

# Korea Laboratory Accreditation Scheme

## CERTIFICATE OF ACCREDITATION

### Korea Testing Certification Institute

**Accreditation No.:** KT006

**Corporation Registration No.:** 134122-0007304

**Address of Laboratory :** (Branch site) 22 Heungan-daero 27beon-gil, Gunpo-si, Gyeonggi-do, Republic of Korea  
(Branch site-1) 74, LS-ro 115beon-gil, Gunpo-si, Gyeonggi-do, Republic of Korea  
(Branch site-2) 29, Heungan-daero, Gunpo-si, Gyeonggi-do, Republic of Korea  
(Satellite facilities-1) 82, Pyeongtaekhang-ro, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Republic of Korea  
(Satellite facilities-2) 34-46, Bangchon-ro 955beon-gil, Tanhyeon-myeon, Paju-si, Gyeonggi-do, Republic of Korea  
(Branch site-3) 55, Gungnae-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

**Date of Initial Accreditation:** September 16, 1994

**Validity of Accreditation :** July 30, 2019 ~ July 29, 2023

**Scope of Accreditation :** Attached Annex

**Date of issue :** January 5, 2023

This testing laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to Joint ISO-ILAC-IAF Communiqué).



**Head**

**Korea Laboratory Accreditation Scheme**

*Sanghoon Lee*

# Korea Laboratory Accreditation Scheme

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**(Branch site) 22 Heungan-daero 27beon-gil, Gunpo-si, Gyeonggi-do, Republic of Korea**

## **01 Mechanical Testing**

01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2016-600 (12.23.2016.)	Household items	Safety Certification Standard Annex 7 Aquatic equipment		
		Part 1. Inflatable aquatic equipment		
		5.1 Shape	visual inspection	
		5.2 Measurement of thickness of grey fabric	(0 ~ 10) mm, 0.01 mm	
		5.3 Tensile cut load of plastic grey fabric	(0 ~ 500) N, 0.5 N	
		5.4 Loss on heating	(0 ~ 220) g, 0.000 1 g	
		5.5 Plastic cold-resistant	visual inspection	
		5.6 Air room volume determination	(0 ~ 600) L/h, 1 L	
		5.7 Tensile strength	(0 ~ 5 000) N, 0.01 N	
		5.8 Air leakage and internal pressure test	visual inspection	
		Part 2. Inflatable Boats		
		5.1 Shape	visual inspection	
		5.2 Measurement of thickness of grey fabric	(0 ~ 10) mm, 0.01 mm	
		5.3 Tensile cut load of plastic grey fabric	(0 ~ 500) N, 0.5 N	
		5.4 Loss on heating	visual inspection	
		5.5 Rubber cold-resistant	visual inspection	
		5.6 Air room volume determination	visual inspection	
		5.7 Tensile strength	(0 ~ 500) N, 0.5 N	
		5.8 Air leakage and internal pressure test	visual inspection	
		5.9 Test method of coated fabric	visual inspection	
		5.9.1 Weight measurement of coated fabric	(0 ~ 2 200) g, 0.01 g	
		5.9.2 Tensile strength of coated fabric	(0 ~ 500) N, 0.5 N	
		5.9.3 Tearing Strength	(0 ~ 500) N, 0.5 N	
		5.9.4 weathering resistance test method	visual inspection	
		5.9.5 Aging test method	visual inspection	
		5.10 Tensile strength test method of string and band	(0 ~ 500) N, 0.5 N	
		5.11 Bond joint strength test method	visual inspection	
		5.12 Ozone degradation test	visual inspection	
		5.13 Metal component corrosion resistance test	visual inspection	

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Test method	Products and materials	Standard designation	Test range	Field testing
		Safety Certification Standard Annex 7 Aquatic equipment(continue)		
		Part 3. Buoyant aids to be worn		
		6.1 Introduction	visual inspection	
		6.2 Set antecedent condition before testing	visual inspection	
		6.3 Materials and mark - how well it resists sea-water chlorinated	visual inspection	
		6.4 Mark - how well it resists split	visual inspection	
		6.5 Mark - how well it resists sweat	visual inspection	
		6.6 Features of buoyancy	(0 ~ 30 000) g, 1 g	
		6.7 Utility of valve for preventing backflow	(0 ~ 30 000) g, 1 g	
		6.8 Residual buoyancy	(0 ~ 30 000) g, 1 g	
		6.9 Wearing sensation, retention of the function, edge	visual inspection	
		6.10 Safety of buckle	(2 ~ 100) N, 2 N	
		6.11 Strength of bonded joints and durability of air injection device	visual inspection	
		6.12 Test a puncture	(0 ~ 250) N, 0.001 N	
		6.13 Adhesive strength of mark	visual inspection	
		6.14 Small parts	visual inspection	
		6.15 Loading test of end item	visual inspection	
		6.16.1 How well it resists water absorption of foam and floatable material	(0 ~ 30 000) g, 1 g	N
		6.16.2 How well it resists pressure of foam and floatable material	(0 ~ 30 000) g, 1 g	
		Part 4. Requirements and test methods for buoyant devices to be held		
		6.1 Introduction		
		6.2 Set antecedent condition before testing	visual inspection	
		6.3 Materials and mark - how well it resists sea-water chlorinated	visual inspection	
		6.4 Mark - how well it resists split	visual inspection	
		6.5 Mark - how well it resists sweat	visual inspection	
		6.6 Features of buoyancy	(0 ~ 30 000) g, 1 g	
		6.7 Valve, edge, corner and end	visual inspection	
		6.8 Air injection supplementary parts		
		6.8.1 Utility of valve for preventing backflow	visual inspection	
		6.8.2 Strength of bonded joints and durability of air injection device	visual inspection	
		6.8.3 Test a puncture	(0 ~ 250) N, 0.001 N	
		6.9 Adhesive strength of mark	visual inspection	
		6.10 Small parts	visual inspection	
		6.11.1 How well it resists water absorption of foam and floatable material	(0 ~ 30 000) g, 1 g	

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No. 2015-0107 (06.04.2015.)	Household items	Safety Certification Standard Annex 1 Aquatic Equipment For Children Part 1. Inflatable aquatic equipment 5.1 Shape 5.2 Measurement of thickness of grey fabric 5.3 Tensile cut load of plastic grey fabric 5.4 Loss on heating 5.5 Air room volume determination 5.6 Tensile strength 5.7 Air leakage and internal pressure test Part 2. Buoyant aids to be worn 6.2 Set antecedent condition before testing 6.3 Materials and mark - how well it resists sea-water chlorinated 6.4 Mark - how well it resists split 6.5 Mark - how well it resists sweat 6.6 Features of buoyancy 6.7 Utility of valve for preventing backflow 6.8 Residual buoyancy 6.9 Wearing sensation, retention of the function, edge, corner, end 6.10 Safety of buckle 6.11 Strength of bonded joints and durability of air injection device 6.12 Test a flat tire 6.13 Adhesive strength of mark 6.14 Small parts 6.15 Loading test of end item 6.16.1 How well it resists water absorption of foam and floatable material 6.16.2 How well it resists pressure of foam and floatable material 6.16.7 Stability of baby swimming support seat Part 3. Requirements and test methods for buoyant device 6.2 Set antecedent condition before testing 6.3 Materials and mark - how well it resists sea-water chlorinated	visual inspection (0 ~ 10) mm, 0.01 mm (0 ~ 250) N, 0.5 N (0 ~ 220) g, 0.000 1 g (0 ~ 600) L/h, 1 L (0 ~ 500) N, 0.1 N visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 30 000) g, 1 g (0 ~ 30 000) g, 1 g (0 ~ 30 000) g, 1 g visual inspection (2 ~ 100) N, 2 N visual inspection (0 ~ 250) N, 0.001 N visual inspection visual inspection visual inspection (0 ~ 30 000) g, 1 g (0 ~ 30 000) g, 1 g visual inspection visual inspection visual inspection	N

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No. 2015-0107 (06.04.2015.)	Household items	Safety Certification Standard Annex 1 Aquatic Equipment For Children(continue)		
		6.4 Mark - how well it resists split	visual inspection	
		6.5 Mark - how well it resists sweat	visual inspection	
		6.6 Features of buoyancy	(0 ~ 30 000) g, 1 g	
		6.7 Valve, edge, corner, end	visual inspection	
		6.8.1 Utility of valve for preventing backflow	(0 ~ 30 000) g, 1 g	
		6.8.2 Strength of bonded joints and durability of air injection device	visual inspection	N
		6.8.3 Test a puncture	(0 ~ 250) N, 0.001 N	
		6.9 Adhesive strength of mark	visual inspection	
		6.10 Small parts	visual inspection	
		6.11.1 How well it resists water absorbtion of other substance	(0 ~ 30 000) g, 1 g	
KATS Notice No.2021-0142 (06.01.2021.)	Household items	Safety Confirmation Standard - Annex 40 Bicycle		
		Part 1 Bicycle for General Type		
		5.1 General	-	
		5.1.1 Sharp edges	visual inspection	
		5.1.2 Protrusions	visual inspection	
		5.1.3 Wire	(0~500) N, 0.5 N	
		5.1.4 Security and screws	visual inspection	
		5.2 Brakes	-	
		5.2.1 General	0.1 %	
		5.2.2 Hand-operated brakes	-	
		5.2.2.1 Brake lever position	visual inspection	
		5.2.2.2 Brake lever grip dimensions	(0~300) mm, 0.01 mm	
		5.2.2.3 attachment of brake assembly	visual inspection	
		5.2.2.4 Brake-block and brake-pad assemblies-Security test	(0~32 400) s, 0.01 s (0 ~ 5.5) m, 1 mm (0 ~ 500) N, 0.5 N	
		5.2.2.5 Brake adjustment	visual inspection (0 ~ 90)°, (0.1)°	
		5.2.3 Coaster hub	(0 ~ 90)°, 0.1° (0 ~ 100) N·m, 1 N·m	

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Test method	Products and materials	Standard designation	Test range	Field testing
		Safety Confirmation Standard - Annex 40 Bicycle(continue)		
		5.2.4 Brake - Strength	-	
		5.2.4.1 Hand-operated braking-system- Strength	(0 ~ 300) mm, 0.01 mm (0 ~ 500) N, 0.5 N	
		5.2.4.2 Coaster hub - Strength	(0 ~ 2 000) N, 1 N	
		5.2.4.3 Brake wire - Strength	(0 ~ 250) kN, 0.2 N	
		5.2.5 Braking performance	(0~32 400) s, 0.01 s (0 ~ 5.5) m , 1 mm (0 ~ 500) N, 0.5 N (0 - 300) mm, 0.01 mm (0 ~ 200) kg, 0.05 kg	
		5.2.6 Coaster hub brake linearity	(0~32 400) s, 0.01 s (0 ~ 500) N, 0.5 N	
		5.3 Steering section	-	
		5.3.1 Steering security	visual inspection (0 ~ 200) kg, 0.05 kg (0 ~ 90)°, 0.1°	
KATS Notice No.2021-0142 (06.01.2021.)	Household items	5.3.2 Strength of assembly of the steering section	(0 ~ 100) N·m, 1 N·m (0 ~ 32 400) s, 0.01 s (0 ~ 90)°, 0.1°	N
		5.3.3 Handle	(0 ~ 600) mm ,0.01 mm (0 ~ 500) N, 0.5 N	
		5.4 Front fork	visual inspection	
		5.5 Wheel/tyre	-	
		5.5.1 Rotational accuracy	(0 ~ 12.7) mm , 0.001 mm	
		5.5.1.1 Axial run-out accuracy	(0 ~ 12.7) mm , 0.001 mm	
		5.5.1.2 Radial run-out accuracy	(0 ~ 12.7) mm , 0.001 mm	
		5.5.2 Spacing	(0 ~ 300) mm ,0.01 mm	
		5.5.3 Spoke tension	(510~1 780)N, 10 N (0 ~ 500) N, 0.5 N	
		5.5.4 Wheel static strength	(0 ~ 32 400) s, 0.01 s	
		5.5.5 Wheel retention devices secured	(0 ~ 600) mm ,0.01 mm	
		5.5.5.1 Minimum detachment torque of hub nut	(0 ~ 100) N·m, 1 N·m (0 ~ 2 500) N, 0.1 N	
		5.5.5.2 Front wheel	(0 ~ 600) mm ,0.01 mm (0 ~ 500) N, 0.5 N	

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Test method	Products and materials	Standard designation	Test range	Field testing
		Safety Confirmation Standard - Annex 40 Bicycle(continue)		
		5.5.5.3 Rear wheel	(0 ~ 2 500) N, 0.1 N	
		5.5.6 Detachment of wheels	visual inspection	
		5.5.7 Structure and performance of quick release hub	(0 ~ 300) mm, 0.01 mm (0 ~ 500) N, 0.5 N	
		5.6 Tire and tube	-	
		5.6.1 Marking air pressure	visual inspection	
		5.6.2 Wheel/tyre assembly	(0 ~ 1 500) kPa, 20 kPa	
		5.7 Drive system	-	
		5.7.1 Pedal clearance	visual inspection	
		5.7.1.1 Pedal ground angle	(0 ~ 90)°, 0.1°	
		5.7.1.2 Toe clearance	(0 ~ 300) mm, 0.01 mm	
		5.7.2 Drive system - Static strength	visual inspection	
		5.7.3 Gear-change mechanism performance	visual inspection	
KATS Notice No.2021-0142 (06.01.2021.)	Household items	5.7.4 Drive-chain and drive belt	visual inspection (0 ~ 250) kN, 0.2 N (-50 ~ 150) °C, 1°C (0 ~ 300) mm, 0.01 mm	N
		5.8 Saddle and seat-posts	-	
		5.8.1 Measurement	(0 ~ 300) mm, 0.01 mm	
		5.8.2 Saddle-Static strength	(0 ~ 2 700) N, 1 N, (0 ~ 300) mm, 0.01 mm	
		5.9 Protective device	-	
		5.9.1 Chain case	visual inspection (0 ~ 300) mm, 0.01 mm	
		5.9.2 Protection of wheels during rotation	visual inspection	
		5.10 Lighting systems and Reflectors	visual inspection (0 ~ 500) N, 0.5 N	
		5.10.1 Lighting systems	visual inspection (0 ~ 200) N, 0.1 N	

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		Safety Confirmation Standard - Annex 40 Bicycle(continue)		
		5.10.2 Reflex reflectors	visual inspection (0 ~ 300) mm, 0.01 mm (0 ~ 90)°, 0.1°	
		5.10.2.1 Rear reflectors	visual inspection (0 ~ 300) mm, 0.01 mm (0 ~ 90)°, 0.1°	
		5.10.2.2 Pedal reflectors	visual inspection	
		5.10.2.3 Side Reflectors	visual inspection	
		5.10.2.4 Front reflectors	visual inspection	
		5.11 Horn	visual inspection	
		5.12 Stand	visual inspection	
		5.13 Practical comprehensive performance	visual inspection (0 ~ 90)°, 0.1°, (0 ~ 32 400) s, 0.01 s, (0 ~ 20) m/s, 0.1m/s, (0 ~ 5.5) m, 1 mm, (0 ~ 300) mm, 0.01 mm	
KATS Notice No.2021-0142 (06.01.2021.)	Household items	5.14 Frame	-	N
		5.14.1 Frame-Impact resistance	(0 ~ 300) mm, 0.01 mm	
		5.14.2 Frame-Fatigue test with pedalling forces	(0 ~ 2 000) N, 0.1 N	
		5.14.3 Frame-Fatigue test with horizontal forces	(0 ~ 2 000) N, 0.1 N	
		Part 2 Mountain bike	-	
		4.1 Component Strength, Structure and Performance	-	
		4.1.1 Frame-strength	(0 ~ 2 000) N, 0.1 N (0 ~ 300) mm, 0.01 mm	
		4.1.2 Front fork	(0 ~ 20) kN, 0.1 N (0 ~ 3 000) N, 1 N	
		4.1.3 Seat post-Strength	(0 ~ 20) kN, 0.1 N (0 ~ 3 000) N, 1 N	
		4.1.4 Handle-Strength	(0 ~ 3 000) N, 1 N	
		4.1.5 Bar end bar-Strength	(0 ~ 3 000) N, 1 N (0 ~ 100) N·m 1 N·m	
		4.1.6 Pedal shaft-Strength	(0 ~ 250) kN, 0.2 N	

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Test method	Products and materials	Standard designation	Test range	Field testing
		Safety Confirmation Standard - Annex 40 Bicycle(continue)		
		4.1.7 Structure and performance of quick release hub	(0 ~ 20) kN, 0.1 N (0 ~ 300) mm, 0.01 mm	
		4.1.8 Brake wire-Strength	(0 ~ 250) kN, 0.2 N	
		4.2 Toe clearance	(0 ~ 300) mm, 0.01 mm	
		4.3 Runs under wet conditions	(0~32 400) s, 0.01 s (0~5.5) m, 1 mm	
		4.4 Wheel/tyre	-	
		4.4.1 Rotational accuracy	(0 ~ 12.7) mm, 0.001 mm	
		4.4.2 Attachment of wheels	(0~300) mm, 0.01 mm	
		4.4.3 Wheel/tyre assembly-static strength	(0 ~ 500) N, 0.5 N (0 ~ 12.7) mm, 0.001 mm	
		4.4.4 Wheel-Front/rear wheel retention devices secured	(0~2 500) N, 0.1 N	
KATS Notice No.2021-0142 (06.01.2021.)	Household items	4.5 Safety hook	visual inspection	N
		4.6 Bar end bar	visual inspection	
		Part 3 Electric bicycle	-	
		4.2 Electric bicycle-Additional requirements	-	
		4.2.1 Maximum speed	(0 ~ 2 000) r/min 1 r/min (0 ~ 50) km/h 0.1 km/h (0-50) A 0.1A	
		4.2.2 Motor output	(0 ~ 150) N·m, 0.05 N·m (0 ~ 1 000) V, 0.01 V (0.01 - 300) A, 0.01 A	
		4.2.3 Maximum weight	(0~200) kg, 0.05 kg	
		4.2.4 Motor controller protective function	(0 ~ 150) N·m, 0.05 N·m (0 ~ 1 000) V, 0.01 V (0.01 - 300) A, 0.01 A	
		4.2.5 Battery	visual inspection	
		4.2.6 Charger	visual inspection	
		4.2.7 Insulation performance	(0.01 ~ 100 000) MΩ 0.01 MΩ	

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Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0093 (05.31.2022.)	Household items	Safety Confirmation Standard - Annex 40 Bicycle		
		Part 3 Electric bicycle	-	
		4.2 Electric bicycle-Additional requirements	-	
		4.2.1 Maximum speed	(0 ~ 2 000) r/min 1 r/min (0 ~ 50) km/h 0.1 km/h (0-50) A 0.1A	
		4.2.2 Motor output	(0 ~ 150) N·m, 0.05 N·m (0 ~ 1 000) V, 0.01 V (0.01 - 300) A, 0.01 A	N
		4.2.3 Maximum weight	(0~200) kg, 0.05 kg	
		4.2.4 Motor controller protective function	(0 ~ 150) N·m, 0.05 N·m (0 ~ 1 000) V, 0.01 V (0.01 - 300) A, 0.01 A	
		4.2.5 Battery	visual inspection	
		4.2.6 Charger	visual inspection	
		4.2.7 Insulation performance	(0.01 ~ 100 000) MΩ 0.01 MΩ	
KATS Notice No.2017-032 (02.08.2017.)	Household items	Safety Confirmation Standard - Annex 68 Thermal Pack (including pocket pack)		
		6.2 Sealing Property	visual inspection	N
		6.3 Strength test	visual inspection	
		6.5 Temperature characteristics	(0 ~ 80) °C, 0.1°C	
		6.6 Bond strength	visual inspection	
		6.7 Liquid leakage test	(0 ~ 250) N, 0.001 N	
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 15 Thermal pack for children(including pocket pack)		
		6.1 General condition of test	visual inspection	
		6.2 Sealing Property	visual inspection	
		6.3 Strength test	visual inspection	
		6.3.1 Tensile strength	visual inspection	
		6.3.2 Drop impact test	visual inspection	
		6.7 Temperature characteristics	(0 ~ 80) °C, 0.1°C	
		6.8 Bond strength	visual inspection	
		6.9 Liquid leakage test	(0 ~ 250) N, 0.001 N	

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-0031 (03.05.2018.)	Household items	Supplier's Conformity Confirmation standard Annex 1 Leather products for Children		N
		5.1.1 Bond strength	visual inspection (0 ~ 200) N 0.1 N	
		5.1.2 Code and compression strap	visual inspection	
KS T 1303:2013	Household items	Measuring methods for space proportion of commercial packaging(consumer packaging)	visual inspection	N

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Household items	Safety Confirmation standard Annex 2 Care articles for children(continue) Part 4:Floor mat 5.1 Mechanical-physical properties 5.1.1 Shape 5.1.2 Small parts 5.1.3 Edge 5.1.4 Sharp point 5.1.5 Protrusion	visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 0.5 N	N
MOTIE Notice No.2015-0109 (06.04.2015.)	Household items	Supplier's Conformity Confirmation standard Annex 11 Children's Jewelry 5.1 Shape 5.2 Performance 5.2.1 The intensity of dyeing or painting 5.2.2 Function 5.2.3 Sharp edge 5.2.4 Sharp point 5.2.5 Destructive test	visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 0.5 N	N

