



Product Safety Insights LLC

Don Mays

580 Hunting Ridge Road
Stamford, CT 06903

Don@ProductSafetyInsights.com
917-561-2906

September 21, 2022

Ms. Alberta Mills
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Re: Petition for Rulemaking Specific to Revoking the Footbrake Requirement for Sidewalk Bicycles

Dear Ms. Mills:

I am writing to submit the enclosed petition for rulemaking specific to the footbrake requirements for sidewalk bicycles contained in 16 C.F.R. Part 1512.5 (e). This petition specifically requests rulemaking, as required in 16 CFR 1051.5(a)(5), to revoke the requirement for footbrakes on sidewalk bicycles.

The petition is limited to sidewalk bikes, which are a type of pedal bicycle intended for young children. The bicycle regulations, written 50 years ago, are out of date and no longer relevant to modern day sidewalk bicycle brake designs. The enclosed petition provides details regarding sidewalk bikes on the market that currently do not comply with the footbrake requirement. Despite the lack of compliance, these bicycles do not appear to have resulted in injury due to braking performance deficiencies. In addition, there is a lack of scientific evidence that using footbrakes on today's bicycles provides enhanced safety over handbrakes. In fact, the contrary may be true – evidence exists that using handbrakes can provide better braking performance than a footbrake alone.

I believe the enclosed petition meets the procedures for petitions cited in 16 C.F.R Part 1051. I request that the Commission consider the enclosed petition at its earliest convenience.

Sincerely,

A handwritten signature in black ink that reads 'Don Mays'.

Don Mays

**PETITION BEFORE THE
U.S. CONSUMER PRODUCT SAFETY COMMISSION**

**REQUEST FOR RULEMAKING TO REVOKE THE FOOTBRAKE REQUIREMENT
FOR SIDEWALK BICYCLES**

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

PETITION

Petitioner: Don Mays
Product Safety Insights LLC
580 Hunting Ridge Rd.
Stamford, CT 06903
917-561-2906
Don@ProductSafetyInsights.com

Product: Sidewalk Bicycles

Subject: Petition for Rulemaking to Revoke the Footbrake Requirement for Sidewalk Bicycles

Reference: 16 C.F.R. Part 1512

Interest of the Petitioner:

I am a product safety expert with more than 35 years of experience in the field. I have earned bachelor's and master's degrees in mechanical engineering. I currently provide consulting services to product manufacturers, law firms, and non-profit organizations on the subject of product safety.

Most recently, I served as Chief Safety and Quality Officer for Samsung Electronics NA. Prior to Samsung, I was Managing Director at Deloitte and Touche where I led a consulting practice on product safety and quality. I spent the majority of my career working for Consumer Reports as a Director of Testing and as the Senior Director of Product Safety and Technical Policy. Among my responsibilities at Consumer Reports, I oversaw the testing of bicycles and bicycle helmets, including those designed for children.

I am currently the Chairman of ASTM's F15 Committee on Consumer Products, Board Member and Vice President of the Society of Product Safety Professionals, and a Board Member of Kids In Danger.

I have prepared this petition on behalf of my client, woom, a major manufacturer of high-quality bicycles for children. The woom company began in 2013 in Vienna, Austria, and now sells bicycles globally.

Background:

Sidewalk bicycles are intended for young children, usually 3 to 6 years of age. They are typically the first two-wheeled bicycles children learn to ride. 16 C.F.R. Part 1512.2 Section (b) defines sidewalk bicycles as "a bicycle with a seat height of no more than 635 mm (25.0 in)"; the seat height is measured with its seat adjusted to its highest position.

16 C.F.R. Part 1512.5 Section (e) requires that sidewalk bicycles shall not only have handbrakes. Sidewalk bicycles with a seat height of 560 mm (22 in) or greater (with the seat adjusted to its lowest position) shall be equipped with a footbrake meeting all the footbrake requirements of Part 1512.5(c), which are test requirements for reverse pedal force while braking.

