIPMENT PERFORMANCE

Several ASTM Committee F08 standards also contribute to the performance quality and reliability of equipment used in numerous team and individual sports. New among these is ASTM **F2681, Specification for Body Protectors Used in Equine Racing**, which covers minimum performance criteria and describes test methods for body protectors for use in equine racing in a controlled environment.

Landing pad performance is very important in the sport of gymnastics. Here, **F1931, Test Method for Characterization of Gymnastic Landing Mats and Floor Exercise Surfaces**, covers the measurement of shock absorption characteristics of common surfaces used in this popular sport. A similar ASTM F08 standard — **F1162, Specification for Pole Vault Landing Systems** — provides a valuable tool that addresses requirements for landing pad size, materials and labeling as well as testing procedures.

Protecting the eyes of athletes is the central purpose of Subcommittee F08.57 on Eye Safety for Sports. F08.57 has developed standards covering eye protection for selected sports, including

women's lacrosse, field hockey, basketball, baseball and soccer plus skiing and paintball. Standards development activities are currently under way for proposed new eye protection standards specifically geared to field hockey, as well as one for airsoft sports, a growing recreational gaming activity that is similar to paintball.



F08 STANDARDS IMPROVE QUALITY OF ATHLETIC FIELDS

Another important topic of interest for the standards development activities of Committee F08 is athletic field improvement. Through the efforts of several of its subcommittees, F08 has contributed standards that have enhanced the quality of a variety of natural and artificial playing surfaces. Sports like baseball and football, which rely heavily on natural grass surfaces, are aided by such F08 standards as **ASTM F2060, Guide for Maintaining Cool Season Turfgrasses on Athletic Fields**. Sports stadiums and fields outfitted with artificial turf gain a valuable assist from the standards developed by Subcommittee F08.65 on Artificial Turf Surfaces and Systems. Notable standards include **F1015, Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces**.

F08.65 is also addressing the issue of drainage failures, one of the major problems confronting owners and operators of synthetic turf sports fields. Committee members are currently working on a proposed new standard that provides a vertical permeability test of synthetic turf that will be useful to designers, testing agencies and contractors in minimizing problems associated with field drainage.

F08 athletic field and surface standards also extend outside the world of sports. One such guide provides an example of close connection among multiple ASTM consumer-related safety standards. **F1292, Specification for Impact Attenuation of Surfacing Materials within the Use Zone of Playground Equipment**, which references several related ASTM standards, covers performance requirements for playground surfaces and surfacing materials.

COMMITTEE F27: SAFETY ON THE SLOPES

Also serving a sports-safety role is **Committee F27 on Snow Skiing**, which develops standards for snow skiing equipment to help reduce the risk of injury. These standards provide valuable tools and guidance for ski equipment manufacturers and retail and rental shop operators. Critical to skier safety on the slopes is durable, well-functioning equipment. F27 standard **F939, Practice for Selection of Release Torque Values for Alpine Ski Bindings**, facilitates proper performance of the ski-boot-binding system. F939 is particularly useful to ski binding manufacturers in their installation and use instructions, and to ski shop opera-

tors for making adjustments on already mounted ski bindings. In addition, the committee's most referenced standards, F1063, Practice for Functional Inspections and Adjustments of Alpine Ski/Binding/Boot Systems, and F1064, Practice for Sampling and Inspection of Complete and Incomplete Alpine Ski/Binding/Boot Systems in Rental Applications, ensure proper settings for retail applications and rentals.

SAFER AMUSEMENT RIDES THANKS TO COMMITTEE F24

ASTM **Committee F24 on Amusement Rides and Devices** is internationally recognized as the premier authority on amusement ride standards. In 2008, F24 celebrated its 30th year of providing standards and guides that support and improve the strong safety record of the amusement ride industry.

F24's membership includes a strong global representation, which enhances the acceptance of its standards by a broad range of international stakeholders, including the International Association of Amusement Parks and Attractions, the Outdoor Amusement Business Association and the Amusement Industry Manufacturers and Suppliers International. To support the broad global interest in the committee, F24 standards are also made available in French and Spanish.

F24's flagship standard is **ASTM F2291, Practice for Design of Amusement Rides and Devices**. Often referred to as the "world standard" for amusement ride design, F2291 details specific criteria for the design of rides and devices, and it was developed through the collaborative efforts of ride experts and interested parties from around the globe.

Recent notable activities of Committee F24 include the release of these standards: **F2376, Practice for Classification, Design, Manufacture, Construction and Operation of Water Slide Systems**; **F2374, Practice for Design, Manufacture, Operation and Maintenance of Inflatable Amusement Devices**; and **F2007, Practice for Design, Manufacture and Operation of Concession Go-Karts and Facilities**.

Whether it's the countless products that support and enhance our daily lives, or the wide range of leisure and recreational activities we enjoy, consumers everywhere can continue to count on the safety and support provided by ASTM standards.

ASTM INTERNATIONAL TECHNICAL COMMITTEES RELATED TO CONSUMER PRODUCTS

The ASTM technical committees highlighted in this piece include:

- ▶ F08 on Sports Equipment and Facilities
- ▶ F11 on Vacuum Cleaners
- ▶ F15 on Consumer Products
- ▶ F24 on Amusement Rides and Devices
- ▶ F27 on Snow Skiing