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-107 (07.21.2017.)	Household items	Supplier's Conformity Confirmation standard Annex 14 Furniture for Children		N
		6.1 Small parts test	visual evaluation	
		6.2 Sharp edge test	visual evaluation	
		6.3 Sharp point test	visual evaluation	
		6.4 Protrusion	visual evaluation	
		6.5 Metal tube	visual evaluation	
		6.6 String and rubber band	visual evaluation	
		6.9.7 Colour Fastness	visual evaluation	
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 16 Children's Carrier Part 1. Children's Soft Carrier		N
		6.1 Shape	(0 ~ 600) mm, 0.01 mm	
		6.2.3 Flame-resistant fabrics	(0-300) mm, 0.01 mm, (0 ~ 60) s, 1 s	
		6.2.4 Plate corrosion resistance test	visual evaluation	

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 16 Children's Carrier(continue) 6.3 Structure 6.3.1 General structure 6.3.2 Small parts 6.3.3 String, leather strap, band and a rubber band 6.4 Performance 6.4.1 Accessibility of filling material 6.4.2 Durability of locking device 6.4.3 Dynamic strength test 6.4.4 Strength of shoulder string 6.4.5 Head guard Part 2. Children's Frame Carrier 6.1 Shape 6.2.3 Flame-resistant fabrics 6.2.4 Plate corrosion resistance test 6.3 Structure 6.3.1 General structure 6.3.2 Hole and crack 6.3.3 Edge 6.3.4 Small parts 6.3.5 Moving parts 6.3.6 String, leather strap, band and a rubber band 6.4 Performance 6.4.1 Accessibility of filling material 6.4.2 Stability Part 2. Children's Frame Carrier 6.4.3 Durability of locking device 6.4.4 Dynamic strength test 6.4.5 Maintenance device 6.4.6 Strength of shoulder string 6.4.7 Strength of frame 6.4.8 headgear	visual inspection visual inspection (0 ~ 500) N, 0.5 N (0 ~ 600) mm 0.01 mm - (0 ~ 500) N, 0.1 N visual inspection visual inspection (0 ~ 3 000) N, 1 N visual inspection (0 ~ 600) mm, 0.01 mm (0~300) mm, 0.01 mm, (0 ~ 60) s, 1 s visual inspection visual inspection visual inspection (0 ~ 300) mm, 0.01 mm visual inspection (0 ~ 500) N, 0.1 N (0 ~ 981) N, 1 N (0 ~ 600) mm, 0.01 mm visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 10 000) N, 1 N (0 ~ 10 000) N, 1 N visual inspection	N

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 13 Baby Carriage 6.1 General requirements 6.2 Materials 6.2.1 Burst Strength 6.2.2 Tire hardness 6.2.4 Magnet and magnetic parts 6.3 Structure 6.3.1 Shape 6.3.2 Slope of the seat 6.3.3 Measurement method of length and minimum inside height, width of box-type hammock 6.3.4 Angle between left-side and seat back 6.3.5 Seat belt 6.3.6 Crotch belt 6.3.7 Shoulder belt 6.3.8 Strength of harness fixed point 6.3.9 Foothold and leg support device 6.3.10 Unintended unlock of a locking device by a single motion 6.3.11 Crack 6.3.12 Angle between seat back and horizontal side 6.3.13 Small parts 6.4 Performance 6.4.1 Runnability 6.4.2 Conduction 6.4.3 Function of stop system 6.4.4 load carrying capacity of foothold and leg support device 6.4.5 Seat belt strength 6.4.6 Crotch belt strength 6.4.7 load carrying capacity of seat back 6.4.8 Vibration Acceleration 6.4.9 Durability(Irregular surface test) 6.4.10 Impact durability 9.3.1 Color fastness to light 9.3.2 Color fastness to washing 9.3.3 Corrosion resistance of metallic coatings 9.3.4 Strength of block	(0 ~ 10) MPa, 0.1 MPa (0~100), 1 (0 ~ 3) T, 0.001 T visual inspection visual inspection (0 ~ 300) mm, 0.01 mm (0 ~ 360)° , 1° - (0 ~ 300) mm, 0.01 mm (0 ~ 300) mm, 0.01 mm visual inspection (0 ~ 300) mm, 0.01 mm visual inspection visual inspection (0 ~ 50) m/s <sup>2</sup> , 0.1 m/s <sup>2</sup> visual inspection visual inspection	N

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## 01 Mechanical Testing

## 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 12 Baby walking frames 4.1 General requirements 4.2.2 Hazardous magnets 4.3 Structure 4.3.1 Protection frame 4.3.2 Seat height 4.3.3 Space between the upper side of protection frame and seat 4.3.4 Shape of left-side and back 4.3.5 Space between interior and vertical side of protection frame 4.3.6 Crack 4.3.7 Folding device 4.4 Performance 4.4.1 Bond strength of small parts 4.4.2 Starting force 4.4.3 Driving stability 4.4.4 Static stability 4.4.5 Hardness of seat and frame 4.4.6 load carrying capacity 4.4.7 Protecting test of rolling down the stairs 4.4.8 Stop system test(moving distance measurement) 7. Recommendation 7.2.1 Corrosion resistance of metallic coatings	visual inspection (0 ~ 3) T, 0.001 T - (0 ~ 600) mm, 0.01 mm (0 ~ 981) N, 1 N visual inspection visual inspection visual inspection (0 ~ 981) N, 1 N visual inspection visual inspection visual inspection (0 ~ 600) mm, 0.01 mm (0 ~ 500) N, 0.5 N visual inspection (0 ~ 600) mm, 0.01 mm visual inspection visual inspection	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-363 (09.27.2022.)	Household items	Safety Confirmation Standard Annex 53 Helmets for Sports Users		
		Part 1. Helmets for pedal cyclists and users of roller skates		
		5.1 Shape	visual inspection	
		5.2 Structure	(0 ~ 300) mm, 0.01 mm	
		5.3 Performance and materials	visual inspection	
		5.3.1 Impact absorbtion capacity	(0 ~ 20 000) N, 0.1 N	
		5.3.2 Retention system performance	visual inspection	
		5.3.2.1 Strength(Hook support type)	(0 ~ 90) mm, 0.01 mm	
		5.3.2.3 Effectiveness	(0 ~ 1 000) N, 0.1 N	
		5.3.3 Field of vision	visual inspection	
		Part 2. Helmets for Mountaineers		
		5.1 Shape	visual inspection	
		5.2 Headform	visual inspection	
		5.3 Structure	(0 ~ 300) mm, 0.01 mm	
		5.4 Performance and materials	-	
		5.4.1 Shock absorbtion capacity	(0 ~ 20 000) N, 0.1 N	
		5.4.2 Abrasion resistance	visual inspection	
		5.4.3 Retention system performance	visual inspection	
		5.4.3.1 Strength	(0 ~ 300) mm, 0.01 mm	
		5.4.3.2 Effectiveness	(0 ~ 1 000) N, 0.1 N	
		5.4.4 Strength of drop	visual inspection	
		Part 3. Helmets for Skiers		
		5.1 Sampling	visual inspection	
		5.2 inspection and determination of mass	visual inspection	
		5.3 Structure	visual inspection	
		5.4 Conditioning	(-40 ~ 150) °C, 0.1 °C	
		5.5 Shock absorbing capacity	(0 ~ 50) m/s <sup>2</sup> , 0.1 m/s <sup>2</sup>	
		5.6 Resistance to penetration	visual inspection	
		5.7 Retention system strength test 1(Hook support type)	(0 ~ 90) mm, 0.01 mm	
		5.9 Efficiency test of Effectiveness system	(0 ~ 1 000) N, 0.1 N	
		Part 4. Helmets for Baseballer		
		5.1 Shape	visual inspection	
		5.2 Headform	visual inspection	
		5.3 Structure	(0 ~ 300) mm, 0.01 mm	
		5.4 Performance and materials	visual inspection	
		5.4.1 Shock absorbtion capacity	(0 ~ 20 000) N, 0.1 N	
		5.4.2 Strength of drop	visual inspection	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0149 (09.06.2022.)	Household items	Supplier's Conformity Confirmation standard Annex 12 Kick board For Children		N
		6.1 General requirements of test	visual inspection	
		6.2 Shape and structure	visual inspection	
		6.3 Handle test	visual inspection	
		6.4 foot hold test	(0 ~ 10 000) N, 0.1 N	
		6.5 Running test	visual inspection	
		6.6 Hardness test of wheel	(0 ~ 100) Hs, 1 Hs	
		6.7 Bond strength test of wheel	visual inspection	
		6.8 Impact test	visual inspection	
		6.9 Drop test	visual inspection	
		6.10 Stability test of folding device	visual inspection	
		6.11 Brake test	visual inspection	
		6.11.1 Hand brake test	visual inspection	
		6.11.2 Foot brake test	visual inspection	
MOTIE Notice No.2015-0109 (06.04.2015.)	Household items	Supplier's Conformity Confirmation standard Annex 13 In-line roller skates For Children		N
		6.1 General requirements of test	visual inspection	
		6.2 Shape and structure	visual inspection	
		6.3 Strength test	(0 ~ 10 000) N, 0.1 N	
		6.4 frictional resistance test	(0 ~ 500) N, 0.1 N	
		6.5 Crash test	-	
		6.5.1 Crash test of front wheel	visual inspection	
		6.5.2 Horizontal and vertical crash test of braking system	visual inspection	
		6.5.3 Vertical crash test	visual inspection	
		6.6 Running test	visual inspection	
		6.7 Attachment strength of shoe	visual inspection	
		6.8 Compressive Test	visual inspection	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 9 Bicycles for young children 1. General 1.1 Plastic material test ambient temperature 1.2 Tolerance 1.3 Impact test 1.4 Fatigue test 2.4 Hazardous magnets 3. Brake 3.1 Brake lever - Position of applied force 3.2 Brake lever grip dimension 3.3 Brake block and brake pad assemblies - Security test 3.4 Back pedal brake 3.5 Hand brake strength test 3.6 Back-pedal brake strength test 3.7 Hand-operated brake performance test 3.8 Back-pedal brake performance test 4. Steering 4.1 Handlebar grip Freezing test 4.2 Handlebar grip hot water test 4.3 Handlebar and stem assembly - Lateral bending test 4.4 Handlebar and stem assembly - Forward bending test 4.5 Handlebar stem and Handlebar - Torsional security test 4.6 Steering and Handlebar stem - Torsional security test 4.7 Handlebar and stem assembly - Fatigue test 4.8 Frame 4.8.1 Frame and front fork assembly - vertical impact test 4.8.2 Frame and front fork assembly - horizontal impact test 4.9 Front fork 4.9.1 Front fork - bending fatigue test	visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 3) T, 0.001 T visual inspection (0 ~ 300) mm, 0.01 mm (0 ~ 300) mm, 0.01 mm visual inspection (0 ~ 500) N, 0.1 N visual inspection visual inspection (0 ~ 500) N, 0.1 N (0 ~ 500) N, 0.1 N visual inspection (0 ~ 500) N, 0.1 N (0 ~ 500) N, 0.1 N (0 ~ 10 000) N, 0.1 N (0 ~ 10 000) N, 0.1 N (0 ~ 10 000) N, 0.1 N (10 ~ 100) N·m 1 N·m visual inspection visual inspection visual inspection (0 ~ 300) mm, 0.01 mm visual inspection visual inspection	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 9 Bicycles for young children(continue)		
		4.10 Wheels	visual inspection	
		4.10.1 Wheel assembly - Rotational tolerances	(0 ~ 300) mm, 0.01 mm	
		4.10.2 Wheel/tyre assembly - static strength test	(0 ~ 500) N, 0.1 N	
		4.10.3 Front wheel retention - Retention devices secured	(0 ~ 10 000) N, 0.1 N	
		4.10.4 Rear wheel retention - Retention devices secured	(0 ~ 10 000) N, 0.1 N	
		4.10.5 Front wheel retention - Retention devices unsecured	(0 ~ 10 000) N, 0.1 N	
		4.11 Pedal and pedal / crank drive system	-	
		4.11.1 Distance between pedals and tyre or mud guard	(0 ~ 300) mm, 0.01 mm	N
		4.11.2 Pedal - impact test	visual inspection	
		4.11.3 Pedal/pedal-spindle - Dynamic durability test	visual inspection	
		4.11.4 Driving system static strength test	(0 ~ 10 000) N, 0.1 N	
		4.11.5 Crank assembly - Fatigue test	visual inspection	
		4.12 Saddles and seat-posts	visual inspection	
		4.12.1 Saddle and seat-post security test	visual inspection	
		4.12.2 Saddle - static strength test	(0 ~ 10 000) N, 0.1 N	
		4.12.3 Saddle and seat-post assembly fatigue test	visual inspection	
		4.13 Training wheels	visual inspection	
		4.13.1 Vertical load test	(0 ~ 300) mm, 0.01 mm	
		4.13.2 Longitudinal load test	(0 ~ 300) mm, 0.01 mm	

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Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0018 (01.31.2017.)	Household items	Children's Products Common Safety Standards 6.2 Test method of physical safety requirements 6.2.1 Small parts test 6.2.2 Sharp edge test 6.2.3 Sharp point test 6.2.4 Index of magnetic flux 6.2.5 Magnet immersion test 6.2.6 Magnet tension test 6.2.7 Drop test 6.2.8 Rollover test of large children's products 6.2.9 Torsion test 6.2.10 Tensile test 6.2.11 Compression test	visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 5N (0 ~ 1 000) N , 1N	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex 7 Children's tricycles 3.1 Shape 3.2 Material 3.2.1 Corrosion resistance of plating 3.2.2 The strength of block 3.2.6 Small parts 3.3 Structure 3.3.1 Space between mud guard and wheel 3.3.2 Bonding state of pedal 3.3.3 Maximum ground clearance of the seat 3.3.4 Double post handle 3.3.5 Handle grip 3.3.6 Attachment of parts 3.4 Performance 3.4.1 Fall test 3.4.2 Slip resistance 3.4.3 Runnability 3.4.4 Handlebar torque 3.4.5 Driving wheel torque 3.4.6 Handle grip load carrying capacity 3.4.7 Step load carrying capacity 3.4.8 seat back load carrying capacity 3.4.9 Impact resistance 3.4.10 Drum test 3.4.11 Crash test 3.4.12 Rear wheel lifting test 3.4.13 Front wheel lifting test 3.4.14 Torsion test 3.4.15 Foothold strength test 3.4.16 Strength of safety belt	visual inspection visual inspection visual inspection visual inspection (0.2 ~ 1.5) N·m 0.02 N·m, (10 ~ 100) N·m 1 N·m (0 ~ 300) mm, 0.01 mm (0 ~ 300) mm, 0.01 mm (0 ~ 300) mm, 0.01 mm (0 ~ 600) mm, 0.01 mm visual inspection visual inspection (0 ~ 500) N, 0.1 N visual inspection visual inspection (0 ~ 500) N, 0.1 N visual inspection (0 ~ 500 N), 0.5 N (0 ~ 500 N), 0.5 N (0 ~ 500 N), 0.5 N (0 ~ 500 N), 0.5 N visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 0.1 N visual inspection (0 ~ 500 N), 0.5 N	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Household items	Safety Confirmation standard Annex 6 Toys Part 1. General - Categories, Inspections, Labelling of Toys Part 2. Mechanical & physical properties Part 3. Flammability Part 5. Swings, slides and similar activity toys for indoor and outdoor family domestic use	visual inspection - -  (0 ~ 90) N/cm <sup>3</sup> , 1 N/cm <sup>3</sup>	N
MOTIE Notice No.2020-0229 (12.30.2020.)	Household items	Safety Confirmation standard Annex 6 Toys Part 1. General - Categories, Inspections, Labelling of Toys Part 2. Mechanical & physical properties Part 3. Flammability Part 5. Swings, slides and similar activity toys for indoor and outdoor family domestic use	visual inspection - -  (0 ~ 90) N/cm <sup>3</sup> , 1 N/cm <sup>3</sup>	N
MOTIE Notice No.2021-0230 (12.29.2021.)	Household items	Safety Confirmation standard Annex 6 Toys Part 1. General - Categories, Inspections, Labelling of Toys Part 2. Mechanical & physical properties Part 3. Flammability Part 5. Swings, slides and similar activity toys for indoor and outdoor family domestic use	visual inspection - -  (0 ~ 90) N/cm <sup>3</sup> , 1 N/cm <sup>3</sup>	N
MOTIE Notice No.2022-0221 (12.14.2022.)	Household items	Safety Confirmation standard Annex 6 Toys Part 1. General - Categories, Inspections, Labelling of Toys Part 2. Mechanical & physical properties Part 3. Flammability Part 5. Swings, slides and similar activity toys for indoor and outdoor family domestic use	visual inspection - -  (0 ~ 90) N/cm <sup>3</sup> , 1 N/cm <sup>3</sup>	N

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### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Household items	Safety Confirmation standard Annex 11 School things		N
		5.5 Perfume	-	
		5.8 Cap of marking pens	(0 ~ 25) L/min, 0.01 L/min	
MOTIE Notice No.2020-0229 (12.30.2020.)	Household items	Safety Confirmation standard Annex 11 School things		N
		5.5 Perfume	-	
		5.8 Cap of marking pens	(0 ~ 25) L/min, 0.01 L/min	
MOTIE Notice No.2021-0230 (12.29.2021.)	Household items	Safety Confirmation standard Annex 11 School things		N
		5.5 Perfume	-	
		5.8 Cap of marking pens	(0 ~ 25) L/min, 0.01 L/min	
MOTIE Notice No.2022-0221 (12.14.2022.)	Household items	Safety Confirmation standard Annex 11 School things		N
		5.5 Perfume	-	
		5.8 Cap of marking pens	(0 ~ 25) L/min, 0.01 L/min	

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## **01 Mechanical Testing**

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Test method	Products and materials	Standard designation	Test range	Field testing
ASTM F 963:17	Household items	Standard consumer safety specification for toy safety(continue)	-	N
		4. Safety Requirement	visual inspection	
		4.23 Rattles	visual inspection	
		4.23.1 Rattles with nearly Spherical, Hemispherical, or Circular Flared Ends	visual inspection	
		4.24 Squeeze Toys	visual inspection	
		4.25 Battery-Operated Toys	visual inspection	
		4.26 Toy intended to be Attached to a Crib or Playpen	visual inspection	
		4.27 Stuffed and Beanbag-Type Toys	visual inspection	
		4.28 Stroller and Carriage Toys	visual inspection	
		4.30 Toy Gun Marking	visual inspection	
		4.31 Balloons	visual inspection	
		4.32 Certain Toys with Spherical Ends	visual inspection	
		4.33 Marbles	visual inspection	
		4.34 Balls	visual inspection	
		4.35 Pompoms	visual inspection	
		4.36 Hemispheric-Shaped Objects	visual inspection	
		4.37 Yo Yo Elastic Tether Toys	visual inspection	
		4.38 Magnets	visual inspection	
		4.39 Jaw Entrapment in Handles and Steering Wheels	visual inspection	
		6. Instruction Literature	visual inspection	
		7. Producer's Markings	visual inspection	
		5. Labelling Requirements	visual inspection	
		8. Test Methods	visual inspection	
EN 14682:2014	Household items	Safety of children's clothing. Cords and drawstrings on children's clothing. Specifications	visual inspection	N
EN ISO 12402-5:2006+A1:2010	Household items	Personal flotation devices. Buoyancy aids (level 50). Safety requirements	30 kg, 1 g	N
ISO 105-A02:1993	Household items	Textiles -- Tests for colour fastness -- Part A02: Grey scale for assessing change in colour	grade (1 ~ 5)	N
ISO 105-E04:2013	Household items	Textiles -- Tests for colour fastness -- Part E04: Colour fastness to perspiration	grade (1 ~ 5)	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
ISO 105-X12:2016	Household items	Textiles -- Tests for colour fastness -- Part X12: Colour fastness to rubbing	grade (1 ~ 5)	N
ISO 4892-1:2016	Household items	Plastics -- Methods of exposure to laboratory light sources -- Part 1: General guidance	visual inspection	N
ISO 4892-2:2013	Household items	Plastics -- Methods of exposure to laboratory light sources -- Part 2: Xenon-arc lamps	visual inspection	N
KS G ISO 8124-1:2015	Household items	Safety of toys – Part 1 : Safety aspects related to mechanical and physical properties 5.1~5.37, Annex A, B, C, D, E	visual inspection	N
KS G ISO 8124-2:2015	Household items	Safety of toys – Part 2 : Flammability 5.1~5.5, Annex A, B	visual inspection	N
KS K 0411:2017	Household items	Test method for breaking strength and elongation of textile webbing, tape and braided	500 N, 5 N	N
KS K 0514:2017	Household items	Measuring method for weight of cloth: small specimen method	visual inspection	N
KS K 0521:2017	Household items	Textiles – Tensile properties of fabrics – Determination of maximum force and elongation at maximum force using the strip method	500 N, 5 N	N
KS K 0536:2014	Household items	Test method for tearing strength of cloth: Tongue method	500 N, 5 N	N
KS K 0766:2017	Household items	Test method for low temperature effect on coated cloth	visual inspection	N
KS K 0941:2018	Household items	Safety of children's clothing - Cords and drawstrings on children's clothing - Specifications	visual inspection	N
KS K ISO 105-E04:2017	Household items	Textiles – Tests for colour fastness – Part E04 : Colour fastness to perspiration	grade (1 ~ 5)	N
KS K ISO 105-B02:2015	Household items	Textiles – Tests for colour fastness – Part B02 : Colour fastness to artificial light : Xenon arc fading lamp test	grade (1 ~ 5)	N
KS K ISO 6330:2016	Household items	Textiles – Domestic washing and drying procedures for textile testing	visual inspection	N