Furthermore, 16 C.F.R. Part 1512 Section (e)(3) states that sidewalk bicycles with a seat height of less than 560 mm (22 in) (with its seat height adjusted to its lowest position) and not equipped with a brake shall not have a freewheel feature. Such sidewalk bicycles not equipped with brakes shall be identified with a permanent "No Brakes" label. Such sidewalk bicycles equipped with a footbrake shall be tested for brake force in accordance with the sidewalk bicycle footbrake force test. Section 1512.18(f).¹

While the regulation does not define "freewheel," bicycles with this feature allow the pedals to move forward and spin backward freely. By contrast, bicycles with footbrakes (also called coaster brakes) cannot be pedaled backwards freely since pedaling backward will actuate the brake and cause the bicycle to slow or stop. For the purposes of this discussion, footbrakes and coaster brakes will be referred to interchangeably. All sidewalk bicycles without footbrakes have freewheels, and most have two handbrakes.

The requirement for footbrakes originated from an investigation in 1972 by the Food and Drug Administration (FDA) and the National Safety Council of all contributing factors leading to death or serious injuries of children associated with bicycles and certain bicycle components.² A study of the product causation data during this investigation identified areas of product deficiency that include: (1) the rider's foot slipping off the

¹ The last two sentences have been reversed from what appears in 16 C.F.R Part 1512 Section (e)(3) to enhance clarity.

² Source: Caroleene Paul, Project Manager, Directorate for Engineering Sciences, CPSC

pedal, (2) brake failure, (3) a component failure, and (4) poor night visibility. The list of problems was derived from a report entitled: "Staff analysis of bicycle accidents and injuries" by the Bureau of Product Safety (March 24, 1972), which preexisted the CPSC.

In this report, the following recommendations were made:

1. Reflectorization should be increased to make a bicycle not only visible in the dark, but also identifiable as a bicycle;
2. Pedals should be slip resistant;
3. Gear shifts and other devices on the horizontal bars of bicycles should be designed to reduce the risk of injury;
4. The maximum safe seat post length should be designed to reduce the risk of injury;
5. Front wheel brakes should be eliminated when they exist as the sole means of braking;
6. Hand levers for brakes should be designed for the intended operator;
7. Any regulations concerning bicycle safety should include coverage of sidewalk bicycles; and
8. Rough and sharp edges should be eliminated from hardware and various components.

The bicycle safety standard proposed by the FDA under the Federal Hazardous Substances Act (21 CFR 191c published in 38 FR 12300 on May 10, 1973) proposed the following:

For all bicycles:

A bicycle shall not be equipped with only a front-wheel brake. And a footbrake assembly shall be actuated by the operator's foot applying force to the pedal in the direction opposite to that of the drive force. The brake assembly shall function independently of any drive-gear positions or adjustments.

For sidewalk bicycles:

A sidewalk bicycle with a seat-to-ground dimension of 22 inches or greater, with seat in lowest position according to adjustment provided, shall be equipped with a foot-actuated brake. A bicycle less than the 22-inch dimension and not equipped with a brake shall not have a coasting or freewheeling feature. A bicycle not equipped with a brake shall be so labeled on the chain guard in legend visible from a 10-foot distance in daylight conditions, and the words "NO BRAKE" shall appear on the carton. A sidewalk bicycle shall not have hand-operated brakes as the primary braking system. The brake system shall transmit braking force to the rear wheel in proportion to actuation forces of 10 to 50 pounds in the ratio of 1 pound of wheel braking force for 2 pounds of pedal actuating force. The wheel braking force shall be measured tangentially at the tread of the tire.

On May 14, 1973, functions under the Federal Hazardous Substances Act were transferred to the CPSC; and on September 27, 1973 (38 FR 27012), the CPSC transferred the bicycle regulations from 21 CFR to 16 CFR Part 1512. Part 1512.5(e) pertaining to sidewalk bicycles is very similar to the requirements developed by the FDA. Minor amendments to the rule were codified in 1980, 1981, 1995, 2003, and 2011. The requirements for sidewalk bicycles have not changed since 16 CFR 1512 was published in 1973.

