

 한국소비자원 Korea Consumer Agency		Press Release "An agency for the citizens in interest of consumers"	 Facebook @kcanews  Instagram @kca.go.kr
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Harmful Substances Detected From Synthetic Resin · Synthetic Leather Products That Often Come Into Contact With Human Body

- Harmful substance content in slippers, desk mats, mouse pads or racket handles need to be regulated -

Synthetic resin and synthetic leather are widely used for various consumer products such as household goods and sporting goods, but the current safety standards for harmful substances vary depending on individual items, which may lead to safety blind spots.

Accordingly, the Korea Consumer Agency (President Jang Duck-Jin, KCA) investigated 79 products that frequently come into contact with human body and are made with synthetic resin and synthetic leather. As a result, many of them turned out to contain harmful substances such as lead, cadmium or phthalate plasticizers.

- * (Synthetic resin products) 20 slippers, 15 mouse pads, 8 desk mats, 10 badminton racket handles, 6 tennis racket handles, 10 golf club handles, (synthetic leather products) 10 adults' synthetic leather slippers

[Safety standards and harmful substance management status for synthetic resin and synthetic leather products]

Research Subject Items	Safety Standards	List of harmful substances indicated in the safety standards (phthalate plasticizer, lead, cadmium, etc.)
Synthetic Resin Slippers	O	O
Adults' Synthetic Leather Slippers	O	X
Mouse Pads, Desk Mats, Badminton·Tennis Racket Handles, Golf Club Handles, etc.	X	X

☐ **12 synthetic resin slippers contain harmful substances exceeding the domestic safety standard**

According to the Electrical Appliances and Consumer Products Safety Control Act, 10 out of 15 (66.7%) adults' synthetic resin slippers that fall under "consumer products subject to compliance with safety measures*" were found to contain phthalate plasticizer and lead exceeding the relevant standards by 445 times and 11.5 times respectively.

* Appendix 24, Synthetic Resin Products Subject to Compliance with Safety Measures (Korean Agency for Technology and Standards Notification 2019-0352)

Also, two out of five (40.0%) children's synthetic resin slippers were found to have phthalate plasticizers and lead exceeding the common safety standard for children's products* up to 373 times and 10.7 times respectively.

* Common Safety Standards for Children's Products (Ministry of Trade, Industry and Energy Notification 2021-132)

[Harmful substance content in synthetic resin slippers]

Product Type	Substance (Unit)	Safety Limit	Products That Exceed the Safety Limit			Relevant Standards
			Detected Amount	No of Products	Total	
Adults' Synthetic Resin Slippers(15)	Phthalate Plasticizer(%)	Less than 0.1	1.72 ~ 44.57	9	10	Safety Standards for Synthetic Resin Products
	Lead(mg/kg)	Less than 300	835 ~ 3,468	7		
	Cadmium(mg/kg)	Less than 75	87	1		
Children's Synthetic Resin Slippers(5)	Phthalate Plasticizer(%)	Less than 0.1	20.09 ~ 37.37	2	2	Common Safety Standards for Children's Products
	Lead(mg/kg)	Less than 100	786 ~ 1,071	2		

- * **Phthalate Plasticizer** : a type of endocrine disruptor that may cause liver-kidney damage and have adverse effect on reproductive function for both male and female.
- * **Lead** : lead may disrupt intelligence development of children or cause loss of appetite, anemia, or muscle weakness. International Agency for Research on Cancer(IARC) under the World Health Organization(WHO) categorizes lead as a possibly carcinogenic substance (Group 2B).
- * **Cadmium** : cadmium may cause kidney damage and IARC categorizes cadmium as a carcinogenic substance (Group 1).

☐ **Harmful substances such as heavy metals are detected in eight synthetic leather slippers but there lacks an adequate standard**

Adults' synthetic leather slippers made of polyvinyl chloride (PVC) or

polyurethane (PU) are categorized as “consumer products subject to compliance with safety measures*,” however, there is currently no related standard for harmful substances such as phthalate plasticizers or heavy metals.

* Leather Products Subject to Compliance with Safety Measures (Korean Agency for Technology and Standards Notification 2018-0195)

Thus, the researchers instead applied the safety standards for synthetic resin products to assess harmful substances in adults’ synthetic leather slippers to find out that eight products (80.0%) contained phthalate plasticizer (maximum 24.98%), lead (maximum 16,380mg/kg) and cadmium (maximum 118mg/kg).

[Harmful substance content in synthetic leather slippers]

Product Type	Substance (Unit)	Safety Limit	Products That Exceed the Safety Limit			Relevant Standard
			Detected Amount	No. of Products	Total	
Adults’ Synthetic Leather Slippers (10)	Phthalate Plasticizer(%)	Less than 0.1	0.22 ~ 24.98	7	8	Safety Standards for Synthetic Resin Products
	Lead(mg/kg)	Less than 300	801 ~ 16,380	6		
	Cadmium(mg/kg)	Less than 75	82 ~ 118	3		

□ Harmful substances also detected in 21 synthetic resin products

While slippers or yoga mats made with synthetic resin are categorized as “consumer products subject to compliance with safety measures*,” there lacks adequate safety standards for products like desk mats, mouse pads and badminton or tennis racket handles.

* Appendix 24, Synthetic Resin Products Subject to Compliance with Safety Measures (Korean Agency for Technology and Standards Notification 2019-0352)

Likewise, the researchers applied the safety standards for synthetic resin products to 49 products* that are not properly categorized, and 21(42.9%)** products were found to contain phthalate plasticizer (maximum 32.957%), lead (maximum 1,601mg/kg) and cadmium (maximum 1,077mg/kg).

* 15 mouse pads, 8 desk mats, 10 badminton racket handles, 6 tennis racket handles, 10 golf club handles

** 10 mouse pads, 3 desk mats, 7 badminton racket handles, 1 tennis racket handle

[Harmful substance content in synthetic resin products]

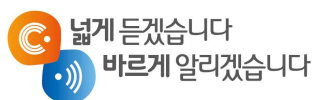
Product Type	Substance (Unit)	Safety Limit	Products That Exceed the Safety Limit			Relevant Standard
			Detected Amount	No. of Products	Total	
Mouse Pads (15)	Phthalate Plasticizer(%)	Less than 0.1	3.871 ~ 4.746	4	10	Safety Standards for Synthetic Resin Products
	Cadmium(mg/kg)	Less than 75	1,385 ~ 1,601	10		
Desk Mats (8)	Cadmium(mg/kg)	Less than 75	156 ~ 976.2	3	3	
Badminton Racket Handles (10)	Phthalate Plasticizer(%)	Less than 0.1	0.627 ~ 32.957	7	7	
	Lead(mg/kg)	Less than 300	1,077	1		
Tennis Racket Handles (6)	Phthalate Plasticizer(%)	Less than 0.1	17.398	1	1	

☐ Safety standards needs improvement by reflecting the consumer behavior

Synthetic leather slippers, desk mats, mouse pads, badminton and tennis racket handles often come into close contact with human body and are easily accessible to children as well as adults. Although these products need to be regulated in terms of harmful substances, they are still in the safety blind spot for not having adequate standards.

Based on the results of the inspection, the Korea Consumer Agency advised the business operators to improve the product safety, and requested relevant authorities ▲ to strengthen the supervision over the safety and labeling status of synthetic resin slippers, and ▲ to review safety standards for synthetic leather and synthetic resin products.

※ Out of 41 products that contained harmful substances, the business operators of 40 products replied with plans for voluntary corrective measures to ensure the safety of consumers.



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