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Test method	Products and materials	Standard designation	Test range	Field testing
KS M 3001:2016	Household items	Testing methods for mechanical characteristics of polyethylene film	visual inspection	N
		6. Test methods for tensile strength and elongation	500 N, 5 N	N
KS M 3802:2014	Household items	Floorcovering - PVC	visual inspection	N
		7.11 Heating loss test	(0~100) °C, 0.1 °C (0 ~ 220) g, 0.000 1 g	
KS M 6518:2018	Household items	Physical test methods for vulcanized rubber	visual inspection	N
		16. Ozone crack test	500 N, 5 N	
KS R 0014:2014	Household items	General rules of coating films for automobile parts	visual inspection	N
		5.6 Methods of corrosion resistance test		
KATS Notice No.2018-0194 (06.29.2018.)	Household items	Supplier's Conformity Confirmation standard Annex 15 Kick board	-	N
		6.1 General condition of test	visual inspection	
		6.2 Shape and structure	visual inspection	
		6.3 Handle test	visual inspection	
		6.4 Foothold test	(0 ~ 10 000) N, 0.1 N	
		6.5 Running test	visual inspection	
		6.6 Hardness test of wheel	(0 ~ 100) Hs, 1 Hs	
		6.7 Bond strength of the wheel	visual inspection	
		6.8 Corrosion resistance of plating	visual inspection	
		6.9 Impact test	visual inspection	
		6.10 Drop test	visual inspection	
		6.11 Safety test of folding equipment	visual inspection	
		6.12 Brake test	visual inspection	
KATS Notice No.2018-0194 (06.29.2018.)	Household items	Supplier's Conformity Confirmation standard Annex 14 In-line roller skates	-	N
		6.1 General condition of test	visual inspection	
		6.2 Shape and structure	visual inspection	
		6.3 Strength test	(0 ~ 10 000) N, 0.1 N	
		6.4 Friction resistance test	(0 ~ 500) N, 0.1 N	
		6.5 Crash test	visual inspection	
		6.6 Running test	visual inspection	
		6.7 Bond strength of the shoes	visual inspection	
		6.8 Compressive test	visual inspection	

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### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0013 (02.07.2022.)	Household items	Supplier's Conformity Confirmation standard Annex 15 Kick board	-	N
		6.1 General condition of test	visual inspection	
		6.2 Shape and structure	visual inspection	
		6.3 Handle test	visual inspection	
		6.4 Foothold test	(0 ~ 10 000) N, 0.1 N	
		6.5 Running test	visual inspection	
		6.6 Hardness test of wheel	(0 ~ 100) Hs, 1 Hs	
		6.7 Bond strength of the wheel	visual inspection	
		6.8 Corrosion resistance of plating	visual inspection	
		6.9 Impact test	visual inspection	
		6.10 Drop test	visual inspection	
		6.11 Safety test of folding equipment	visual inspection	
		6.12 Brake test	visual inspection	
KS K ISO 105-C10:2015	Household items	Textiles – Tests for colour fastness – Part C10 : Colour fastness to washing with soap or soap and soda	-	N
KS K ISO 3175-1:2014	Household items	Textiles - Professional care, drycleaning and wetcleaning of fabrics and garments - Part 1: Assessment of performance after cleaning and finishing	-	N
KATS Notice No.2017-032 (02.08.2017.)	Household items	Safety Confirmation Standard - Annex 40 Bicycle	-	N
		Part 1 Bicycle for General Type	(0 ~ 1 500) N, 1N	
		Part 2 Bicycles for Young Children	(0 ~ 20) Nm, 0.1 N.m	
		Part 3 Mountain Bicycles:MTB	(0 ~ 2 300) N, 1 N	
		Part 4 Electric Bicycle	(0 - 75) kg, 0.1 kg	
IEC 60034-1:2017	Household items	Rotating electrical machines - Part 1: Rating and performance	visual inspection	N
ISO 8124-1:2018	Household items	Safety of Toys - Part 1: Safety aspects related to mechanical and physical properties 5.1~5.37, Annex A, B, C, D, E, F	visual inspection	N
ISO 8124-2:2014	Household items	Safety of Toys - Part 2: Flammability 5.1~5.5, Annex A, B	visual inspection	N
EN 71-1:2018	Household items	Safety of Toy - Part 1: Mechanical and Physical properties 8.1~8.40, Annex A	visual inspection	N

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Test method	Products and materials	Standard designation	Test range	Field testing
EN 71-2:2011+A1:2014	Household items	Safety of toys - Part 2: Flammability 5.1 ~ 5.5	visual inspection	N
MOTIE Notice No.2019-117 (07.18.2019.)	Household items	Supplier's Conformity Confirmation standard Annex 5 Umbrella & Parasol for children 6.1 End-point of ribs strength 6.2 Handle and cap assembly strength 6.3 Bending Strength	- visual inspection visual inspection visual inspection	N
MOTIE Notice No.2015-0109 (06.04.2015.)	Household items	Supplier's Conformity Confirmation standard Annex 6 Roller Shoes For Children 5.1 Shape and structure 5.2 Strength test 5.3 Frictional resistance test 5.4 Crashworthy test 5.5 Runnability 5.6 Compressive load	- visual inspection visual inspection (0 ~ 500) N, 0.1 N visual inspection visual inspection (0 ~ 10 000) N, 0.1 N	N
MOTIE Notice No.2022-0099 (06.07.2022.)	Household items	Supplier's Conformity Confirmation standard Annex 7 Roller Skates For Children 5.1 Shape and structure 5.2.1 Running test 5.2.2 Compressive test 5.2.3 Bond strength of the wheel 5.2.4 Bond strength of the shoes 5.2.5 Strength test of fixing equipment 5.2.6 Frictional resistance test	- visual inspection visual inspection (0 ~ 10 000) N, 0.1 N (0 ~ 10 000) N, 0.1 N (0 ~ 10 000) N, 0.1 N (0 ~ 500) N, 0.1 N (0 ~ 500) N, 0.1 N	N

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### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2017-032 (02.08.2017.)	Household items	Safety Confirmation Standard Annex 24 Protector For Roller Sports Users		
		6.1 Shape and structure	visual inspection	
		6.2.1 Impact strength	visual inspection	
		6.2.2 Abrasion resistance	(0 ~ 500) N, 0.1 N	
		6.2.3 Shock absorbtion capacity	(0 ~ 50 000) N, 0.1 N	
		6.2.4 Stiffness of wrist protectors	(0 ~ 360)°, 0.1°	
		6.2.5 Fixing maintenance device	(0 ~ 300) mm, 0.1 mm	
		6.2.6 Perspiration test	visual evaluation	
		6.2.7 Hair oil test	visual evaluation	
		6.2.8 Metal attachment corrosion resistance test	visual evaluation	
KATS Notice No.2009-977 (12.30.2009.)	Household items	Safety certification standard - Annex 3 Domestic pressure pans and pressure pots		
		6.2 Appearance	visual inspection	
		6.3 Structure	(0.02 ~ 1) MPa, 0.01 MPa (0~500) mL, 1 mL	
		6.4 Performance	visual inspection	
		6.4.1 Pressure control device operation test	(0.02 ~ 1) MPa, 0.01 MPa (0~500) mL, 1 mL	
		6.4.2 Safety device operation test	(0.02 ~ 1) MPa, 0.01 MPa	
		6.4.3 Internal pressure test	(0.02 ~ 1) MPa, 0.01 MPa	
		6.4.4 Temperature rise test of handles	(-40 ~ 1 000) °C, 0.1 °C	
KATS Notice No.2019-0387 (11.15.2019.)	Household items	Safety confirmation standard - Annex 32 Skate board		
		7.3 Appearance and structure	visual inspection	
		7.4 Frictional force test of wheel	(0 ~ 500) N, 0.5 N	
		7.5 Speed test	visual inspection	
		7.6 Durability test	visual inspection	
		7.7 Protrusion	visual inspection	
		7.8 Drop test	visual inspection	
		7.9 Impact test	visual inspection	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board		
		Part1 Electric Skate board		
		6.2 Appearance and structure	-	
		6.3 Protrusion	visual inspection	
		6.4 Frictional force test of wheel	(0~500) N, 0.5 N	
		6.5 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.6 Water proof performance	visual inspection	
		6.7 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.8 Constant temperature and humidity test	(-40 ~ 150) °C 0.1°C (10 ~ 98) % RH, 1 % RH	N
		6.9 Low temperature test	(-40 ~ 150) °C 0.1°C (10 ~ 98) % RH, 1 % RH	
		6.10 High temperature test	(-40 ~ 150) °C 0.1°C (10 ~ 98) % RH, 1 % RH	
		6.11 Drop test	visual inspection	
		6.12 Bond strength of wheel	visual inspection	
		6.13 Static load test	(0 ~ 3 000) N, 1 N	
		6.14 Leakage current	(0 ~ 60) A, 1 μA	
		6.15 Control failure protection	visual inspection	
		6.16 Low voltage protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board(continue)		
		Part2 Electric kickboard	-	
		6.2 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.3 Dynamic braking performance test	visual inspection	
		6.4 Water proof performance	visual inspection	
		6.5 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.6 Constant temperature and humidity test	(-50 ~ 90) °C 0.1 °C (10 ~ 98) % RH 1 % RH	
		6.7 Low temperature test	(-50 ~ 90) °C 0.1 °C (10 ~ 98) % RH, 1 % RH	
		6.8 High temperature test	(-50 ~ 90) °C 0.1 °C (10 ~ 98) % RH, 1 % RH	
		6.9 Drop test	visual inspection	
		6.10 Handlebar test	visual inspection	
		6.11 Bond strength of wheel	visual inspection	
		6.12 Safety test of foldeble device	visual inspection	
		6.13 Static load test	(0 ~ 3 000) N, 1 N	
		6.14 Leakage current	(0 ~ 60) A, 1 μA	
		6.15 Control failure protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	
		6.16 Low voltage protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	

N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board(continue)		
		Part3 Electric two-wheeled balancing scooter	-	
		6.2 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.3 Dynamic braking performance test	visual inspection	
		6.4 Power safety	visual inspection	
		6.5 Water proof performance	visual inspection	
		6.6 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.7 Constant temperature and humidity test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.8 Low temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.9 High temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.10 Drop test	visual inspection	
		6.11 Compression test for handle/handle bars	visual inspection	
		6.12 Bond Strength of Wheels	visual inspection	
		6.13 Static load test	(0 ~ 3 000) N, 1 N	
		6.14 Leakage current	(0 ~ 60) A, 1 μA	
		6.15 Control failure protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	
		6.16 Low voltage protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board(continue)		
		Part4 Electric outer-wheel/two-wheel boards	-	
		6.2 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.3 Dynamic braking performance test	visual inspection	
		6.4 Power safety	visual inspection	
		6.5 Water proof performance	visual inspection	
		6.6 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.7 Constant temperature and humidity test	(-50 ~ 90) °C, (10 ~ 98) % R.H	N
		6.8 Low temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.9 High temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.10 Drop test	visual inspection	
		6.11 Bond strength of wheel	visual inspection	
		6.12 Static load test	(0 ~ 3 000) N, 1 N	
		6.13 Leakage current	(0 ~ 60) A, 1 μA	
		6.14 Control failure protection	(0 ~ 75) V, 0.1 V	
		6.15 Low voltage protection	(0 ~ 5) A, 0.01 A	
			(0 ~ 75) V, 0.1 V	
			(0 ~ 5) A, 0.01 A	

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### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board(continue)		
		Part5 Low-speed motorized two-wheeled vehicle	-	
		6.2 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.3 Dynamic braking performance test	visual inspection	
		6.4 Water proof performance	visual inspection	
		6.5 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.6 Constant temperature and humidity test	(-50 ~ 90) °C, (10 ~ 98) % R.H	N
		6.7 Low temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.8 High temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.9 Drop test	visual inspection	
		6.10 Handlebar test	visual inspection	
		6.11 Bond strength of wheel	visual inspection	
		6.12 Static load test Seat	(0 ~ 3 000) N, 1 N	
		6.13 Leakage current	(0 ~ 60) A, 1 μA	
		6.14 Control failure protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	
		6.15 Low voltage protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2022-0303 (09.06.2022.)	Household items	Safety confirmation standard - Annex 72 Electric board(continue)		
		Part6 Other powered personal mobility devices Common Safety Standards	-	
		6.2 Maximum speed test	(0 ~ 75) km/h, 0.01 km/h	
		6.3 Dynamic braking performance test	visual inspection	
		6.4 Power safety	visual inspection	
		6.5 Water proof performance	visual inspection	
		6.6 Grad ability	(0 ~ 10) km/h, 0.01 km/h	
		6.7 Constant temperature and humidity test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.8 Low temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.9 High temperature test	(-50 ~ 90) °C, (10 ~ 98) % R.H	
		6.10 Drop test	visual inspection	
		6.11 Handlebar test	visual inspection	
		6.12 Bond strength of wheel	visual inspection	
		6.13 Static load test	(0 ~ 3 000) N, 1 N	
		6.14 Leakage current	(0 ~ 60) A, 1 μA	
		6.15 Control failure protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	N
		6.16 Low voltage protection	(0 ~ 75) V, 0.1 V (0 ~ 5) A, 0.01 A	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No. 2017-032 (02.08.2017.)	Household items	Safety confirmation standard - Annex 45 Stationary training equipment	-	N
		Part 1 General safety requirement and test method	-	
		5.1 Safety of self supporting sport equipment	(0~360)°, 0.1°	
		5.2 Outward structure	(0 ~ 300) mm, 0.01 mm	
		5.3 Safety device	visual inspection	
		5.4 Control device and fixture	visual inspection	
		5.5 Rope, belt and chain	(0 ~ 1 000) kN, 0.01 kN, (0 ~ 300) mm, 0.01 mm	
		5.6 Point of contact	visual inspection	
		5.7 Handle grip	visual inspection	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No. 2017-032 (02.08.2017.)	Household items	Safety confirmation standard - Annex 45 Stationary training equipment(Continue) Part 5 Stationary bike		
		5.1 General aspects	visual inspection (0 ~ 300) mm, 0.01 mm	
		5.2 Outward structure	(-40 ~ 990) °C, 0.1 °C	
		5.3 Inherent load	(0~10 000) N, 1 N (0 ~ 300) mm	
		5.4 Seat pillar-seat	0.01 mm, (0~360)°, 0.1°	
		5.5 Handlebar	visual inspection	
		5.6 Pedal	(0 ~ 250) kN, 0.2 N	
		5.7 Safety	(0~360)°, 0.1°	
		5.8 Additional requirements for class A	(0~100) N·m , 0.01 N·m	
		5.9 Additional requirements for class B	(0~100) N·m , 0.01 N·m	
		5.10 Additional requirements for class C	visual inspection	N
		Part 6 Stepper		
		5.1 General aspects	visual inspection (0 ~ 300) mm 0.01 mm	
		5.2 Outward structure	(-40 ~ 990) °C, 0.1 °C	
		5.3 Inherent load	(0~10 000) N, 1 N	
		5.4 Handrail/Handlebar	(0 ~ 300) mm 0.01 mm	
		5.6 Durability	visual inspection	
		6.7 Additionally required tests for class A stepper	visual inspection	
		Part 7 Rowing machine		
		5.1 General aspects	visual inspection (0 ~ 300) mm 0.01 mm	
		5.2 Outward structure	(-40 ~ 990) °C, 0.1 °C	
		5.3 Inherent load	(0~10 000) N, 1 N	
		5.4 Handle scale	(0 ~ 200) kg 0.05 kg	
		5.5 Foot support and foot strap	visual inspection	
		5.6 Durability test	visual inspection	
		5.7 Safety	(0~300) mm 0.01 mm	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No. 2017-032 (02.08.2017.)	Household items	Safety confirmation standard - Annex 45 Stationary training equipment(Continue) Part 2 Safety requirement and test method of stationary sport equipment 5.1 General aspects 5.2 Load 5.3 Durability weight 5.4 Stack weight Part 3 Bench press 5.1 General aspects 5.2 Stationary barbell support bench 5.3 Bench combined self supporting barbell support 5.4 Dimension of barbell support 5.5 Strength of barbell support 5.6 Load 5.7 Barbell support Part 4 Treadmill 5.1 General aspects 5.2 Outward structure 5.3 Emergency stop 5.4 Fixation method 5.5 Safety 5.6 Static load 5.7 Durability 5.8 Side handrail/Front Handlebar 5.9 Foot rail 5.10 Electrical safety 5.11 Additional classification requirements Part 8 Sport slider 4.1 Appearance 4.2 Structure 4.3 Performance 4.4 Material	- (0~10 000) N, 1 N visual inspection (0 ~ 300) mm, 0.01 mm visual inspection visual inspection visual inspection (0 ~ 300) mm, 0.01 mm visual inspection visual inspection (0~10 000) N, 1 N visual inspection visual inspection (-40 ~ 990) °C, 0.1 °C visual inspection visual inspection visual inspection (0~10 000) N, 1 N visual inspection (0~5.5) m, 1 mm (0~500) N, 0.1 N (0~600) A, 1 μA (0.01 ~ 10 000) MΩ, 0.01 MΩ visual inspection visual inspection visual inspection (0 ~ 5.5) m, 1 mm (0 ~ 1 500) N, 1 N (0 mm ~ 300) mm, 0.01 mm	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No. 2017-032 (02.08.2017.)	Household items	Safety confirmation standard - Annex 19 4-wheeled walking aids for walking help of elder		
		6.1 Appearance and structure	visual inspection	
		6.2 Dimension	(0 mm ~ 600) mm 0.01 mm	
		6.3 Inclination	(0~360)°, 0.1°	
		6.4 Handlebar safety	visual inspection	
		6.5 Sidebar safety	visual inspection	
		6.6 Stopper anchorage strength	visual inspection	
		6.7 Hand break performance	(0~200) N, 0.1 N	
		6.8 Handlebar torque test	visual inspection	
		6.9 Sidebar strength test	visual inspection	
KATS Notice No. 2020-0040 (03.03.2020.)	Household items	6.10 Travel durability	visual inspection	
		Safety confirmation standard - Annex 70 Metal blades and blade guard for portable brush cutters		
		Part 1 Metal blades for portable brush cutters		
		4.1 Appearance	(0~360)°, 0.1°	
		4.2 Quality of metal blade surface	visual inspection	
		4.3 Metal blade quality	(0 ~ 2 000) N, 1 N	
		4.4 Metal blade Hardness	visual inspection	
		4.5 Dimension	0 - 50, 1	
		4.6 Flatness	(0~300) mm, 0.01 mm	
		4.7 Impact resistance	(0~25) mm, 0.001 mm	
		4.8 Circumference wobble of axial direction	(5-30) mm, 0.001 mm	
		4.9 Overspeed test	(0~300) mm	
		Part 2 Blade guard for portable brush cutter	(0.01 mm)	
		5.1 Appearance	visual inspection	
		5.2 Structure and dimension	(0~300) mm, 0.01 mm	
		5.3 Strength and missile protection characteristics	(0~360)°, 0.1°	
		5.3.1 Mechanical characteristics of blade guard	visual inspection	
		5.3.2 Missile protection characteristics of blade guard	visual inspection	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No. 2018-195 (06.29.2018.)	Household items	Safety standard - Annex 11 Sticks for elder		
		4.1 Appearance	visual inspection	
		4.2 Structure	(0 ~ 300) mm, 0.01 mm	
		4.3 Performance	visual inspection	
		4.3.1 Handle bending test	(0~2 000) N, 1 N	N
		4.3.2 Windingness	(0~25) mm, 0.001 mm	
		4.3.3 Pressure load	(0~2 000) N, 1 N	
		4.3.4 Friction resistance	(0~500) N, 0.5 N	
		4.3.5 Bearing weight	(0~2 000) N, 1 N	
		5. Material	(0 ~ 2 250) N, 0.1 N	
KATS Notice No. 2018-194 (06.29.2018.)	Household items	Supplier's Conformity Confirmation standard - Annex 6 Motor board		
		5.1 Protrusion	visual inspection	
		5.2 Hardness test of wheel	(0 ~ 100), 1	N
		5.3 Dropping impact test	visual inspection	
		5.4 Brake performance	visual inspection	
		5.5 Corrosion resistance of plating	visual inspection	
		5.6 Load test of board(footplate)	visual inspection	
		5.7 Speed measurement	visual inspection	
		5.8 Functional test of remote controller	visual inspection	
KS D 6761:2017	Household items	Aluminium and aluminium alloy seamless pipes and tubes	(0 ~ 200) kN, 0.01 kN	N
KS D 6759:2017	Household items	Aluminium and aluminium alloy extruded shapes	(0 ~ 200) kN, 0.01 kN	N
KS F ISO 16979:2013	Household items	Wood-based panels—Determination of moisture content	(6 ~ 40) %, 0.1%	N
KS M ISO 7619-1:2016	Household items	Rubber, vulcanized or thermoplastic—Determination of indentation hardness—Part 1 : Durometer method(Shore hardness)	100, 1	N
KS B 8101:2018	Household items	Test methods of gas burning appliances	(0.016 ~ 2.5) m <sup>3</sup> /h	N
KS G 3602:2014	Household items	Domestic pressure pans and pressure pots	0.1 %	N
KS B 5305:2018	Household items	Bourdon tube pressure gauges	(0.02 ~ 1) MPa, 0.01 MPa	N
KS C IEC 60529:2017	Household items	Degrees of protection provided by enclosures(IP Code)	visual inspection	N
KS C IEC 60068-2-1:2015	Household items	Environmental testing—Part 2-1 : Tests —Test A : Cold	(-50 ~ 90) °C, 1 °C	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KS C IEC 60068-2-2:2014	Household items	Environmental testing — Part 2-2: Tests — Test B: Dry heat	(-50 ~ 90) °C, 1 °C	N
KS D 3559:2017	Household items	High carbon steel wire rods	(100 ~ 1 500) N, 0.1 N	N
KS G 5729:2016	Household items	Mats and boards	(0 ~ 2 000) N, 1 N	N
KS C IEC 60335-1:2013	Household items	Household and similar electrical appliances — Safety—Part 1 : General requirements	(0 ~ 600) A, 1 µA (0.01 ~ 10 000) MΩ, 0.01 MΩ	N
KS D 9502:2019	Household items	Neutral, acetic acid and copper-accelerated acetic acid salt spray	visual inspection	N
KS K 0706:2014	Household items	Test method for weathering resistance of cloth: Accelerated weathering	-	N
KS Q ISO 13301:2009	Household items	Sensory analysis—Methodology—General guidance for measuring odour, flavour and taste detection thresholds by a three-alternative forced-choice(3-AFC) procedure	visual inspection	N
EN 13595-2:2002	Household items	Protective clothing for professional motorcycle riders. Jackets, trousers and one piece or divided suits. Test method for determination of impact abrasion resistance	-	N
KS G ISO 8124-4:2015	Household items	Safety of toys - Part 4: Swings, slides and similar activity toys for indoor and outdoor family domestic use	(0 ~ 1 000) mm 1 mm (0 ~ 100)° , 0.1 °	N
ISO 8124-4:2014	Household items	Safety of toys -- Part 4: Swings, slides and similar activity toys for indoor and outdoor family domestic use	(0 ~ 1 000) mm 1 mm (0 ~ 100)° , 0.1 °	N
BS EN 71-5:2015	Household items	Safety of toys. Chemical toys (sets) other than experimental sets	-	N
BS EN 20105-A03:1995	Household items	Textiles. Tests for colour fastness. Grey scale for assessing staining	visual inspection	N
ISO 105-F10:1989	Household items	Textiles -- Tests for colour fastness -- Part F10: Specification for adjacent fabric: Multifibre	visual inspection	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MFDS Notice No.2019-2 (01.09.2019.)	Household items	Standards and Specifications for Food Utensils, Containers and Packages		N
		2-53 Fluorescence whitening agent Test Method	visual inspection	
KATS Notice No. 2017-0032 (02.08.2017.)	Household items	Safety confirmation standard - Annex 69 Nursing Pads		N
		6.2 Fluorescence brightening agent	visual inspection	
KATS Notice No. 2010-676 (12.27.2010.)	Household items	Children's products safety standards for hazardous substances		N
		4.5 Hazardous magnets	(0~3) kg, 0.01 kg	
MOTIE Notice No.2018-0031 (03.05.2018.)	Household items	Supplier's Conformity Confirmation standard Annex 15 textile products for children		N
		5.1.1 Cords and drawstrings	-	
		5.1.2 Magnetic flux index	visual inspection	
MOTIE Notice No.2021-0171 (10.27.2021.)	Household items	Supplier's Conformity Confirmation standard Annex 15 textile products for children		N
		6.1.1 Cords and drawstrings	-	
		6.1.2 Magnetic flux index	visual inspection	
MOTIE Notice No.2019-0201 (12.03.2019.)	Household items	Children's Products Common Safety Standards		N
		4.2 Test method of physical safety requirements	-	
		4.2.1 Small parts test	visual inspection	
		4.2.2 Sharp edge test	visual inspection	
		4.2.3 Sharp point test	visual inspection	
		4.2.4 Magnetic flux index	visual inspection	
		4.2.5 Soaking test for magnets	visual inspection	
		4.2.6 Tension test for magnets.	visual inspection	
		4.2.7 Drop test	visual inspection	
		4.2.8 Tip-over test for large and bulky toys	visual inspection	
		4.2.9 Torque test	visual inspection	
		4.2.10 Tension test	(0 ~ 500) N, 5N	
		4.2.11 Impact test for magnets	visual inspection	
		4.2.12 Compression test	(0 ~ 1 000) N , 1N	