History of Enforcement:

Since May 1978, the CPSC has announced nearly 300 recalls for bicycles and bicycle related components and accessories. There have been only five recalls for sidewalk bicycles that failed to comply with the Federal regulation that requires footbrakes. Based on a reading of the press releases for these recalls, neither the CPSC nor the manufacturers who undertook these recalls were aware of any injuries involving the recalled bicycles. Those recalls are listed in the table below:

Date	Manufacturer	Number of units	Injuries
12/1/89	Santa Fe Trading	5,000	0
9/17/92	Radio Flyer	137	0
8/30/93	Zenital	7,900	0
9/9/21	Vitus	280	0
3/24/22	Commencal	925	0

Sidewalk Bicycle Brake Design:

Sidewalk bicycles currently on the market have a variety of braking systems. Those that meet the requirements of 16 C.F.R. Part 1512 have footbrakes. They require a rider to pedal backwards in order to slow or stop the rear wheel. Some sidewalk bicycles with coaster brakes also have a handbrake for the front wheel. These are usually caliper brakes that squeeze brake pads on opposite sides of the front wheel rim. A few sidewalk bicycles have disc brakes that squeeze a disc mounted on the front wheel hub to slow or stop the wheel from turning.

Non-compliant sidewalk bicycles do not have rear wheel footbrakes, but instead use only wheel caliper or disc brakes on both front and rear wheels. Both front and rear wheel brakes are actuated by hand levers attached to the handlebars. At least one manufacturer uses only a single handbrake lever to actuate both front and rear brakes.

While many manufacturers of sidewalk bicycles comply with the CPSC's footbrake requirements, many do not. I have identified nine brands, including twenty-two models of sidewalk bicycles that do not use footbrakes, but still remain on the U.S. market. In fact, some manufacturers tout the fact that they don't use coaster brakes, and claim that handbrakes are safer, easier to use, and result in quicker stops.

Bicycles with coaster brakes require the use of a special rear wheel hub that houses the braking mechanism. This significantly increases the cost of a bicycle over those that use hubs without coaster brakes (called “freewheel hubs”), and whose brakes are actuated by hand levers.

Most companies that currently sell sidewalk bicycles without footbrakes have successfully escaped enforcement action by the CPSC. This lack of enforcement allows these manufacturers to continue to sell non-compliant sidewalk bicycles, which puts manufacturers who comply with the law at a competitive disadvantage due to their higher cost of production.

Footbrakes are not required under any ASTM standard for children’s bicycles. Nor are footbrakes for children’s bicycles required in Europe, where cycling is more common than in the U.S. The current CPSC regulations force global manufacturers to make special edition sidewalk bicycles for the American market to be in compliance.

Safety Implications:

It is hard to compare the relative safety of bicycle braking between children’s bicycles with a combination of handbrakes and a footbrake to those with just handbrakes. The sizes of sidewalk bicycles limit their application to only young children who would normally not have the skills to perform braking tests safely. As such, we have been unable to identify any studies that evaluate comparative bicycle braking efficacy with bicycles intended for young children.

However, in 2002, the CPSC published a report³ that surmised that “children at age 3 have developed the ability to pedal, and have the coordination required to use a steering wheel or handlebar...They can use a small bicycle with training wheels, but foot brakes are preferred because these children cannot yet use hand brakes.” However, the author provided no support for this conclusion. That assertion may have been made based on bike brake design in 2002. However, today’s children’s bicycles now have easy-to-reach hand levers to actuate the front brakes.

Another study published by the Society of Automotive Engineers clearly showed that adult bicycles with only coaster brakes decelerated much more slowly under maximum braking effort than bicycles with a combination of front and rear handbrakes⁴. The study concluded that bicycles with rear handbrake setups braked at an average deceleration of 0.25 - 0.36 g, while bicycles with both front and rear handbrakes had deceleration rates of 0.40 - 0.65 g. Longer deceleration equates to longer stopping distances, which,

³ Smith, T. (2002). AGE DETERMINATION GUIDELINES: Relating Children’s Ages To Toy Characteristics and Play Behavior. Retrieved from: <https://www.cpsc.gov/PageFiles/113962/adg.pdf>

⁴ “Bicycle Braking Performance Testing and Analysis;” Famigletti et al./ SAE International, J. Advances @ Curr. Prac. In Mobility ; April 14, 2020

if applied to sidewalk bicycles, could put a child rider in harm's way if a front brake is also not applied.