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0132 (07.19.2021.)	Household items	Children's Products Common Safety Standards 4.2 Test method of physical safety requirements 4.2.1 Small parts test 4.2.2 Sharp edge test 4.2.3 Sharp point test 4.2.4 Magnetic flux index 4.2.5 Soaking test for magnets 4.2.6 Tension test for magnets. 4.2.7 Drop test 4.2.8 Tip-over test for large and bulky toys 4.2.9 Torque test 4.2.10 Tension test 4.2.11 Impact test for magnets 4.2.12 Compression test	visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 5N visual inspection (0 ~ 1 000) N , 1N	N
MOTIE Notice No.2021-0229 (12.29.2021.)	Household items	Children's Products Common Safety Standards 4.2 Test method of physical safety requirements 4.2.1 Small parts test 4.2.2 Sharp edge test 4.2.3 Sharp point test 4.2.4 Magnetic flux index 4.2.5 Soaking test for magnets 4.2.6 Tension test for magnets 4.2.7 Drop test 4.2.8 Tip-over test for large and bulky toys 4.2.9 Torque test 4.2.10 Tension test 4.2.11 Impact test for magnets 4.2.12 Compression test	visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection visual inspection (0 ~ 500) N, 5N visual inspection (0 ~ 1 000) N , 1N	N

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## **01 Mechanical Testing**

### 01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0220 (12.14.2022.)	Household items	Children's Products Common Safety Standards 4.2 Test method of physical safety requirements 4.2.1 Small parts test 4.2.2 Sharp edge test 4.2.3 Sharp point test 4.2.4 Magnetic flux index 4.2.5 Soaking test for magnets 4.2.6 Tension test for magnets 4.2.7 Drop test 4.2.8 Tip-over test for large and bulky toys 4.2.9 Torque test 4.2.10 Tension test 4.2.11 Impact test for magnets 4.2.12 Compression test	visual inspection visual inspection (0 ~ 500) N, 5N visual inspection (0 ~ 1 000) N, 1N	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	Safety Confirmation standard Annex 7 Children's tricycles		N
		3.2 Material		
		3.2.3 Migration of certain elements	each $\geq 5$ mg/kg	
		3.2.4 Hazardous elements contents	each $\geq 10$ mg/kg	
		3.2.5 Phthalate plasticizers	each $\geq 50$ mg/kg	
KATS Notice No.2018-195 (06.29.2018.)	Baby products	Consumer Products subject to Compliance with Safety Standards Annex 5 Furniture requirements	-	N
		4.1.2 Leather Hazardous materials safety	-	
		Formaldehyde	$\geq 15$ mg/kg	
		Chlorinated phenols	$\geq 0.1$ mg/kg	
		Cr <sup>6+</sup>	$\geq 0.1$ mg/kg	
		Dimethyl Fumarate	$\geq 0.05$ mg/kg	
		Aryl amine	each $\geq 5$ mg/kg	
MOTIE Notice No.2020-020 (03.01.2020.)	Baby products	Organotin compound TBT(tributyltin)	$\geq 0.5$ mg/kg	N
		Supplier's Conformity Confirmation standard Annex 14 Furniture for Children		
		6.9.1 Chlorinated phenols contents	each $\geq 0.1$ mg/kg	
		6.9.2 Cr <sup>6+</sup>	$\geq 0.1$ mg/kg	
		6.9.3 Dimethyl Fumarate	$\geq 0.05$ mg/kg	
		6.9.4 Aryl amine	each $\geq 5$ mg/kg	
		6.9.5 Formaldehyde in textiles and leather products	$\geq 15$ mg/kg	
		6.9.6 Organo Tin compounds	$\geq 0.5$ mg/kg	
		6.9.9 Migration of certain elements	each $\geq 5$ mg/kg	
		6.9.10 Hazardous elements contents	each $\geq 10$ mg/kg	
		6.9.11 Phthalate plasticizers	each $\geq 50$ mg/kg	
KATS Notice No.2018-195 (06.29.2018.)	Baby products	Consumer Products subject to Compliance with Safety Standards Annex 3 Leather products	-	N
		5.2.1 Formaldehyde contents	$\geq 15$ mg/kg	
		5.2.2 Chlorinated phenols contents	each $\geq 0.1$ mg/kg	
		5.2.3 Cr <sup>6+</sup>	$\geq 0.1$ mg/kg	
		5.2.4 Dimethyl Fumarate contents	$\geq 0.05$ mg/kg	
		5.2.5 Aryl amine	each $\geq 5$ mg/kg	
		5.2.6 Phthalate plasticizers	each $\geq 50$ mg/kg	
		5.2.7 Organo Tin compounds	$\geq 0.5$ mg/kg	
		5.2.8 Lead and cadmium contents	each $\geq 10$ mg/kg	
		5.2.9 Migration of Nickel	$\geq 0.1$ $\mu\text{g}/\text{cm}^2/\text{week}$	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-0031 (03.05.2018.)	Baby products	Supplier's Conformity standard Annex 1 Leather products for Children		N
		5.2 Hazardous materials safety requirements		
		5.2.1 Formaldehyde contents	$\geq 15 \text{ mg/kg}$	
		5.2.2 Chlorinated phenols contents	$\geq 0.1 \text{ mg/kg}$	
		5.2.3 Cr <sup>6+</sup> contents	$\geq 0.5 \text{ mg/kg}$	
		5.2.4 Dimethyl Fumarate contents	$\geq 0.05 \text{ mg/kg}$	
		5.2.5 Aryl amine content	each $\geq 5 \text{ mg/kg}$	
		5.2.6 Hazardous elements contents	each $\geq 10 \text{ mg/kg}$	
		5.2.7 Organo Tin compounds	each $\geq 0.5 \text{ mg/kg}$	
		5.2.8 Phthalate plasticizers contents	each $\geq 50 \text{ mg/kg}$	
		5.2.9 Migration of Nickel	$\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$	
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 2 Care articles for children		N
		Part 2:Soothers for babies and young children		
		5.2 Chemical Properties		
		5.2.1 Migration of certain elements	each $\geq 5 \text{ mg/kg}$	
		5.2.2 Hazardous elements contents	each $\geq 10 \text{ mg/kg}$	
		5.2.3 Phthalate plasticizers contents	each $\geq 50 \text{ mg/kg}$	
		5.2.4 Formaldehyde for textiles	$\geq 15 \text{ mg/kg}$	
		5.2.5 N-nitrosamines and n-nitrosable substances	$\geq 0.01 \text{ mg/kg}$	
		5.2.6 Migration of 2-mercaptoimidazole	visual inspection	
		5.2.7 Migration of formaldehyde	$\geq 1 \text{ mg/L}$	
		5.2.8 Migration of phenols	$\geq 1 \text{ mg/L}$	
		5.2.9 Migration of bisphenol A	$\geq 0.04 \text{ mg/kg}$	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 2 Care articles for children(continue) Part 3:Soother holder for babies and young children 5.2 Chemical properties analysis Method 5.2.1 Migration of certain elements 5.2.2 Hazardous elements contents 5.2.3 Migration of Nickel 5.2.4 Phthalate plasticizers contents 5.2.5 Formaldehyde for textiles Part 4:Floor mat 5.2 Chemical properties 5.2.1 Migration of certain elements 5.2.2 Hazardous elements contents 5.2.3 Phthalate plasticizers contents 5.2.4 Formaldehyde 5.2.5 Organo Tin compounds 5.2.6 Textile's Aryl amine 5.2.7 Textile's Flame retardants 5.2.8 Dimethyl Fumarate contents 5.2.9 Textile's Allergic dyes 5.2.10 Textile's pH 5.2.11 volatile organic compounds emission contents	each $\geq 5$ mg/kg each $\geq 10$ mg/kg $\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$ each $\geq 50$ mg/kg $\geq 15$ mg/kg each $\geq 5$ mg/kg each $\geq 10$ mg/kg each $\geq 50$ mg/kg $\geq 15$ mg/kg each $\geq 0.5$ mg/kg each $\geq 5$ mg/kg each $\geq 5$ mg/kg $\geq 0.05$ mg/kg $\geq 20$ mg/kg 2 ~ 13 Toluene, Formamide, 2-Ethyl hexoic acid, 2-Methoxyethanol $: \geq 0.1 \text{ mg}/(\text{m}^2 \cdot \text{h})$ N,N-Dimethylformamide, Butylhydroxytoluene: $\geq 0.2 \text{ mg}/(\text{m}^2 \cdot \text{h})$ Formaldehyde: $\geq 0.01 \text{ mg}/(\text{m}^2 \cdot \text{h})$	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2016-600 (12.23.2016.)	Baby products	Safety Certification Standard Annex 7 Aquatic equipment		N
		Part 1. Inflatable aquatic equipment		
		5.8 Extraction of heavy metal	each $\geq 5$ mg/kg	
		5.10 Lead contents	$\geq 10$ mg/kg	
		Part 2. Inflatable boats		
		5.14 Extraction of heavy metal	each $\geq 5$ mg/kg	
		5.16 Lead contents	$\geq 10$ mg/kg	
		Part 3. Buoyant aids to be worn		
		6.16.3 Extraction of heavy metal	each $\geq 5$ mg/kg	
		6.16.5 Lead contents	$\geq 10$ mg/kg	
		Part 4. Requirements and test methods for buoyant devices to be held		
		6.11.2 Extraction of harmfulness element	each $\geq 5$ mg/kg	
		6.11.4 Lead contents	$\geq 10$ mg/kg	
MOTIE Notice No.2015-0107 (06.04.2015.)	Baby products	Safety Certification standard Annex 1 Aquatic Equipment For Children		N
		Part 1 Inflatable aquatic equipment		
		5.8 Migration of certain elements	each $\geq 5$ mg/kg	
		5.9 Phthalate plasticizers	each $\geq 50$ mg/kg	
		5.11 Hazardous elements contents	$\geq 10$ mg/kg	
		Part 2 Buoyant aids to be worn		
		6.16.3 Migration of certain elements	each $\geq 5$ mg/kg	
		6.16.4 Phthalate plasticizers	$\geq 50$ mg/kg	
		6.16.6 Hazardous elements contents	$\geq 10$ mg/kg	
		Part 3 Requirements and test methods for buoyant device		
		6.11.2 Migration of certain elements	each $\geq 5$ mg/kg	
		6.11.3 Phthalate plasticizers	$\geq 50$ mg/kg	
		6.11.5 Hazardous elements contents	$\geq 10$ mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 11 School things 5.2 Migration of certain elements 5.3 Hazardous elements contents 5.4 Phthalate plasticizers 5.7 Formaldehyde 5.9 pH(Liquid glue) 5.10 Colorants, aromatic amines and preservatives - Colorants - Aromatic amines - Preservatives	each $\geq 5$ mg/kg each $\geq 10$ mg/kg $\geq 50$ mg/kg $\geq 15$ mg/kg 2 ~ 13 each $\geq 5$ mg/kg each $\geq 1$ mg/kg each $\geq 0.25$ mg/kg	N
MOTIE Notice No.2020-0229 (12.30.2020.)	Baby products	Safety Confirmation standard Annex 11 School things 5.2 Migration of certain elements 5.3 Hazardous elements contents 5.4 Phthalate plasticizers 5.7 Formaldehyde 5.9 pH(Liquid glue) 5.10 N-nitrosamines and N-nitrosable substances	each $\geq 5$ mg/kg each $\geq 10$ mg/kg $\geq 50$ mg/kg $\geq 15$ mg/kg 2 ~ 13 Total $\geq 0.01$ mg/kg	N
MOTIE Notice No.2021-0230 (12.29.2021.)	Baby products	Safety Confirmation standard Annex 11 School things 5.2 Migration of certain element 5.3 Hazardous elements contents 5.4 Phthalate plasticizers 5.7 Formaldehyde 5.9 pH(Liquid glue) 5.10 N-nitrosamines and N-nitrosable substances	- each $\geq 5$ mg/kg each $\geq 10$ mg/kg $\geq 50$ mg/kg $\geq 15$ mg/kg 2 ~ 13 N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ 6 mg/kg	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0221 (12.14.2022.)	Baby products	Safety Confirmation standard Annex 11 School things 5.2 Migration of certain element 5.3 Hazardous elements contents 5.4 Phthalate plasticizers 5.7 Formaldehyde 5.9 pH(Liquid glue) 5.10 N-nitrosamines and N-nitrosable substances	- each $\geq 5$ mg/kg each $\geq 10$ mg/kg each $\geq 50$ mg/kg $\geq 15$ mg/kg 2 ~ 13 N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ 6 mg/kg	N
KATS Notice No. 2010-676 (12.27.2010.)	Baby products	Children's products safety standards for hazardous substances 4.1 Lead and cadmium contents 4.2 Lead content of paint and coating products 4.3 Migration of Nickel 4.4 Phthalate plasticizers	each $\geq 10$ mg/kg each $\geq 10$ mg/kg $\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$ each $\geq 50$ mg/kg	N
MOTIE Notice No.2017-0018 (01.31.2017.)	Baby products	Children's Products Common Safety Standards 6.1 Test methods for hazardous materials safety requirements 6.1.1 Migration of certain elements 6.1.2 Phthalate plasticizers 6.1.3 Hazardous elements contents 6.1.4 pH 6.1.5 Formaldehyde 6.1.6 Aryl amine	each $\geq 5$ mg/kg each $\geq 50$ mg/kg each $\geq 10$ mg/kg 2 ~ 13 $\geq 15$ mg/kg each $\geq 5$ mg/kg	N
MOTIE Notice No.2015-0109 (06.04.2015.)	Baby products	Supplier's Conformity Confirmation standard Annex 11 Children's Jewelry 5.3 Migration of certain elements 5.4 Hazardous elements contents 5.5 Migration of Nickel 5.6 Phthalate plasticizers 5.7 Junction parts	each $\geq 5$ mg/kg each $\geq 10$ mg/kg $\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$ each $\geq 50$ mg/kg $\geq 10$ mg/kg	N

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## **02 Chemical Testing**

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 6 Toys Part 4 Hazardous chemicals	Al, Sb, Ba, Cr, Se, B, Cu, Mn, Ni, Sr, Sn, Zn:  each $\geq 5.0$ mg/kg,  As, Cd, Pb, Hg, Co:each $\geq 0.25$ mg/kg  Cr(VI): $\geq 0.005$ mg/kg  Cr(III): $\geq 0.15$ mg/kg  Organic tin:  each $\geq 0.04$ mg/kg	N
		4.1 Migration of certain elements		
		8.3 Lead and Cadmium	each $\geq 10$ mg/kg	
		8.4 Migration of Nickel	$\geq 0.1$ $\mu\text{g}/\text{cm}^2/\text{week}$	
		8.5 Phthalate plasticizers	each $\geq 50$ mg/kg	
		Part 6 Experimental sets for chemistry and related activities		

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 6 Toys (continue) Part 7 Finger paints 5.1 General 5.2 Colorants 5.3 Migration of certain elements 5.4 Primary aromatic amines 5.5 pH Part 8. Organic chemical compounds - Requirements Part 9. Organic chemical compounds - Sample preparation and extraction Part 10. Organic chemical compounds -Methods of analysis 5.2 Flame retardants 5.3 Colorants 5.4 Aromatic amines 5.5 Monomers (migration) and solvents(migration) Acrylamide Bisphenol A Formaldehyde Phenol Styrene Trichloroethylene Dichloromethane 2-Methoxy-ethyl acetate 2-Ethoxy-ethanol 2-Ethoxy-ethyl acetate Bis-(2-methoxy-ethyl) ether 2-Methoxy-propyl acetate Methanol Nitrobenzene Cyclohexanone 3,5,5-Trimethyl-2-cyclohexene-1-one Toluene Ethylbenzene Xylene (o-, m-, p-) 5.6 Wood preservatives 2,4-Dichlorophenol	each $\geq 3$ mg/kg each $\geq 5$ mg/kg each $\geq 3$ mg/kg 2 ~ 13 - - - each $\geq 1$ mg/kg each $\geq 5$ mg/kg each $\geq 1$ mg/kg - $\geq 0.01$ mg/L $\geq 0.05$ mg/L $\geq 1$ mg/L $\geq 1$ mg/L $\geq 0.05$ mg/L $\geq 0.01$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 1$ mg/L $\geq 0.01$ mg/L $\geq 5$ mg/L $\geq 1$ mg/L $\geq 0.5$ mg/L $\geq 0.5$ mg/L $\geq 0.1$ mg/L -	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0016 (01.31.2017.)	Baby products	Safety Confirmation standard Annex 6 Toys (continue)		
		2,4,6-Trichlorophenol	≥ 1 mg/kg	
		2,4,5-Trichlorophenol	≥ 1 mg/kg	
		2,3,4,6-Tetrachlorophenol	≥ 0.5 mg/kg	
		Pentachlorophenol	≥ 1 mg/kg	
		Lindane	≥ 1 mg/kg	
		Cyfluthrin	≥ 5 mg/kg	
		Cypermethrin	≥ 5 mg/kg	
		Deltamethrin	≥ 5 mg/kg	
		Permethrin	≥ 5 mg/kg	
		5.7 Preservatives	-	
		Phenol	≥ 2.0 mg/kg	
		1,2-Benzylisothiazolin-3-one	≥ 1.0 mg/kg	
		2-Methyl-4-isothiazolin-3-one	≥ 0.25 mg/kg	
		5-Chloro-2-methyl-4-isothiazolin-3-one	≥ 0.75 mg/kg	
		5-Chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	≥ 1.00 mg/kg	
		Formaldehyde (free)	≥ 0.020 %	
		5.8 Plasticisers	each ≥ 0.01 mg/L	
		5.9 Ethyl Acetate, methanol	each ≥ 10 mg/kg	
		Annex A Solvents (inhalation)	-	
		Toluene	≥ 100 µg/m³	
		Ethylbenzene	≥ 2 500 µg/m³	
		Xylene (o-, m-, p-)	≥ 500 µg/m³	
		1,3,5-Trimethylbenzene (mesitylene)	≥ 1 500 µg/m³	
		Trichloroethylene	≥ 30 µg/m³	
		Dichloromethane	≥ 1 500 µg/m³	
		n-Hexane	≥ 1 000 µg/m³	
		Nitrobenzene	≥ 30 µg/m³	
		Cyclohexanone	≥ 50 µg/m³	
		3,5,5-Trimethyl-2-cyclohexene-1-one	≥ 100 µg/m³	

N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-0229 (12.30.2020.)	Baby products	Safety Confirmation standard Annex 6 Toys Part 4 Hazardous chemicals  4.1 Migration of certain elements  8.3 Lead and Cadmium 8.4 Nickel release 8.5 Phthalate plasticizers 8.6 N-nitrosamines and n-nitrosable substances Part 6 Experimental sets for chemistry and related activities	Al, Sb, Ba, Se, B, Cu, Mn, Ni, Sr, Zn : each $\geq 5.0$ mg/kg Sn : $\geq 0.05$ mg/kg As, Cd, Pb, Hg, Co : each $\geq 0.25$ mg/kg Cr : $\geq 0.005$ mg/kg Cr(VI) : $\geq 0.005$ mg/kg Cr(III) : $\geq 0.15$ mg/kg Organic tin : each $\geq 0.04$ mg/kg each $\geq 10$ mg/kg $\geq 0.1$ $\mu\text{g}/\text{cm}^2/\text{week}$ each $\geq 50$ mg/kg Total $\geq 0.01$ mg/kg	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-0229 (12.30.2020.)	Baby products	Safety Confirmation standard Annex 6 Toys (continue) Part 7 Finger paints 5.1 General 5.2 Colorants 5.3 Migration of certain elements 5.4 Primary aromatic amines 5.5 pH Part 8. Organic chemical compounds - Requirements Part 9. Organic chemical compounds - Sample preparation and extraction Part 10. Organic chemical compounds -Methods of analysis 5.2 Flame retardants 5.3 Colorants 5.4 Primary aromatic amines 5.5 Monomers (migration) and solvents (migration) Acrylamide Bisphenol A Formaldehyde Phenol Styrene Trichloroethylene Dichloromethane 2-Methoxy-ethyl acetate 2-Ethoxy-ethanol 2-Ethoxy-ethyl acetate Bis-(2-methoxy-ethyl) ether 2-Methoxy-propyl acetate Methanol Nitrobenzene Cyclohexanone 3,5,5-Trimethyl-2-cyclohexene-1-one Toluene Ethylbenzene Xylene (o-, m-, p-)	each $\geq 3$ mg/kg each $\geq 5$ mg/kg each $\geq 3$ mg/kg 2 ~ 13 - - - each $\geq 1$ mg/kg each $\geq 5$ mg/kg each $\geq 1$ mg/kg - $\geq 0.01$ mg/L $\geq 0.05$ mg/L $\geq 1$ mg/L $\geq 1$ mg/L $\geq 0.05$ mg/L $\geq 0.01$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 0.02$ mg/L $\geq 1$ mg/L $\geq 0.01$ mg/L $\geq 5$ mg/L $\geq 1$ mg/L $\geq 0.5$ mg/L $\geq 0.5$ mg/L $\geq 0.1$ mg/L	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-0229 (12.30.2020.)	Baby products	Safety Confirmation standard Annex 6 Toys (continue) 5.6 Wood preservatives 2,4-Dichlorophenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol Pentachlorophenol Lindane Cyfluthrin Cypermethrin Deltamethrin Permethrin 5.7 Preservatives Phenol 1,2-Benzylisothiazolin-3-one 2-Methyl-4-isothiazolin-3-one 5-Chloro-2-methyl-4-isothiazolin-3-one 5-Chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one Formaldehyde (free) 5.8 Plasticisers 5.9 Ethyl Acetate, methanol Annex A(informative) Methods of analysis for volatile solvents Toluene Ethylbenzene Xylene (o-, m-, p-) 1,3,5-Trimethylbenzene (mesitylene) Trichloroethylene Dichloromethane n-Hexane Nitrobenzene Cyclohexanone 3,5,5-Trimethyl-2-cyclohexene-1-one	- $\geq 1$ mg/kg $\geq 1$ mg/kg $\geq 1$ mg/kg $\geq 1$ mg/kg $\geq 1$ mg/kg $\geq 1$ mg/kg $\geq 5$ mg/kg $\geq 5$ mg/kg $\geq 5$ mg/kg $\geq 5$ mg/kg $\geq 2.0$ mg/kg $\geq 1.0$ mg/kg $\geq 0.25$ mg/kg $\geq 0.75$ mg/kg $\geq 1.00$ mg/kg $\geq 0.020$ % each $\geq 0.01$ mg/L each $\geq 10$ mg/kg - $\geq 100$ $\mu\text{g}/\text{m}^3$ $\geq 2$ 500 $\mu\text{g}/\text{m}^3$ $\geq 500$ $\mu\text{g}/\text{m}^3$ $\geq 1$ 500 $\mu\text{g}/\text{m}^3$ $\geq 30$ $\mu\text{g}/\text{m}^3$ $\geq 1$ 500 $\mu\text{g}/\text{m}^3$ $\geq 1$ 000 $\mu\text{g}/\text{m}^3$ $\geq 30$ $\mu\text{g}/\text{m}^3$ $\geq 50$ $\mu\text{g}/\text{m}^3$ $\geq 100$ $\mu\text{g}/\text{m}^3$	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0230 (12.29.2021.)	Baby products	Safety Confirmation standard Annex 6 Toys Part 4 Hazardous chemicals	- - Al, Sb, Ba, Se, B, Cu, Mn, Ni, Sr, Zn : each $\geq 5.0$ mg/kg, Sn : $\geq 0.05$ mg/kg As, Cd, Pb, Hg, Co : each $\geq 0.25$ mg/kg Cr : $\geq 0.005$ mg/kg Cr(VI) : $\geq 0.005$ mg/kg Cr(III) : $\geq 0.15$ mg/kg Organic tin : each $\geq 0.04$ mg/kg	
		4.1 Migration of certain elements		
		8.4 Lead and Cadmium	each $\geq 10$ mg/kg	
		8.5 Nickel release	$\geq 0.1$ $\mu\text{g}/\text{cm}^2$ /week	
		8.6 Phthalate plasticizers	each $\geq 50$ mg/kg	
		8.7 N-nitrosamines and N-nitrosable substances	N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ 6 mg/kg	N
		Part 6 Experimental sets for chemistry and related activities	-	
		Part 7 Finger paints		
		5.1 General		
		5.2 Colorants	each $\geq 3$ mg/kg	
		5.3 Migration of certain elements	each $\geq 5$ mg/kg	
		5.4 Primary aromatic amines	each $\geq 3$ mg/kg	
		5.5 pH	2 ~ 13	
		Part 8. Organic chemical compounds -Requirements	-	
		Part 9. Organic chemical compounds -Sample preparation and extraction	-	
		Part 10. Organic chemical compounds -Methods of analysis	-	
		5.2 Flame retardants	each $\geq 1$ mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0230 (12.29.2021.)	Baby products	5.3 Colorants	each $\geq 5$ mg/kg	
		5.4 Primary aromatic amines	each $\geq 1$ mg/kg	
		5.5 Monomers (migration) and solvents (migration)	-	
		Acrylamide	$\geq 0.01$ mg/L	
		Bisphenol A	$\geq 0.05$ mg/L	
		Formaldehyde	$\geq 1$ mg/L	
		Phenol	$\geq 1$ mg/L	
		Styrene	$\geq 0.05$ mg/L	
		Trichloroethylene	$\geq 0.01$ mg/L	
		Dichloromethane	$\geq 0.02$ mg/L	
		2-Methoxy-ethyl acetate	$\geq 0.02$ mg/L	
		2-Ethoxy-ethanol	$\geq 0.02$ mg/L	
		2-Ethoxy-ethyl acetate	$\geq 0.02$ mg/L	
		Bis-(2-methoxy-ethyl) ether	$\geq 0.02$ mg/L	
		2-Methoxy-propyl acetate	$\geq 0.02$ mg/L	
		Methanol	$\geq 1$ mg/L	
		Nitrobenzene	$\geq 0.01$ mg/L	
		Cyclohexanone	$\geq 5$ mg/L	
		3,5,5-Trimethyl-2-cyclohexene-1-one	$\geq 1$ mg/L	
		Toluene	$\geq 0.5$ mg/L	
		Ethylbenzene	$\geq 0.5$ mg/L	
		Xylene (o-, m-, p-)	$\geq 0.1$ mg/L	
		5.6 Wood preservatives	-	
		2,4-Dichlorophenol	$\geq 1$ mg/kg	
		2,4,6-Trichlorophenol	$\geq 1$ mg/kg	
		2,4,5-Trichlorophenol	$\geq 1$ mg/kg	
		2,3,4,6-Tetrachlorophenol	$\geq 0.5$ mg/kg	
		Pentachlorophenol	$\geq 1$ mg/kg	
		Lindane	$\geq 1$ mg/kg	
		Cyfluthrin	$\geq 5$ mg/kg	
		Cypermethrin	$\geq 5$ mg/kg	
		Deltamethrin	$\geq 5$ mg/kg	
		Permethrin	$\geq 5$ mg/kg	
		5.7 Preservatives	-	
		Phenol	$\geq 2.0$ mg/kg	
		1,2-Benzylisothiazolin-3-one	$\geq 1.0$ mg/kg	
		2-Methyl-4-isothiazolin-3-one	$\geq 0.25$ mg/kg	

N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0230 (12.29.2021.)	Baby products	5-Chloro-2-methyl-4-isothiazolin-3-one	≥ 0.75 mg/kg	N
		5-Chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one	≥ 1.00 mg/kg	
		Formaldehyde (free)	≥ 0.020 %	
		5.8 Plasticisers	each ≥ 0.01 mg/L	
		5.9 Ethyl Acetate, methanol	each ≥ 10 mg/kg	
		Annex A(informative) Methods of analysis for volatile solvents	-	
		Toluene	≥ 100 μg/m <sup>3</sup>	
		Ethylbenzene	≥ 2 500 μg/m <sup>3</sup>	
		Xylene (o-, m-, p-)	≥ 500 μg/m <sup>3</sup>	
		1,3,5-Trimethylbenzene (mesitylene)	≥ 1 500 μg/m <sup>3</sup>	
		Trichloroethylene	≥ 30 μg/m <sup>3</sup>	
		Dichloromethane	≥ 1 500 μg/m <sup>3</sup>	
		n-Hexane	≥ 1 000 μg/m <sup>3</sup>	
		Nitrobenzene	≥ 30 μg/m <sup>3</sup>	
		Cyclohexanone	≥ 50 μg/m <sup>3</sup>	
		3,5,5-Trimethyl-2-cyclohexene-1-one	≥ 100 μg/m <sup>3</sup>	
		Annex D(informative) Determination of formaldehyde in adhesives	≥ 1 mg/kg	
		Part 12 N-nitrosamines and N-nitrosable substances	N-nitrosamines : each ≥ 0.002 mg/kg N-nitrosable substance : each ≥ 0.002 6 mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0221 (12.14.2022.)	Baby products	Safety Confirmation standard Annex 6 Toys Part 4 Hazardous chemicals	- - Al, Sb, Ba, Se, B, Cu, Mn, Ni, Sr, Zn : each $\geq 5.0$ mg/kg, Sn : $\geq 0.05$ mg/kg As, Cd, Pb, Hg, Co : each $\geq 0.25$ mg/kg Cr : $\geq 0.005$ mg/kg Cr(VI) : $\geq 0.005$ mg/kg Cr(III) : $\geq 0.15$ mg/kg Organic tin : each $\geq 0.04$ mg/kg	
		4.1 Migration of certain elements		
		8.4 Lead and Cadmium	each $\geq 10$ mg/kg	
		8.5 Nickel release	$\geq 0.1$ $\mu\text{g}/\text{cm}^2$ /week	
		8.6 Phthalate plasticizers	each $\geq 50$ mg/kg	
		8.7 N-nitrosamines and N-nitrosable substances	N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ 6 mg/kg	N
		Part 6 Experimental sets for chemistry and related activities	-	
		Part 7 Finger paints		
		5.1 General		
		5.2 Colorants	each $\geq 3$ mg/kg	
		5.3 Migration of certain elements	each $\geq 5$ mg/kg	
		5.4 Primary aromatic amines	each $\geq 3$ mg/kg	
		5.5 pH	2 ~ 13	
		Part 8. Organic chemical compounds -Requirements	-	
		Part 9. Organic chemical compounds -Sample preparation and extraction	-	
		Part 10. Organic chemical compounds -Methods of analysis	-	
		5.2 Flame retardants	each $\geq 1$ mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0221 (12.14.2022.)	Baby products	5.3 Colorants	each $\geq 5$ mg/kg	
		5.4 Primary aromatic amines	each $\geq 1$ mg/kg	
		5.5 Monomers (migration) and solvents (migration)	-	
		Acrylamide	$\geq 0.01$ mg/L	
		Bisphenol A	$\geq 0.05$ mg/L	
		Formaldehyde	$\geq 1$ mg/L	
		Phenol	$\geq 1$ mg/L	
		Styrene	$\geq 0.05$ mg/L	
		Trichloroethylene	$\geq 0.01$ mg/L	
		Dichloromethane	$\geq 0.02$ mg/L	
		2-Methoxy-ethyl acetate	$\geq 0.02$ mg/L	
		2-Ethoxy-ethanol	$\geq 0.02$ mg/L	
		2-Ethoxy-ethyl acetate	$\geq 0.02$ mg/L	
		Bis-(2-methoxy-ethyl) ether	$\geq 0.02$ mg/L	
		2-Methoxy-propyl acetate	$\geq 0.02$ mg/L	
		Methanol	$\geq 1$ mg/L	
		Nitrobenzene	$\geq 0.01$ mg/L	
		Cyclohexanone	$\geq 5$ mg/L	
		3,5,5-Trimethyl-2-cyclohexene-1-one	$\geq 1$ mg/L	
		Toluene	$\geq 0.5$ mg/L	
		Ethylbenzene	$\geq 0.5$ mg/L	
		Xylene (o-, m-, p-)	$\geq 0.1$ mg/L	
		5.6 Wood preservatives	-	
		2,4-Dichlorophenol	$\geq 1$ mg/kg	
		2,4,6-Trichlorophenol	$\geq 1$ mg/kg	
		2,4,5-Trichlorophenol	$\geq 1$ mg/kg	
		2,3,4,6-Tetrachlorophenol	$\geq 0.5$ mg/kg	
		Pentachlorophenol	$\geq 1$ mg/kg	
		Lindane	$\geq 1$ mg/kg	
		Cyfluthrin	$\geq 5$ mg/kg	
		Cypermethrin	$\geq 5$ mg/kg	
		Deltamethrin	$\geq 5$ mg/kg	
		Permethrin	$\geq 5$ mg/kg	
		5.7 Preservatives	-	
		Phenol	$\geq 2.0$ mg/kg	
		1,2-Benzylisothiazolin-3-one	$\geq 1.0$ mg/kg	
		2-Methyl-4-isothiazolin-3-one	$\geq 0.25$ mg/kg	

N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0221 (12.14.2022.)	Baby products	5-Chloro-2-methyl-4-isothiazolin-3-one 5-Chloro-2-methyl-4-isothiazolin-3-one + 2-methyl-4-isothiazolin-3-one Formaldehyde (free) 5.8 Plasticisers 5.9 Ethyl Acetate, methanol Annex A(informative) Methods of analysis for volatile solvents Toluene Ethylbenzene Xylene (o-, m-, p-) 1,3,5-Trimethylbenzene (mesitylene) Trichloroethylene Dichloromethane n-Hexane Nitrobenzene Cyclohexanone 3,5,5-Trimethyl-2-cyclohexene-1-one Annex D(informative) Determination of formaldehyde in adhesives  Part 12 N-nitrosamines and N-nitrosable substances	≥ 0.75 mg/kg ≥ 1.00 mg/kg ≥ 0.020 % each ≥ 0.01 mg/L each ≥ 10 mg/kg - ≥ 100 µg/m³ ≥ 2 500 µg/m³ ≥ 500 µg/m³ ≥ 1 500 µg/m³ ≥ 30 µg/m³ ≥ 1 500 µg/m³ ≥ 1 000 µg/m³ ≥ 30 µg/m³ ≥ 50 µg/m³ ≥ 100 µg/m³ ≥ 1 mg/kg  N-nitrosamines : each ≥ 0.002 mg/kg N-nitrosable substance : each ≥ 0.002 6 mg/kg	N
KATS Notice No.2017-032 (02.08.2017.)	Baby products	Safety confirmation standard - Annex 68 Thermal Pack (including pocket pack) 6.4 Hazardous substances 6.4.1 Lead contents 6.4.2 Cadmium contents 6.4.3 Phthalate plasticizers 6.4.4 Migration of certain elements	≥ 10 mg/kg ≥ 10 mg/kg each ≥ 50 mg/kg each ≥ 5 mg/kg	N
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	Safety Confirmation standard Annex 15 Thermal pack for children (including pocket pack) 6.4 Migration of certain elements 6.5 Hazardous elements contents 6.6 Phthalate plasticizers	each ≥ 5 mg/kg each ≥ 10 mg/kg each ≥ 50 mg/kg	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-0032 (03.05.2018.)	Baby products	Safety Confirmation standard Annex 1 Textile products for infant 5.2.1 Formaldehyde 5.2.2 Organo Tin compounds 5.2.3 Aryl amine 5.2.4 Phthalate plasticizers 5.2.5 Flame retardants 5.2.5.1 PentaBDE, OctaBDE 5.2.5.2 TDBPP [tri(2,3-dibromopropyl) phosphate] 5.2.6 pH 5.2.7 Lead contents 5.2.8 Cadmium contents 5.2.9 Allergic dyes 5.2.10 Nickel release 5.2.11 NP, NPEO contents 5.2.11.1 NP(Nonylphenol) 5.2.11.2 NPEO(Nonylphenolethylates) 5.2.12 Dimethyl Fumarate contents	$\geq 15 \text{ mg/kg}$ each $\geq 0.5 \text{ mg/kg}$ each $\geq 5 \text{ mg/kg}$ each $\geq 50 \text{ mg/kg}$ $\geq 5 \text{ mg/kg}$ $\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$ $\geq 10 \text{ mg/kg}$ $\geq 10 \text{ mg/kg}$ $\geq 20 \text{ mg/kg}$ $\geq 10 \text{ mg/kg}$ $\geq 50 \text{ mg/kg}$ $\geq 0.05 \text{ mg/kg}$	N
MOTIE Notice No.2021-0171 (10.27.2021.)	Baby products	Safety Confirmation standard Annex 1 Textile products for infant 6.2.1 Formaldehyde 6.2.2 Organo Tin compounds 6.2.3 Aryl amine 6.2.4 Phthalate plasticizers 6.2.5 Flame retardants 6.2.5.1 PentaBDE, OctaBDE 6.2.5.2 TDBPP [tri(2,3-dibromopropyl) phosphate] 6.2.6 pH 6.2.7 Lead contents 6.2.8 Cadmium contents 6.2.9 Allergic dyes 6.2.10 Nickel release 6.2.11 NP, NPEO contents 6.2.11.1 NP(Nonylphenol) 6.2.11.2 NPEO(Nonylphenolethylates)	- $\geq 15 \text{ mg/kg}$ each $\geq 0.5 \text{ mg/kg}$ each $\geq 5 \text{ mg/kg}$ each $\geq 50 \text{ mg/kg}$ - $\geq 5 \text{ mg/kg}$ $\geq 10 \text{ mg/kg}$ $\geq 10 \text{ mg/kg}$ $\geq 20 \text{ mg/kg}$ $\geq 0.1 \mu\text{g}/\text{cm}^2/\text{week}$ $\geq 10 \text{ mg/kg}$ $\geq 50 \text{ mg/kg}$	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-0031 (03.05.2018.)	Baby products	Supplier's Conformity Confirmation standard Annex 15 textile products for children		N
		5.2.1 pH	2 ~ 13	
		5.2.2 Formaldehyde content	≥15 mg/kg	
		5.2.3 Aryl amine content	each ≥5 mg/kg	
		5.2.4 Phthalate plasticisers	each ≥50 mg/kg	
		5.2.5 Organo Tin compounds	≥0.5 mg/kg	
		5.2.6 Flame retardants	-	
		5.2.6.1 PentaBDE, OctaBDE	each ≥5 mg/kg	
		5.2.6.2 TDBPP(TRIS)	≥5 mg/kg	
		5.2.7 Lead contents	≥10 mg/kg	
MOTIE Notice No.2021-0171 (10.27.2021.)	Baby products	5.2.8 Cadmium contents	≥10 mg/kg	N
		5.2.9 Allergic dyes	≥20 mg/kg	
		5.2.10 Nickel release	≥0.1 μg/cm <sup>2</sup> /week	
		Supplier's Conformity Confirmation standard Annex 15 textile products for children	-	
		6.2.1 pH	2 ~ 13	
		6.2.2 Formaldehyde	≥15 mg/kg	
		6.2.3 Aryl amine	each ≥5 mg/kg	
		6.2.4 Phthalate plasticisers	each ≥50 mg/kg	
		6.2.5 Organo Tin compounds	≥0.5 mg/kg	
		6.2.6 Flame retardants	-	
		6.2.6.1 PentaBDE, OctaBDE	each ≥5 mg/kg	
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	6.2.6.2 TDBPP(TRIS)	≥5 mg/kg	N
		6.2.7 Lead contents	≥10 mg/kg	
		6.2.8 Cadmium contents	≥10 mg/kg	
		6.2.9 Allergic dyes	≥20 mg/kg	
		6.2.10 Nickel release	≥0.1 μg/cm <sup>2</sup> /week	
		6.2.11 NP, NPEO contents		
		6.2.11.1 NP(Nonylphenol)	each ≥10 mg/kg	
		6.2.11.2 NPEO(Nonylphenolethylates)	≥50 mg/kg	
		Safety Confirmation standard Annex 4		
		Skate board For Children		
		7.10 Migration of certain elements	each ≥5 mg/kg	N
		7.11 Hazardous elements contents	each ≥10 mg/kg	
		7.12 Phthalate plasticizers	each ≥50 mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	Safety Confirmation standard Annex 12 Baby walking frames		N
		4.2.1.2 Hazardous substance contents	each $\geq 10$ mg/kg	
		4.2.1.3 Migration of certain elements	each $\geq 5$ mg/kg	
		4.2.1.4 Phthalate plasticizers contents	each $\geq 50$ mg/kg	
		4.2.1.5 Formaldehyde contents	$\geq 15$ mg/kg	
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	Safety Confirmation standard Annex 13 Baby Carriage		N
		6.2.3.1 sampling		
		6.2.3.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		6.2.3.3 Migration of certain elements	each $\geq 5$ mg/kg	
		6.2.3.4 Phthalate plasticizers contents	each $\geq 50$ mg/kg	
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	6.2.3.5 Migration of Formaldehyde	$\geq 15$ mg/kg	N
		Safety Confirmation standard Annex 16 Children's Carrier		
		Part 1 Children's Soft Carrier	-	
		6.2.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		6.2.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	6.2.1.3 Phthalate plasticizers contents	each $\geq 50$ mg/kg	N
		6.2.2 Formaldehyde	$\geq 15$ mg/kg	
		Part 2 Children's Frame Carrier	-	
		6.2.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		6.2.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
MOTIE Notice No.2015-0108 (06.04.2015.)	Baby products	6.2.1.3 Phthalate plasticizers contents	each $\geq 50$ mg/kg	N
		6.2.2 Formaldehyde	$\geq 15$ mg/kg	
		Safety Confirmation standard Annex 9 Bicycles for young children		
		2. Hazardous substance	-	
		2.1 Migration of certain elements	each $\geq 5$ mg/kg	
		2.2 Hazardous elements contents	each $\geq 10$ mg/kg	N
		2.3 Phthalate plasticisers	each $\geq 50$ mg/kg	