It can be debated as to whether using reverse pedal motion to stop a bicycle is intuitive for a young child. However, it stands to reason that reversing the pedal motion and applying the force of a young child's body weight to bring a bike to a stop would take longer than simply squeezing the levers on handbrakes. Additionally, children who have outgrown sidewalk bicycles use bicycles with only handbrakes. Learning to change braking modes as a child grows may result in, albeit temporary, safety issues.

CPSC's regulatory enforcement staff has admitted to my client's legal counsel that the footbrake regulation is out-of-date. It is apparent to me that the regulation does not account for current designs on bicycles that have easy-to-use brake levers and disc brakes. Also, there appears to be a lack of empirical evidence that footbrakes enhance safety over handbrakes. As such, safety would not be compromised if the CPSC issued a rulemaking revoking their footbrake requirements, allowing sidewalk bikes to be sold with only handbrakes.

Regulatory caveats

Some manufacturers skirt the regulations in a variety of ways. For example, one manufacturer sells their sidewalk bicycles with coaster brakes when purchased directly through the company's website. But the same models are sold through a retailer with handbrakes only. The retailer does offer an optional coaster brake kit upon request.

Another manufacturer also offers a coaster brake as an option, but only for their red painted bicycles. White or black bicycles of the same model have only handbrakes.

While sidewalk bicycles are required to have footbrakes at the time of distribution or sale to the consumer, some manufacturers offer a freewheel kit as an option for those who don't want coaster brakes. A CPSC compliance officer told my client's legal counsel that: "Selling a free wheel attachment as an aftermarket product is an acceptable option and is not subject to the Requirements for Bicycles."⁵ That implies that retrofitting a sidewalk bike with a freewheel kit and handbrakes will not jeopardize safety.

In addition, the regulations essentially require footbrakes on sidewalk bicycles whose seat height is between 22 inches, with the seat height adjusted to its lowest position, and 25 inches, with the seat adjusted to its highest position. Virtually all sidewalk bicycles on the market today have a frame geometry that allows the seat to be adjusted lower than the 22-inch minimum. Some manufacturers of those bicycles may take advantage of a loophole in 16 C.F.R Part 1512 Section (e)(3) that footbrakes are not

⁵ 10/24/16 email from JAlvardao@CPSC.gov to KenRossEsq@gmail.com.

required on models whose seats can be adjusted below the 22-inch minimum. However, this interpretation definitely does not comply with the spirit of the regulations.

For example, three manufacturers supply their sidewalk bicycles with extra long seat posts. That allows the seat to be adjusted above the 25-inch maximum height that the regulations cite in the definition of sidewalk bicycles (16 C.F.R. Part 1512.2 Section (b)). Then, one of those manufacturers offers an optional shorter seat post to better fit smaller children. Using a shorter seat post on the original sale of the bicycle would presumably require those models to comply with the footbrake requirement.

Finally, one manufacturer claims that their handbrakes-only sidewalk bicycles are "CPSC Certified." I am fully aware that the CPSC does not certify bicycles.

Lack of enforcement

Despite the fact that many non-compliant sidewalk bicycles remain on the market, the CPSC's Compliance staff does not appear to be taking aggressive enforcement action against all those companies that continue to sell non-compliant bicycles. woom's legal counsel first raised the issue of the coaster brakes with the CPSC's regulatory enforcement group in May of 2016. He continued to have numerous communications with this group in 2016, 2018, 2020, and 2021. In May of 2021, he first spoke with Rob Kaye about this matter and has had continuing communications with Mr. Kaye since then. CPSC's position since 2016, as expressed to woom's counsel, has always been that the coaster brake requirements must be complied with and would be enforced.

In a recent conversation that woom's counsel and myself had with Mr. Kaye, Mr. Kaye suggested that woom discuss the issue with retailers who sell non-compliant bicycles. Following that recommendation, a major retailer reported to me that they would continue to sell bicycles that are not compliant with CPSC regulations since the CPSC is not enforcing the section of the federal code that requires footbrakes on sidewalk bicycles. The lack of aggressive enforcement action is an indication that the CPSC may not believe that the absence of footbrakes on sidewalk bicycles presents any product hazard.