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MFDS Notice No. 2020-43 (05.29.2020.)	Baby products	Standards and Specifications for Food Utensils, Containers and Packages		N
		2-26 Phenol Test Method	$\geq 5$ mg/L	
		2-27 Formaldehyde Test Method	$\geq 1$ mg/L	
		2-35 Bisphenol A (phenol and p-tert-butyl phenol) Test Method	$\geq 0.4$ mg/L	
		2-49 2-Mercaptoimidazoline Test Method	visual inspection	
		2-51 N-Nitrosamines and N-Nitrostable substances Test Method	$\geq 0.01$ mg/kg	
KATS Notice No. 2017-0032 (02.08.2017.)	Baby products	Safety Confirmation standard Annex 69 Nursing Pads		N
		6.1 pH	2 ~ 13	
		6.3 Formaldehyde contents	$\geq 15$ mg/kg	
		6.4 Chlorinated phenols contents	each $\geq 0.1$ mg/kg	
		6.5 Azo-dye contents	each $\geq 5$ mg/kg	
		6.6 Lead and Cadmium contents	each $\geq 10$ mg/kg	
KS K 0739:2017	Baby products	Textile - Methods for determination of certain aromatic amines derived from azo colorants - Part 3: Detection of the use of certain azo colorants, which may release 4-aminoazobenzene	each $\geq 5$ mg/kg	N
KS I ISO 12219-3:2012	Baby products	Interior air of road vehicles — Part 3: Screening method for the determination of the emissions of volatile organic compounds from vehicle interior parts and materials — Micro-scale chamber method	$\geq 0.5$ mg/m <sup>2</sup> ·h	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
ASTM F 963:17	Baby products	Standard consumer safety specification for toy safety		
		4.3.5.1(1) Paint and Similar Surface Coating Materials - Determination of lead	$\geq 10 \text{ mg/kg}$	
		4.3.5.1(2) Paint and Similar Surface Coating Materials - Migration of certain elements	each $\geq 5 \text{ mg/kg}$	
		4.3.5.2 Toy Substrate Materials	each $\geq 5 \text{ mg/kg}$	
		4.3.7 Stuffing Materials.	-	
		4.20.1 Pacifiers with Rubber Nipples/Nitrosamine Test. Test Procedures for compliance testing - ASTM F 1313-90 (Reapproved 2011), "Standard Specification for Volatile N-Nitrosamine Levels in Rubber Nipples on Pacifiers"	N-Nitrosamines: $\geq 0.003 \text{ mg/kg}$	N
		Standard Specification for Volatile N-Nitrosamine Levels in Rubber Nipples on Pacifiers	$\geq 0.003 \text{ mg/kg}$	N
ASTM F1313 - 90(2011)	Baby products	Safety of toys - Part 3: Migration of certain elements	each $\geq 5 \text{ mg/kg}$	N
KS G ISO 8124-3:2010	Baby products	Safety of toys - Part 3: Migration of certain elements	each $\geq 5 \text{ mg/kg}$	N
ISO 8124-3:2010	Baby products	Safety of toys -- Part 5: Determination of total concentration of certain elements in toys	each $\geq 10 \text{ mg/kg}$	N
ISO 8124-6:2018	Baby products	Safety of toys -- Part 6: Certain phthalate esters in toys and children's products	each $\geq 50 \text{ mg/kg}$	N
ISO 8124-7:2015	Baby products	Safety of toys -- Part 7: Requirements and test methods for finger paints	$\geq 1 \text{ mg/kg}$	N
ASTM E1613 - 12	Baby products	Standard Test Method for Determination of Lead by Inductively Coupled Plasma Atomic Emission Spectrometry(ICP-AES), Flame Atomic Absorption Spectrometry (FAAS), or Graphite Furnace Atomic Absorption Spectrometry (GFAAS) Techniques	$\geq 10 \text{ mg/kg}$	N
CPSC - CH - E1001 - 08.3:2012	Baby products	Standard Operating Procedure for Determining Total Lead (Pb) in Metal Children's Products (including Children's Metal Jewelry), Revision November 15, 2012	$\geq 10 \text{ mg/kg}$	N

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### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
ASTM E1645 - 16	Baby products	Standard Practice for Preparation of Dried Paint Samples by Hotplate or Microwave Digestion for Subsequent Lead Analysis	-	N
KS K 0147:2021	Baby products	Test method for determination of aryl amine level on the dyestuff and dyed product	each $\geq 5$ mg/kg	N
KS K 0147:2015	Baby products	Test method for determination of aryl amine level on the dyestuff and dyed product	each $\geq 5$ mg/kg	N
BS EN ISO 14362-1:2017	Baby products	Textiles. Methods for determination of certain aromatic amines derived from azo colorants. Detection of the use of certain azo colorants accessible with and without extracting the fibres.	each $\geq 5$ mg/kg	N
BS EN ISO 14362-3:2017	Baby products	Textiles. Methods for determination of certain aromatic amines derived from azo colorants. Detection of the use of certain azo colorants, which may release 4-aminoazobenzene.	each $\geq 5$ mg/kg	N
KS K 0734:2019	Baby products	Test method for determination of arylamines content in polyester textiles	each $\geq 5$ mg/kg	N
KS K 0736:2019	Baby products	Test method for determination of allergenic disperse dyes content in textiles	each $\geq 20$ mg/kg	N
KS K 0737:2019	Baby products	Test method for determination of selected organotin compounds content in textiles	each $\geq 0.5$ mg/kg	N
KS M ISO 787-9:1981	Baby products	General methods of test for pigments and extenders — Part 9: Determination of pH value of an aqueous suspension	2 ~ 13	N
KS M ISO 3251:2011	Baby products	Paints and varnishes-Determination of non-volatile matter of paints, varnishes and binders for paints and varnishes	$\geq 0.01$ %	N
KS M ISO 11890-2:2013	Baby products	Paints and varnishes — Determination of volatile organic compound (VOC) content-Part 2: Gas-chromatographic me	$\geq 0.1$ mg/kg	N
KS M ISO 2811-1:2016	Baby products	Paints and varnishes — Determination of density — Part1: Pycnometer method	$\geq 0.001$ g/mL	N
BS EN 717-3:1996	Baby products	Wood-based panels. Determination of formaldehyde release. Formaldehyde release by the flask method	$\geq 5$ mg/kg	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
BS EN 1541:2001	Baby products	Paper and board intended to come into contact with foodstuffs. Determination of formaldehyde in an aqueous extract	$\geq 10 \text{ mg/kg}$	N
BS EN 71-3:2013 + A3:2018	Baby products	Safety of toys. Migration of certain elements	each $\geq 5 \text{ mg/kg}$	N
BS EN 71-3:2019+A1:2021	Baby products	Safety of toys. Migration of certain elements.	Al, Sb, Ba, Se, B, Cu, Mn, Ni, Sr, Zn : each $\geq 5.0 \text{ mg/kg}$ , Sn : $\geq 0.05 \text{ mg/kg}$ As, Cd, Pb, Hg, Co : each $\geq 0.25 \text{ mg/kg}$ Cr : $\geq 0.005 \text{ mg/kg}$ Cr(VI) : $\geq 0.005 \text{ mg/kg}$ Cr(III) : $\geq 0.15 \text{ mg/kg}$ Organic tin : each $\geq 0.04 \text{ mg/kg}$	N
BS EN 71-4:2013	Baby products	Safety of toys. Experimental sets for chemistry and related activities	$\geq 1 \text{ mg/kg}$	N
BS EN 71-7:2014 + A3:2020	Baby products	Safety of toys. Finger paints. Requirements and test methods	$\geq 1 \text{ mg/kg}$	N
BS EN 71-9:2005+A1:2007	Baby products	Safety of toys. Organic chemical compounds. Requirements.	-	N
BS EN 71-10:2005	Baby products	Safety of toys. Organic chemical compounds. Sample preparation and extraction	-	N
BS EN 71-11:2005	Baby products	Safety of toys. Organic chemical compounds. Methods of analysis	$\geq 1 \mu\text{g/kg}$	N
BS EN 645:1994	Baby products	Paper and board intended to come into contact with foodstuffs. Preparation of a cold water extract	-	N
ISO 11890-2:2013	Baby products	Paints and varnishes -- Determination of volatile organic compound (VOC) content -- Part 2: Gas-chromatographic method	$\geq 0.1 \text{ mg/kg}$	N
ASTM D3257 - 06 (2012)	Baby products	Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography	each $\geq 0.1 \text{ mg/kg}$	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
KS K ISO 3071:2005	Baby products	Textiles-Determination of pH of aqueous extract	2 ~ 13	N
KS K ISO 3071:2020	Baby products	Textiles-Determination of pH of aqueous extract	2 ~ 13	N
KS K 0733:2017	Baby products	Test method for determination of the pentachlorophenol content in textiles and/or leathers	≥0.1 mg/kg	N
KS K 0733:2022	Baby products	Test method for determination of the pentachlorophenol content in textiles and/or leathers	≥0.1 mg/kg	N
KS M ISO 17075:2007	Baby products	Leather - chemical tests - Determination of chromium(VI) content	≥0.1 mg/kg	N
KS M ISO 17226-1:2018	Baby products	Leather - Chemical determination of formaldehyde content - Part 1: Method using high performance liquid chromatography	≥0.1 mg/kg	N
KS M ISO 17226-2:2018	Baby products	Leather - Chemical determination of formaldehyde content - Part 2: Method using colorimetric analysis	≥0.1 mg/kg	N
KS M ISO 17226-3:2011	Baby products	Leather - Chemical determination of formaldehyde content - Part 3: Determination of formaldehyde emissions from leather	≥0.1 mg/kg	N
KS K ISO 14184-1:1998	Baby products	Textiles - Determination of formaldehyde - Part 1: Free and hydrolysed formaldehyde (water extraction method)	≥0.1 mg/kg	N
ISO 14184-1:2011	Baby products	Textiles - Determination of formaldehyde - Part 1:Free and hydrolized formaldehyde (water extraction method)	≥0.1 mg/kg	N
KS K 0853:2017	Baby products	Test method for determination of nickel release from products intended to come into direct and prolonged contact with the skin: Alternate Exposure	≥0.1 µg/cm <sup>2</sup> /week	N
BS EN 1811:2011+A1: 2015	Baby products	Reference test method for release of nickel from all post assemblies which are inserted into pierced parts of the human body and articles intended to come into direct and prolonged contact with the skin.	≥0.1 µg/cm <sup>2</sup> /week	N
KS M 1993:2009	Baby products	Determination of volatile organic compounds in adhesives	≥1 mg/kg	N

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## **02 Chemical Testing**

### 02.034 Baby products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ISO 16186:2021	Leather products	Footwear - Critical substances potentially present in footwear and footwear components - Determination of dimethyl fumarate (DMFU)	DMFU : ≥0.05 mg/kg DMMA : ≥0.05 mg/kg	N
ISO 16189:2021	Textile products	Footwear - Critical substances potentially present in footwear and footwear components - Test method to quantitatively determine dimethylformamide in footwear materials	DMF, DMAc : ≥5 mg/kg	N
KATS Notice No.2018-195 (06.29.2018.)	Textile products	consumer Products subject to Compliance with Safety Standards Annex 2 Carpets 5.5.6.1 TDBPP(TRIS)	≥0.05 mg/kg	N
ISO 18254-1:2016	Textile products	Textiles - Method for the detection and determination of alkylphenol ethoxylates (APEO) - Part 1: Method using HPLC-MS	NPEO : ≥50 mg/kg OPEO : ≥50 mg/kg	N
MFDS Notice No.2021-014 (02.26.2021.)	Textile products	Korean Quasi-drug Codex Annex 2 Nonwoven Fabric Fluorescence whitening agents	Visual inspection	N

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### 02.034 Baby products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
AfPS GS 2019:01 PAK	Plastic products	Testing and assessment of Polycyclic Aromatic Hydrocarbons (PAHs) in the awarding of GS Marks Benzo[a]pyrene Benzo[e]pyrene Benzo[a]anthracene Benzo[b]fluoranthene Benzo[j]fluoranthene Benzo[k]fluoranthene Chrysene Dibenz[a,h]anthracene Benzo[ghi]perylene Indeno[1,2,3-cd]pyrene Phenanthrene Pyrene Anthracene Fluoranthene Naphthalene	$\geq 0.2 \text{ mg/kg}$ $\geq 0.2 \text{ mg/kg}$	N

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### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
BS EN 71-12:2016	Toys	Safety of toys. N-Nitrosamines and N-nitrosatable substances	N-Nitrosamines NDELA : $\geq 0.002 \text{ mg/kg}$ NDMA : $\geq 0.002 \text{ mg/kg}$ NDEA : $\geq 0.002 \text{ mg/kg}$ NDPA : $\geq 0.002 \text{ mg/kg}$ NDIPA : $\geq 0.002 \text{ mg/kg}$ NDBA : $\geq 0.002 \text{ mg/kg}$ NDIBA : $\geq 0.002 \text{ mg/kg}$ NDINA : $\geq 0.002 \text{ mg/kg}$ NMOR : $\geq 0.002 \text{ mg/kg}$ NPIP : $\geq 0.002 \text{ mg/kg}$ NDBzA : $\geq 0.002 \text{ mg/kg}$ NMPhA : $\geq 0.002 \text{ mg/kg}$ NEPhA : $\geq 0.002 \text{ mg/kg}$ NPYR : $\geq 0.002 \text{ mg/kg}$  N-nitrosatable NDELA : $\geq 0.002 \text{ 6 mg/kg}$ NDMA : $\geq 0.002 \text{ 6 mg/kg}$ NDEA : $\geq 0.002 \text{ 6 mg/kg}$ NDPA : $\geq 0.002 \text{ 6 mg/kg}$ NDIPA : $\geq 0.002 \text{ 6 mg/kg}$ NDBA : $\geq 0.002 \text{ 6 mg/kg}$ NDIBA : $\geq 0.002 \text{ 6 mg/kg}$ NDINA : $\geq 0.002 \text{ 6 mg/kg}$ NMOR : $\geq 0.002 \text{ 6 mg/kg}$ NPIP : $\geq 0.002 \text{ 6 mg/kg}$ NDBzA : $\geq 0.002 \text{ 6 mg/kg}$ NMPhA : $\geq 0.002 \text{ 6 mg/kg}$ NEPhA : $\geq 0.002 \text{ 6 mg/kg}$ NPYR : $\geq 0.002 \text{ 6 mg/kg}$	N

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## 02 Chemical Testing

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
CPSC-CH-C10 01-09.4 (2018)	Plastic products	Standard Operating Procedure for Determination of Phthalates	DBP : $\geq 50$ mg/kg DIBP : $\geq 50$ mg/kg DPENP : $\geq 50$ mg/kg DHEXP : $\geq 50$ mg/kg DCHP : $\geq 50$ mg/kg DEHP : $\geq 50$ mg/kg BBP : $\geq 50$ mg/kg DINP : $\geq 50$ mg/kg	N
CPSC-CH-C10 01-09.3 (2010)	Plastic products	Standard Operating Procedure for Determination of Phthalates	DBP : $\geq 50$ mg/kg DEHP : $\geq 50$ mg/kg BBP : $\geq 50$ mg/kg DnOP : $\geq 50$ mg/kg DINP : $\geq 50$ mg/kg DIDP : $\geq 50$ mg/kg	N
MOTIE Notice No.2019-0201 (12.03.2019.)	Baby products	Children's Products Common Safety Standards		N
		4.1 Test methods for hazardous materials safety requirements	-	
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances	$\geq 0.01$ mg/kg	
		Test Method		
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	

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## **02 Chemical Testing**

### 02.034 Baby products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
MOTIE Notice No.2021-0132 (07.19.2021.)	Baby products	Children's Products Common Safety Standards		N
		4.1 Test methods for hazardous materials safety requirements	-	
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances	Total $\geq 0.01$ mg/kg	
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	
		Children's Products Common Safety Standards		
MOTIE Notice No.2021-0229 (12.29.2021.)	Baby products	4.1 Test methods for hazardous materials safety requirements		N
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances	N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ mg/kg	
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	
		Children's Products Common Safety Standards		
		4.1 Test methods for hazardous materials safety requirements		

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## **02 Chemical Testing**

### 02.034 Baby products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2022-0220 (12.14.2022.)	Baby products	Children's Products Common Safety Standards 4.1 Test methods for hazardous materials safety requirements 4.1.1 Migration of certain elements 4.1.2 Hazardous elements contents (Except B.5) 4.1.3 Phthalate plasticizers 4.1.4 N-Nitrosamines and N-Nitrostable substances 4.1.5 Formaldehyde 4.1.6 Aryl amine 4.1.7 pH	- each $\geq 5$ mg/kg each $\geq 10$ mg/kg each $\geq 50$ mg/kg N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ mg/kg $\geq 15$ mg/kg each $\geq 5$ mg/kg 2 ~ 13	N

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(Branch Site-1) 74, LS-ro 115beon-gil, Gunpo-si, Gyeonggi-do, Republic of Korea

## **01 Mechanical Testing**

01.017 Household items

Test method	Products and materials	Standard designation	Test range	Field testing
KS G 2020:2019	Household items	Storage furniture	-	N
		10.1.1 Stability test without strength	visual evaluation	
		10.1.2 Stability(vertical force) test when apply force to moving parts	100 N	
		10.1.3 Stability(vertical and horizontal force) test when apply force to open shelf	30 N	
		10.2.1.1 Support of shelf-board strength test	Max. 45 kg	
		10.2.1.2 shelf-board deflection test	Max. 45 kg	
		10.2.2.1 Support of rails for rack strength test	Max. 45 kg	
		10.2.2.2 Support of rails for rack deflection test	Max. 45 kg	
		10.2.3 Ground and floor plate strength test	750 N	
		10.2.4.1 Hinged door vertical force test	25 kg	
		10.2.4.2 Hinged door horizontal force test	60 N	
		10.2.4.3 Hinged door durability test	1.5 kg / 40 000 of times	
		10.2.8.1 Drawer and rail strength test	250 N	
		10.2.8.2 Drawer and rail durability test	40 000 of times	
		10.2.8.3 Rapid open and shut test of drawer	Max. 45 kg	
		10.2.8.4 Draw floor plate distortion test	60 N	
		10.2.9.1 Structure and framework strength test	300 N	
		10.2.9.2 Wall attachments strength test	visual evaluation	
		10.3.2 A block of wood adhesion test	Max. 45 kg	
		10.3.3 A block of metal adhesion test	visual evaluation	
		10.3.4 A block of metal corrosion protection test	visual evaluation	
		10.5 Percentage of moisture content of lumber	12 % less	

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## **01 Mechanical Testing**

### 01.017 Household items

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS G 4203:2020	Household items	Office furniture - Desks and tables	-	N
		10.1.1 Vertical force stability	Max. 45 kg	
		10.1.2 Vertical and horizontal force stability	Max. 45 kg	
		10.1.3 Storage unit stability without strength	visual evaluation	
		10.1.4 Stability when apply force to moving parts	100 N	
		10.2.1.1 Test primary work surface	1 000 N	
		10.2.1.2 Test secondary work surface	350 N	
		10.2.1.3 Test continuous vertical force	Max. 45 kg	
		10.2.3 Static tensile test of drawer and rails	250 N	
		10.2.4 Rapid open and shut test of drawer	Max. 45 kg	
		10.2.5 Draw floor plate distortion test	60 N	
		10.4.1 Drawer and rail durability test	Max. 45 kg / 40 000 of times	
		10.5.2 A block of wood adhesion test	visual evaluation	
		10.5.3 A block of metal adhesion test	visual evaluation	
		10.5.4 A block of metal corrosion protection test	visual evaluation	
		10.7 Percentage of moisture content of lumber	12 % less	
KS G 4009:2014	Household items	Wooden tables and chairs for dining room	-	N
		9.2.1 Vertical load test	1 765 N	
		9.2.2 Vertical edge load test	740 N	
		9.2.4 Stability	490 N	
		9.3.1 Adhesion test	visual evaluation	
		9.3.3 Chemical resistance test	visual evaluation	
		9.3.4 Hot resistance test	visual evaluation	
		9.4 Fouling resistant test	visual evaluation	

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## **01 Mechanical Testing**

### 01.017 Household items

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS G 4215:2016	Household items	Office furniture - Chairs	-	
		10.1.1 Front stability and lateral stability of stool	20 N	
		10.1.2 Posterior stability	100 N	
		10.1.3 Lateral stability test of armchair	20 N	
		10.1.4 stability test from every which direction of stool	20 N	
		10.2.1 seat static tensile test	1 300 N	
		10.2.2 back static tensile test	1 300 N	
		10.2.3 armrest static horizontal force test	400 N	
		10.2.4 armrest static vertical force test	700 N	
		10.2.5 seat durability test	950 N / 50 000 of times	
		10.2.6 back durability test	950 N / 50 000 of times	N
		10.3.1 seat impact resistance test	visual evaluation	
		10.3.2 back impact resistance test	visual evaluation	
		10.3.3 armrest impact resistance test	visual evaluation	
		10.4.2 load-carrying capacity testg	1 471 N	
		10.4.3 load driving efficiency test	1 030 N	
		10.5.2 Method of adhesion test of block of wood	visual evaluation	
		10.5.3 Method of adhesion test of block of metal	visual evaluation	
		10.5.4 Corrosion-inhibition test of metal	visual evaluation	
		10.6 The percentage of water content test of lumber	12 % less	

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## 02 Chemical Testing

### 02.002 Non-ferrous metals

Test method	Products and materials	Standard designation	Test range	Field testing
KS D 1679:2020	Non-ferrous metals	Methods for atomic absorption spectrometric analysis of aluminium and aluminium alloys		N
		6. Iron quantitative	(0.005 ~ 1.5) %	
		7. Copper quantitative	(0.005 ~ 5.0) %	
		8. Manganese quantitative	(0.005 ~ 1.5) %	
		12. Nickel quantitative	(0.005 ~ 3.0) %	
		14. Lead quantitative	(0.1 ~ 1.0) %	
KS D 1889:2016	Non-ferrous metals	Methods for determination of aluminium in copper and copper alloys 7. Atomic absorption method	(0.10 ~ 3.0) %	N
KS D 1892:2016	Non-ferrous metals	Determination of iron in copper and copper alloys		N
		8. Atomic absorption method	(0.2 ~ 6.0) %	
		9. Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 6.0) %	
KS D 1895:2014	Non-ferrous metals	Determination of lead in copper and copper alloys		N
		7. Atomic absorption method	(0.01 ~ 7.0) %	
		10. Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 22) %	
JIS H 1052:2013	Non-ferrous metals	Methods for determination of tin in copper and copper alloys		N
		4. d) Atomic absorption method	(0.02 ~ 4) %	
		4. e) Inductively coupled plasma atomic emission spectrometric method	(0.02 ~ 15) %	
JIS H 1053:2009	Non-ferrous metals	Methods for determination of lead in copper and copper alloys		N
		4. c) Atomic absorption method	(0.05 ~ 7.0) %	
		4. f) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 22) %	
JIS H 1054:2002	Non-ferrous metals	Methods for determination of iron in copper and copper alloys		N
		4. d) Atomic absorption method	(0.01 ~ 6.0) %	
		4. e) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 6.0) %	

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## 02 Chemical Testing

### 02.002 Non-ferrous metals

Test method	Products and materials	Standard designation	Test range	Field testing
JIS H 1055:2003	Non-ferrous metals	Methods for determination of manganese in copper and copper alloys		N
		4. c) Atomic absorption method 4. d) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 5.0) % (0.01 ~ 15) %	
JIS H 1056:2013	Non-ferrous metals	Methods for determination of nickel in copper and copper alloys		N
		4. c) Atomic absorption method 4. d) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 7.0) % (0.01 ~ 7.0) %	
JIS H 1057:1999	Non-ferrous metals	Methods for determination of aluminium in copper and copper alloys		N
		4. c) Atomic absorption method 4. d) Inductively coupled plasma atomic emission spectrometric method	(0.10 ~ 3.0) % (0.002 ~ 12.0) %	
JIS H 1061:2006	Non-ferrous metals	Methods for determination of silicon in copper and copper alloys		N
		4. c) Atomic absorption method 4. d) Inductively coupled plasma atomic emission spectrometric method	(0.2 ~ 5.0) % (0.02 ~ 5.0) %	
JIS H 1071:1999	Non-ferrous metals	Methods for determination of chromium in copper and copper alloys		N
		4. c) Atomic absorption method 4. d) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 0.2) % (0.01 ~ 2.0) %	
JIS H 1361:1997	Non-ferrous metals	Methods for determination of tin in aluminium and aluminium alloys		N
		3. c) Atomic absorption method	(0.02 ~ 6.0) %	
JIS H 1363:2003	Non-ferrous metals	Methods for determination of zirconium in aluminium alloys		N
		4. c) Inductively coupled plasma atomic emission spectrometric method	(0.01 ~ 0.5) %	

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## 02 Chemical Testing

### 02.002 Non-ferrous metals

Test method	Products and materials	Standard designation	Test range	Field testing
JIS H 1364:2002	Non-ferrous metals	Methods for determination of bismuth in aluminium and aluminium alloys		N
		4. d) Atomic absorption spectrometry	(0.1 ~ 1.0) %	
		4. e) Inductively coupled plasma emission spectrometric analysis	(0.01 ~ 1.0) %	
ISO 5194:1981	Non-ferrous metals	Aluminium and aluminium alloys-Determination of zinc content-Flame atomic absorption spectrometric method	(0.002 ~ 6) %	N

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## **02 Chemical Testing**

### 02.013 Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS M ISO 3675:1998	Petroleum Products	Testing methods for density of crude oil and petroleum products, and petroleum measurement tables based on a reference temperature of 15	(700 ~ 1 100) kg/m <sup>3</sup>	N
KS M 2012:2007	Petroleum Products	Testing method for reaction of petroleum products	-	N
KS M ISO 3016:2019	Petroleum Products	Petroleum and related products from natural or synthetic sources — Determination of pour point	(-50 ~ 25) °C	N
KS M ISO 6615:2015	Petroleum Products	Petroleum products-Determination of carbon residue-Conradsonmethod	(0.01 ~ 30.0) %	N
KS M ISO 2049:2012	Petroleum Products	Testing methods for color of petroleum products(ASTMscale)	0 ~ 8.0	N
KS M 2115:2017	Petroleum Products	Testing method for water and sediment in distillate fuel by centrifuge	(0 ~ 50) %	N
KS M 2141:2015	Petroleum Products	Road vehicles - Non-petroleum base brake fluid		
		5.1 Equilibrium reflux Boiling Point	(0 ~ 400) °C	
		5.1.4 Wet Equilibrium reflux Boiling Point	(0 ~ 400) °C	
		5.2 Viscosity	-40 °C :400 mm <sup>2</sup> /s or more ,100 °C :0.1 mm <sup>2</sup> /s or more	
		5.3 pH value	0 ~ 14	
		5.4 Brake Fluid Stability	(0 ~ 400) °C	
		5.5 Corrosion	0.01 mg/cm <sup>2</sup>	
		5.6 Fluidity and appearance at low temperatures	-	
		5.7 Evaporation	-	
		5.8 Water Tolerance	-	
		5.9 Compatibility	0.01 mg/cm <sup>2</sup>	
		5.10 Effect on Rubber	(0 ~ 80) °C , hardness:0 ~ 100	
		5.11 Simulated service performance	85 000 stroke, (120 ± 5) °C , (7.0 ± 0.3) MPa	

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## **02 Chemical Testing**

### 02.013 Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS M 2142:2015	Petroleum Products	Engine Antifreeze Coolants		N
		9.1 Freezing Point	(-50 ~ 0) °C	
		9.2 pH value	0 ~ 14	
		9.3 Metal Corrosion	0.01 mg/cm <sup>2</sup> ~	
		9.4 Specific Gravity	0.700 ~ 1.850	
		9.5 Boiling Point	(0 ~ 400) °C	
		9.6 Foaming Property	(0 ~ 100) mL	
		9.7 Water Content	(0 ~ 10) %	
		9.8 Reserve Alkalinity	-	
		9.9 Circulation Metal Corrosion	0.01 mg/cm <sup>2</sup> ~	
KS M 2163:2017	Petroleum Products	Windshield washer fluids for automobiles		N
		7.3 Freezing Point measuring equipment	(-50 ~ 0) °C	
		7.4 pH value	0 ~ 14	
		7.5 Detergency	-	
		7.6 Compatibility	-	
		7.7 Water repellency		
		7.8 Metal Corrosion	0.01 mg/cm <sup>2</sup> ~	
		7.9 Effect on Rubber	-	
		7.9 Effect on Films	-	
		7.11 Effect on Plastics	0.01 mg/cm <sup>2</sup> ~	
		7.12 Stability	-	
KS M ISO 3015:2019	Petroleum Products	Petroleum and related products from natural or synthetic sources — Determination of cloud point	(0 ~ 49) °C	N
KS M ISO 6245:2001	Petroleum Products	Petroleum products-Determination of ash	(0.001 ~ 0.18) %	N
KS M ISO 8754:2003	Petroleum Products	Petroleum products — Determination of sulfur content — Energy-dispersive X-ray fluorescence spectrometry	(0.03 ~ 5.00) %	N
KS M ISO 9029:1990	Petroleum Products	Crude petroleum-Determination of water-Distillation method	(0 ~ 10) %	N
JIS K 2269:1987	Petroleum Products	Testing Methods for Pour Point and Cloud Point of Crude Oil and Petroleum Products	(-50 ~ 25) °C	N
JIS K 2270-1:2009	Petroleum Products	Crude petroleum and petroleum products -- Determination of carbon residue - Part 1: Conradson method	(0.01 ~ 30.0) %	N
JIS K 2272:1998	Petroleum Products	Crude Oil and Petroleum Products - Determination of Ash and Sulfated Ash	(0.001 ~ 10) %	N

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## **02 Chemical Testing**

### 02.013 Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
JIS K 2541-4:2003	Petroleum Products	Crude Oil and petroleum products - Determination of sulfur content. Part 4:Energy-dispersive X-ray fluorescence method	(0.01 ~ 5) %	N
JIS K 2580:2003	Petroleum Products	Petroleum products - Determination of colour	0 ~ 30	N
ASTM D 95-13(2018)	Petroleum Products	Standard test method for Water in Petroleum Products and Bituminous Materials by Distillation	(0.05 ~ 10) %	N
ASTM D 156 - 15	Petroleum Products	Standard test method for Saybolt Color of Petroleum Products (Saybolt Chromometer Method)	0 ~ 30	N
ASTM D189:06 (2019)	Petroleum Products	Standard test method for Conradson Carbon Residue of Petroleum Products	(0.01 ~ 30.0) %	N
ASTM D482 - 19	Petroleum Products	Standard test method for Ash from Petroleum Products	(0 ~ 10) %	N
ASTM D2500-17a	Petroleum Products	Standard test method for Cloud Point of Petroleum Products	(0 ~ 49) °C	N
ASTM D3335-85a (2020)	Petroleum Products	Standard test method for Low Concentrations of Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy Standard	AAS (190 ~ 900) nm, 1 mg/kg, ICP-MS (1 µg/kg)	N
ASTM D3624-85a(2015)	Petroleum Products	Standard test method for Low Concentrations of Mercury in Paint by Atomic Absorption Spectroscopy	AAS (190 ~ 900) nm, 1 mg/kg	N
ASTM D4052-18a	Petroleum Products	Standard test method for Density, Relative Density and API Gravity of Liquids by Digital Density Meter	(700~1 850) kg/m³	N
ASTM D4294-16el	Petroleum Products	Standard test method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry	(0.03 ~ 4.6) %	N
ASTM D4606 - 15	Petroleum Products	Standard test method for Determination of Arsenic and Selenium in Coal by the Hydride Generation/Atomic Absorption Method	AAS (190 ~ 900) nm, 1 mg/kg	N

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## **02 Chemical Testing**

### 02.013 Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
ASTM D4951-14 (2019)	Petroleum Products	Standard test method for Determination of Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry	(177.51 ~ 766.49) nm	N
ASTM D5056-17	Petroleum Products	Standard test method for Trace Metals in Petroleum Coke by Atomic Absorption	AAS (190 ~ 900) nm, 1 mg/kg	N
ASTM D5185-18	Petroleum Products	Standard Test Method for Multielement Determination of Used and Unused Lubricating Oils and Base Oils by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)	(177.51 ~ 766.49) nm	N
ASTM D5600-17	Petroleum Products	Standard test method for Trace Metals in Petroleum Coke by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)	(177.51 ~ 766.49) nm	N
ISO 4925:2020	Petroleum Products	Road vehicles - Specification of n-petroleum-base brake fluids for hydraulic systems		
		6.1 Equilibrium reflux Boiling Point	(0 ~ 400) °C	
		6.1.6 Wet Equilibrium reflux Boiling Point	(0 ~ 400) °C	
		6.2 Viscosity	-40 °C : 400 mm <sup>2</sup> /s 100 °C : 0.1 mm <sup>2</sup> /s	
		6.3 pH value	0 ~ 14	
		6.4 Fluid Stability	(0 ~ 400) °C	
		6.5 Corrosion	0.01 mg/cm <sup>2</sup>	
		6.6 Fluidity and appearance at low temperatures	-	
		6.7 Evaporation	(0 ~ 160) °C	
		6.8 Water Tolerance	-	
		6.9 Compatibility	-	
		6.10 Resistance to Oxidation	0.01 mg/cm <sup>2</sup>	
		6.11 Effect on Rubber	(0 ~ 80) °C, 0 ~ 100	
		6.12 Simulated service performance	85 000 stoke, (120 ± 5) °C, (7.0 ± 0.3) MPa	

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## **02 Chemical Testing**

### 02.013 Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KATS Notice No.2017-032 (02.08.2017.)	Petroleum Products	Self-regulatory Safety Confirmation Standard Annex 10 Non-petroleum base motor vehicle brake fluids		
		6.1 Equilibrium reflux Boiling Point	(0 ~ 400) °C	
		6.1.4 Wet Equilibrium reflux Boiling Point	-	
			- 40 °C : 400 mm <sup>2</sup> /s	
		6.2 Viscosity	~ 100 °C : 0.1 mm <sup>2</sup> /s	
		6.3 pH value	0 ~ 14	
		6.4 Brake Fluid Stability	(0 ~ 400) °C	
		6.5 Corrosion	0.01 mg/cm <sup>2</sup>	
		6.6 Fluidity and appearance at low temperature	-	N
		6.7 Water Tolerance	-	
		6.8 Compatibility	-	
		6.9 Resistance to Oxidation	0.01 mg/cm <sup>2</sup>	
		6.10 Effect on Rubber	(0 ~ 80) °C, 0 ~ 100	
		6.11 Simulated service performance	85 000 stoke, (120 ± 5) °C, (7.0 ± 0.3) MPa	
		6.12 Capacity	-	