My request

I support the CPSC's recent enforcement actions pertaining to this issue. Children's bicycles today are far different in design than those bicycles on the market when the bicycle regulations were adopted. And while the 16 C.F.R Part 1512 regulation is seriously outdated, I support the position that all manufacturers should comply with the law as promulgated. However, the playing field is not level since some manufacturers choose to comply while many others do not.

In the absence of any on-going effort to update this standard based on empirical test data, I believe the CPSC should begin the rulemaking process to revoke the part of the standard that is no longer relevant. Therefore, in the absence of aggressive

enforcement action, the fact that the preponderance of non-compliant sidewalk bicycles are on the market, and there is a lack of scientific evidence that using handbrakes are less safe than footbrakes on today's bicycles, I respectfully request that the CPSC issue rulemaking to revoke the rule pertaining to footbrakes on sidewalk bicycles as referenced in 16 C.F.R. Part 1512.5 Section (e).



Product Safety Insights LLC

*Received
4-24-2023*

Don Mays
580 Hunting Ridge Road
Stamford, CT 06903
Don@ProductSafetyInsights.com
[917-561-2906](tel:917-561-2906)

April 17, 2023

Ms. Alberta Mills
U.S. Consumer Product Safety Commission
4330 East West Highway
Bethesda, MD 20814

Re: Addendum to Petition for Rulemaking Specific to Revoking the Footbrake Requirement for Sidewalk Bicycles

Dear Ms. Mills:

On September 21, 2022, I submitted a petition to the CPSC through you requesting rulemaking to revoke the footbrake requirement for sidewalk bicycles. I am hereby adding an addendum to that petition, which provides additional support to my argument for revoking the CPSC's footbrake requirement. My addendum is attached.

Sincerely,

A handwritten signature in blue ink that reads "Don Mays".

Don Mays

**PETITION BEFORE THE
U.S. CONSUMER PRODUCT SAFETY COMMISSION**

**ADDENDUM TO REQUEST FOR RULEMAKING TO REVOKE THE FOOTBRAKE
REQUIREMENT FOR SIDEWALK BICYCLES**

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

PETITION - ADDENDUM

Petitioner: Don Mays
Product Safety Insights LLC
580 Hunting Ridge Rd.
Stamford, CT 06903
917-561-2906
Don@ProductSafetyInsights.com

Product: Sidewalk Bicycles

Subject: Addendum to Petition for Rulemaking to Revoke the Footbrake Requirement for Sidewalk Bicycles

Reference: 16 C.F.R. Part 1512

Addendum:

As an addendum to the petition I submitted on September 21, 2022 regarding a request for rulemaking to revoke the footbrake requirement for sidewalk bicycles, I have uncovered some recent and publicly available information that supports my case. That information can be accessed through a You Tube video at the following link:

<https://www.youtube.com/watch?v=ZRBiFAbuajU>

The video was produced by Berm Peak whose host is a bicycle expert. He makes the following points that I have paraphrased:

- Coaster brakes (footbrakes) are not always reliable for being able to stop a bike. If your feet come off the pedals or if the chain comes off, the brakes won't work. If the crank is in an odd position, you can't apply the brakes immediately.
- Coaster brakes can be accidentally activated when attempting to level the pedals, which is a common riding technique for mountain biking. Even for young

children's' mountain bikes, the inability to level the pedals can create a serious issue if a pedal in its lowest position contacts the ground or a tree root.

- Bikes with a free hub and hand brakes are safer and help children develop good riding habits.
- The CPSC allows manufacturers of sidewalk bikes to supply an aftermarket wheel with a free hub that eliminates the coaster brake. Using an aftermarket wheel with a free hub is a recommended option.
- The 50-year old law requiring coaster brakes is out of date and manufactures have since engineered better hand brakes designed for children.
- The current law makes safer bikes illegal to sell. Manufacturers and parents want to undo the law that requires coaster brakes, but there is no political will to do so.
- The current bicycle regulations are out of date. In a perfect world, we should rewrite all regulations concerning bicycles, but for now, focusing on just the coaster brake issue seems more reasonable.

My request:

I request that you consider the information conveyed in this video as support for my earlier petition.