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## 02 Chemical Testing

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS C 2101:2017	Lubricants	Test method of electric insulating oils		N
		14. The test for evaporation Loss	0 °C ~ 160 °C	
		17. Total Acid Number Test	-	
		21. Water content Test	0 % ~ 10 %	
KS M 2009:2007	Lubricants	Testing method for Rust-preventing characteristics of Lubricating oil	-	N
KS M ISO 3104:1994	Petroleum Products	Petroleum products – Transparent and opaque liquids – Determination	(0.3 ~ 50 000) mm²/s	N
KS M ISO 3105:1976	Lubricants	Glass capillary kinematic viscometers – Specifications and operating instructions	40 °C, 100 °C	N
KS M ISO 2909:2002	Petroleum Products	Petroleum products - Calculation of viscosity index from kinematic viscosity	40 °C, 100 °C	N
KS M ISO 2160:2012	Petroleum Products	Petroleum products-Corrosiveness to copper-Copperstriptest	1a ~ 4c	N
KS M 2021:2016	Lubricants	Testing methods for Oxidation stability of Internal combustion engine oil	0 °C ~ 360 °C	N
KS M ISO 6247:1998	Petroleum Products	Testing methods for Foaming characteristics of Petroleum products	(24 ~ 93.5) °C	N
KS M 2026:2018	Petroleum Products	Petroleum products-Testing methods for Load carrying capacity		N
		7. Shell method for Four-ball	(0 ~ 1 000) kg	
KS M 2034:2000	Grease	Testing method for Ash Content of Lubricating Grease	(0 ~ 10) %	N
KS M 2037:2017	Grease	Testing method for evaporation loss of Lubricating Grease	0 °C ~ 160 °C	N
KS M 2048:2001	Grease	Testing method for deleterious particles in Lubricating Grease	(0 ~ 5 000) μm	N
KS M 2049:2016	Grease	Testing method for Oxidation characteristics of Lubricating Grease	0 °C ~ 360 °C	N
KS M 2050:1996	Grease	Testing method for Oil separation of Lubricating Grease	0.01 % ~ 100 %	N
KS M 2051:2011	Grease	Testing method for Oil separation of Lubricating Grease	0 ~ 620	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS M 2052:2006	Grease	Analysing method for Mineral oil content of Lubricating Grease	-	N
KS M 2053:2004	Petroleum Products	Testing methods for Aniline point and mixed Aniline point of Petroleum products	0 °C ~ 300 °C	N
KS M 2069:2016	Petroleum Products	Testing methods for Precipitation Number of Petroleum products	(0 ~ 2 500) r/min	N
KS M ISO 11009:2000	Grease	Petroleum products and lubricants — Determination of water washout characteristics of lubricating greases	(0 ~ 90) °C	N
KS M 2088:2017	Grease	Testing method for Copper corrosion of Grease	1a ~ 4c	N
KS M 2121:2015	Lubricants	Internal combustion engine oils 5.10 Test method for Apparent Viscosity under low temperature	-30 °C ~ 15 °C	N
KS M 2221:2007	Lubricants	Testing method for insolubles in used Lubricating oils	(0 ~ 2 500) r/min	N
KS M 2525:2018	Lubricants	Testing methods of Cutting fluid		N
		5.2 Test method for oil fatty content	-	
		6.1 Test method for Interfacial tension	(0 ~ 90) mN/m	
		6.2 Test method for Emulsification stability	0 mL ~ 100 mL	
		6.3 Analysis method for Non-volatile content	(0 ~ 200) °C	
		6.4 pH test method	0 ~ 14	
		6.7 Test Method for the Bubbling	(24 ~ 93.5) °C	
		6.8 Test method of Metal corrosion	-	
KS M ISO 2137:2007	Petroleum Products and Grease	Petroleum products and lubricants — Determination of cone penetration of lubricating greases and petrolatum	0 ~ 620	N
KS M ISO 2176:1995	Petroleum Products and Grease	Petroleum products - Lubricating Grease - Determination of dropping point	(0 ~ 270) °C	N
KS M ISO 2555:2002	Plastic	Plastics-Resins in the liquid state or as emulsions or dispersions-Determination of Apparent Viscosity by the Brookfield Test method	(0.02 ~ 40 000) Pa·s	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS M ISO 3987:2012	Petroleum Products	Petroleum Products-Lubrication oil and Additives-Determination of Sulfated Ash	0 % ~ 10 %	N
KS M ISO 6293-1:1996	Petroleum Products	Petroleum products-Determination of saponification number-Color-indicator titration method	-	N
KS M ISO 6618:1997	Petroleum Products and Lubricants	Petroleum Products and Lubricants-Determination of acids or Base Number-Colour- Indicator titration method	-	N
KS M ISO 6619:1988	Petroleum Products and Lubricants	Petroleum products and Lubricants-Neutralization Number-Potentiometric titration method	0 ~ 14	N
KS M ISO 10336:1997	Fuel oil	Crude Petroleum - Determination of water - Potentiometric Karl Fischer titration method	(0 ~ 10) %	N
ASTM D 92 - 18	Lubricants	Standard test method for Flash and Fire points by Cleveland Open Cup tester	90 °C ~ 400 °C	N
ASTM D 93 - 18	Lubricants	Standard test methods for Flash-point by Pensky-Martens closed cup tester	(40 ~ 350) °C	N
ASTM D94-07(2017)	Petroleum Products	Standard test method for Oxidation stability of Lubricating Greases by the Oxygen Bomb method	-	N
ASTM D128-98 (2014)e1	Grease	Standard test method for Analysis of Lubricating Grease	-	N
ASTM D217 - 17	Grease	Petroleum products - Lubricating grease - Determination of Dropping point	0 ~ 620	N
ASTM D445 - 18	Lubricants	Standard test method for Kinematic Viscosity of Transparent and Opaque liquids (and Calculation of Dynamic Viscosity)	40 °C / 0.1 °C, 100 °C / 0.1 °C	N
ASTM D566 - 17	Grease	Standard test method for Dropping point of Lubricating Grease	(0 ~ 270) °C	N
ASTM D611-12(2016)	Petroleum Products	Standard test method for Aniline point and mixed Aniline point of Petroleum products and Hydrocarbon Solvents	0 °C ~ 300 °C	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ASTM D874-13a(2018)	Lubricants	Standard test method for Sulfated Ash from Lubricating oils and additives	(0 ~ 10) %	N
ASTM D 877/D877M-13	insulating oil	Standard test method for Dielectric Breakdown Voltage of Insulating liquids using Disk Electrodes	(0 ~ 75) kV	N
ASTM D 892 - 18	Lubricants	Standard test method for Foaming characteristics of Lubricating oils	(24 ~ 93.5) °C	N
ASTM D 942 - 2015	Grease	Standard test method for Oxidation stability of Lubricating Greases by the Oxygen Bomb method	(0 ~ 100) °C	N
ASTM D 971 - 2012	Lubricants	Standard test method for Interfacial Tension of Oil against Water by the Ring Method	(0 ~ 90) mN/m	N
ASTM D 972 - 2016	Lubricants	Standard test method for Evaporation Loss of Lubricating Greases and Oils	(0 ~ 160) °C	N
ASTM D974 - 14e2	Lubricants	Standard test method for Acid and Base Number by Color-Indicator Titration.	-	N
ASTM D1264 - 18	Grease	Standard test method for Determining the Water Washout characteristics of Lubricating Greases	-	N
ASTM D1401 - 18b	Lubricants	Standard test method for Water separability of Petroleum oils and Synthetic fluids	0 mL ~ 100 mL	N
ASTM D1404/D1404M-99(2014)	Grease	Standard test method for Estimation of Deleterious Particles in Lubricating Grease	(0 ~ 5 000) μm	N
ASTM D1500- 12(2017)	Petroleum Products	Standard test method for ASTM Color of Petroleum products(ASTM Color Scale)	0.0 ~ 8.0	N
ASTM D1742 - 18	Grease	Standard test method for Oil separation from Lubricating Grease during storage	0.01 % ~ 100 %	N
ASTM D2596 - 15	Grease	Standard test method for Measurement of Extreme-Pressure Properties of Lubricating Grease(Four-Ball Method)	(0 ~ 1 000) kg	N
ASTM D4048 - 16e1	Grease	Standard test method for Detection of Copper Corrosion from Lubricating Grease	-	N
ASTM D 5293 - 17a	Lubricants	Standard test method for Apparent Viscosity of Engine Oils between -5 and -35°C Using the Cold-Cranking Simulator	(-5 ~ 35) °C	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ASTM D5950 - 14	Petroleum Products	Standard test method for Pour Point of Petroleum Products (Automatic Tilt Method)	(-50 ~ 25) °C	N
KATS Notice No.2017-032 (02.08.2017.)	Household items	Self-regulatory Safety Confirmation Standard Annex 5 primary and secondary batteries(except rechargeable battery) 6.2.2 contents of Hg 6.2.3 contents of Cd 6.2.4 contents of Pb	$\geq 0.1$ mg/kg $\geq 1$ mg/kg $\geq 1$ mg/kg	N
KATS Notice No.2009-977 (12.30.2009.)	Household items	Safety Certification Standard Annex 3:Domestic pressure pans and pressure pots 6.5.1 Compound resin solution 6.5.1.1 Phenols 6.5.1.2 Formaldehyde 6.5.1.3 heavy metal 6.5.1.4 evaporation residue 6.5.1.5 Consumption of potassium permanganate 6.5.2 rubber pernicious ingredients 6.5.2.1 Pb and Cd 6.5.2.2 heavy metal 6.5.2.3 evaporation residue 6.5.2.4 Consumption of potassium permanganate 6.5.2.5 Zn 6.5.3 Metal(contact with food)	colorimetric method colorimetric method colorimetric method $2$ mg/kg $0.3$ mg/kg $1$ mg/kg colorimetric method $2$ mg/kg $0.3$ mg/kg $1$ mg/kg $0.01$ mg/L	N
MOTIE Notice No.2015-0108 (06.04.2015.)	Household items	Safety Confirmation standard Annex9 bicycles for young children 2.5 asbestos	$\geq 0.1$ %	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
MFDS Notice No.2021-61 (07.15.2021.)	Asbestos	Korean Pharmacopeia - medicine 2.'talc' 8)asbestos	≥ 1 %	N
NIOSH method 9000:2015	Asbestos	Asbestos, Chrysotile by XRD	more than 1 %	N
NIOSH method 9002:1994	Asbestos	Asbestos(bulk) by PLM	more than 1 %	N
EPA/600/R-93/11 6	Construction and construction materials	Method for the determination of asbestos in bulk building materials	1 %	N
KATS Notice No.2021-104 (05.03.2021.)	Household items	Enforcement decree of the electrical appliances and consumer products safety Operating instructions Annex 29	more than 0.1 %	N
KS L 5300:2009	Solid items	Determination of asbestos in bulk material	0.1 %	N
KS C IEC 62321:2009	Electrical machinery	Determination of certain substances in electrotechnical products - Part 3-2: Screening - Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC)	Pb,Hg,Cd,Cr(VI): ≥2 mg/kg  PBB,PBDE: ≥50 mg/kg	N
KS C IEC 62321-2:2014	Electrical machinery	Determination of certain substances in electrotechnical products - Part 2: Disassembly, disjunction and mechanical sample preparation	-	N
KS C IEC 62321-3-1:2014	Electrical machinery	Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine using X-ray fluorescence spectrometry	Pb, Hg:(100 ~ 1 500) mg/kg Cr: (100~500) mg/kg Cd: (50~150) mg/kg Br: ≥200 mg/kg	N
KS C IEC 62321-3-2:2020	Electrical machinery	Determination of certain substances in electrotechnical products - 3-2: Screening - Total bromine in polymers and electronics by Combustion - Ion Chromatography	(25 ~ 1 500) mg/kg	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS C IEC 62321-4:2014	Electrical machinery	Determination of certain substances in electrotechnical products - Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS	(4 ~ 1 000) mg/kg	N
KS C IEC 62321-5:2014	Electrical machinery	Determination of certain substances in electrotechnical products - Part 5: Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by AAS, AFS, ICP-OES and ICP-MS	Pb: $\geq$ 0.1 mg/kg Cd: $\geq$ 0.1 mg/kg	N
IEC 62321-1:2013	Electrical machinery	Determination of certain substances in electrotechnical products - Part 1: Introduction and overview	-	N
IEC 62321-2:2013	Electrical machinery	Determination of certain substances in electrotechnical products - Part 2: Disassembly, disjunction and mechanical sample preparation	-	N
IEC 62321-3-1:2013	Electrical machinery	Determination of certain substances in electrotechnical products - Part 3-1: Screening - Lead, mercury, cadmium, total chromium and total bromine using X-ray fluorescence spectrometry	Pb, Hg: (100 ~ 1 500) mg/kg Cr:(100 ~ 500) mg/kg Cd:(50 ~ 150) mg/kg Br: $\geq$ 200 mg/kg	N
IEC 62321-3-2:2020	Electrical machinery	Determination of certain substances in electrotechnical products - Part 3-2: Screening - Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC)	(25 ~ 1 500) mg/kg	N
IEC 62321-4:2013+A MD1:2017CSV	Electrical machinery	Determination of certain substances in electrotechnical products - Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS	(4 ~ 1 000) mg/kg	N

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## 02 Chemical Testing

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62321-5:2013	Electrical machinery	Determination of certain substances in electrotechnical products - Part 5: Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by AAS, AFS, ICP-OES and ICP-MS	Pb:more than 0.1 mg/kg Cd:morethan 0.1 mg/kg	N
IEC 62321-6:2015	Electrical machinery	Determination of certain substances in electrotechnical products - Part 6: Polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography -mass spectrometry (GC-MS)	PBBs: (20 ~ 2 000) mg/kg PBDEs: (20 ~ 2000) mg/kg	N
IEC 62321-7-1:2015	Electrical machinery	Determination of certain substances in electrotechnical products - Part 7-1: Hexavalent chromium - Presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method	Cr <sup>6+</sup> :more than 0.13 µg/cm <sup>2</sup>	N
IEC 62321-7-2:2017	Electrical machinery	Determination of certain substances in electrotechnical products - Part 7-2: Hexavalent chromium - Determination of hexavalent chromium (Cr(VI)) in polymers and electronics by the colorimetric method	Cr <sup>6+</sup> : more than 5 mg/kg	N
IEC 62321-8:2017	Electrical machinery	Determination of certain substances in electrotechnical products - Part 8: Phthalates in polymers by gas chromatography-mass spectrometry (GC-MS), gas chromatography-mass spectrometry using a pyrolyzer/thermal desorption accessory (Py-TD-GC-MS)	DBP : more than 50 mg/kg DIBP : more than 50 mg/kg BBP : more than 50 mg/kg DEHP : more than 50 mg/kg DNOP : more than 50 mg/kg DINP : more than 50 mg/kg DIDP : more than 50 mg/kg	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62321-9:2021	Electrical machinery	Determination of certain substances in electrotechnical products - Part 9: Hexabromocyclododecane in polymers by gas chromatography-mass spectrometry (GC-MS)	HBCDD : more than 20 mg/kg	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62321-10:2020	Electrical machinery	Determination of certain substances in electrotechnical products - Part 10: Polycyclic aromatic hydrocarbons (PAHs) in polymers and electronics by gas chromatography-mass spectrometry (GC-MS)	Naphthalene : more than 1 mg/kg Acenaphthylene : more than 1 mg/kg Acenaphthene : more than 1 mg/kg Fluorene : more than 1 mg/kg Phenanthrene : more than 1 mg/kg Anthracene : more than 1 mg/kg Fluoranthene : more than 1 mg/kg Pyrene : more than 1 mg/kg Benzo[a]anthracene : more than 1 mg/kg Chrysene : more than 1 mg/kg Benzo[b]fluoranthene : more than 1 mg/kg Benzo[j]fluoranthene : more than 1 mg/kg Benzo[k]fluoranthene : more than 1 mg/kg Benzo[e]pyrene : more than 1 mg/kg Benzo[a]pyrene : more than 1 mg/kg Indeno[1.2.3cd] pyrene : more than 1 mg/kg Dibenzo[a,h] anthracene : more than 1 mg/kg Benzo[ghi]perylene : more than 1 mg/kg	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS C IEC 62321-10:2020	Electrical machinery	Determination of certain substances in electrotechnical products - Part 10: Polycyclic aromatic hydrocarbons (PAHs) in polymers and electronics by gas chromatography-mass spectrometry (GC-MS)	Naphthalene : more than 1 mg/kg Acenaphthylene : more than 1 mg/kg Acenaphthene : more than 1 mg/kg Fluorene : more than 1 mg/kg Phenanthrene : more than 1 mg/kg Anthracene : more than 1 mg/kg Fluoranthene : more than 1 mg/kg Pyrene : more than 1 mg/kg Benzo[a]anthracene : more than 1 mg/kg Chrysene : more than 1 mg/kg Benzo[b]fluoranthene : more than 1 mg/kg Benzo[j]fluoranthene : more than 1 mg/kg Benzo[k]fluoranthene : more than 1 mg/kg Benzo[e]pyrene : more than 1 mg/kg Benzo[a]pyrene : more than 1 mg/kg Indeno[1.2.3cd] pyrene : more than 1 mg/kg Dibenzo[a,h] anthracene : more than 1 mg/kg Benzo[ghi]perylene : more than 1 mg/kg	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS K ISO 14184-1:1998	Textile	Textiles – Determination of formaldehyde – Part 1 : Free and hydrolized formaldehyde(water extraction method)	≥ 0.1 mg/kg	N
ISO 14184-1:2011	Textile	Textiles - Determination of formaldehyde - Part 1: Free and hydrolized formaldehyde (water extraction method)	≥ 0.1 mg/kg	N
KS I ISO 16000-3:2011	Indoor air	Indoor air - Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air - Active sampling method	-	N
KS I ISO 16000-5:2007	Indoor air	Indoor air – Part 5 : Sampling strategy for volatile organic compounds(VOCs)	-	N
KS I ISO 16000-6:2011	Indoor air	Indoor air –Part 6 : Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA sorbent, thermal desorption and gas chromatography using MS/FID	≥ 0.002 mg/m <sup>2</sup> ·h	N
KS I ISO 16000-9:2006	Indoor air	Indoor air –Part 9 : Determination of the emission of volatile organic compounds – Emission test chamber method	≥ 0.002 mg/m <sup>2</sup> ·h	N
KS I ISO 16000-11:2006	Indoor air	Indoor air –Part 11 : Determination of the emission of volatile organic compounds – Sampling, storage of samples and preparation of test specimens	-	N
KS K ISO 3071:2005	Textile	Textile - pH measurement of aqueous extract	2 ~ 13	N

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### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS M 1998:2017	Construction and construction materials	Determination of the emission rate of formaldehyde and volatile organic compounds in building interior products 7. Test method - Small chamber method 8. Test method - Small chamber method (furniture component) 10. Test Method - Desiccator Method	7. Emission of Formaldehyde : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 7. Emission of Toluene : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 7. Emission of Total volatile organic compounds : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 8. Emission of Formaldehyde : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 8. Emission of Toluene : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 8. Emission of Total volatile organic compounds : $\geq 0.002 \text{ mg/m}^2\cdot\text{h}$ 10. 0.1 mg/L ~ 5.0 mg/L	N
KS I 2007:2009	Furniture	Determination of the emission of formaldehyde and volatile organic compounds from furniture and building related products— Large chamber method	Emission of Formaldehyde : $\geq 5.0 \mu\text{g/m}^3$ Emission of Toluene: $\geq 5.0 \mu\text{g/m}^3$ Emission of Total volatile organic compounds : $\geq 5.0 \mu\text{g/m}^3$	N

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## 02 Chemical Testing

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
NIER Notice No.2021-94 (12.17.2021.)	Construction and construction materials	Indoor air quality process test standard		N
		ES 02131.1e Building materials release Volatile organic compounds and formaldehyde test methods-Small chamber method	Emission of Toluene : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$ Emission of Total volatile organic compounds : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$ Emission of Formaldehyde : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$	
		ES 02602.1d Measuring methods of volatile organic compounds emitted from indoor and building materials- Gas chromatograph-MS/FID method	Emission of Toluene : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$ Emission of Total volatile organic compounds : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$	
		ES 02601.1c Measuring method of formaldehyde released from indoor and building materials- 2,4DNPH cartridge and liquid chromatograph method	Emission of Formaldehyde : $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$	
KS M ISO 3856-1:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 1: Determination of lead content - Flame atomic absorption spectrometric method and dithizone spectrophotometric method	0.001 % ~ 1 %	N
KS M ISO 3856-2:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 2: Determination of antimony content - Flame atomic absorption spectrometric method and Rhodamine B spectrophotometric method	0.001 % ~ 1 %	N
KS M ISO 3856-3:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 3: Determination of barium content - Flame atomic emission spectrometric method	0.001 % ~ 1 %	N

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## **02 Chemical Testing**

### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS M ISO 3856-4:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 4: Determination of cadmium content - Flame atomic absorption spectrometric method and polarographic method	0.001 % ~ 1 %	N
KS M ISO 3856-5:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 5: Determination of hexavalent chromium content of the pigment portion of the liquid paint or the paint in powder form - Diphenylcarbazide spectrophotometric method	0.001 % ~ 1 %	N
KS M ISO 3856-6:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 6: Determination of total chromium content of the liquid portion of the paint - Flame atomic absorption spectrometric method	0.001 % ~ 1 %	N
KS M ISO 3856-7:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilutable paints - Flameless atomic absorption spectrometric method	0.001 % ~ 1 %	N
KS M ISO 7252:1984	Paints and varnishes	Paints and varnishes-Determination of total mercury-Flameless atomic absorption spectrometric method	(0.001 ~ 0.5) %	N
ISO 7252:1984	Paints and varnishes	Paints and varnishes-Determination of total mercury-Flameless atomic absorption spectrometric method	(0.001 ~ 0.5) %	N

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### 02.016 Other Petroleum Products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ISO 3856-1:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 1: Determination of lead content - Flame atomic absorption spectrometric method and dithizone spectrophotometric method	-	N
		3 Flame atomic absorption spectrometric method	0.001 % ~ 1 %	
ISO 3856-2:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 2: Determination of antimony content - Flame atomic absorption spectrometric method and Rhodamine B spectrophotometric method	-	N
		3 Flame atomic absorption spectrometric method	0.001 % ~ 1 %	
ISO 3856-3:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 3: Determination of barium content - Flame atomic emission spectrometric method	0.001 % ~ 1 %	N
ISO 3856-4:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 4: Determination of cadmium content - Flame atomic absorption spectrometric method and polarographic method	-	N
		3 Flame atomic absorption spectrometric method	0.001 % ~ 1 %	
ISO 3856-5:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 5: Determination of hexavalent chromium content of the pigment portion of the liquid paint or the paint in powder form - Diphenylcarbazide spectrophotometric method	0.001 % ~ 1 %	N

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### 02.016 Other Petroleum Products

Test method	Products and materials	Standard designation	Test range	Field testing
ISO 3856-6:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 6: Determination of total chromium content of the liquid portion of the paint - Flame atomic absorption spectrometric method	0.001 % ~ 1 %	N
ISO 3856-7:1984	Paints and varnishes	Paints and varnishes - Determination of "soluble" metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilutable paints - Flameless atomic absorption spectrometric method	0.001 % ~ 1 %	N
KATS Notice No.2019-0387 (11.15.2019.)	Electrical materials and components	Self-regulatory Safety Confirmation Standard Annex 5 primary and secondary batteries(except rechargeable battery) 6.2.2 contents of Hg 6.2.3 contents of Cd 6.2.4 contents of Pb	≥0.1 mg/kg ≥1 mg/kg ≥1 mg/kg	N
KATS Notice No.2020-0267 (10.08.2020.)	Household items	Safety Confirmation Standard Annex 73 Outdoor sports equipment  4.1.2 Wood and woodwork b)  4.1.3 Metal [table 1]	- Invasion : (0 ~ 100) %, Draught : 1 mg/kg  Pb ≥ 10.0 mg/kg, Cd ≥ 10.0 mg/kg, Hg ≥ 5.0 mg/kg, Cr6+ ≥ 5.0 mg/kg	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS B 2331:2017	Water quality	Faucets 8.10 Leaching characteristics	-	N
KS B 6224:2005	Water quality	Testing methods for boiler feed water and boiler water		
		8.pH	(0.1 ~ 14.0)	
		29.Cu		
		29.3 Atomic Absorption spectrophotometry	(0.2 ~ 4) mg/kg	
		30.Zn		
		30.2 Atomic Absorption spectrophotometry	(0.05 ~ 2) mg/kg	
		32.Fe		
		32.4 Atomic Absorption spectrophotometry	(0.3 ~ 6) mg/kg	
		Testing method for industrial water		
		12. pH		
KS I 3206:2008	Water quality	12.1 Glass electrode method	1 ~ 14	
		16. Hardness		
		16.1 Total Hardness	-	
		16.2 Calcium Hardness	-	
		16.3 Magnesium Hardness	-	
		18. Oxygen demand by Potassium Permanganate at 100 °C (COD <sub>Mn</sub> )	1 mg/L or more	
		19. Oxygen demand by Potassium Dichromate(COD <sub>Cr</sub> )	1 mg/L or more	
		20. Biochemical oxygen demand(BOD)	1 mg/L or more	
		23. Dissolved oxygen(DO)		
		23.1 Winkler method	0.1 mg/L or more	
		23.2 Winkler-Sodium azide method	1 mg/L or more	
		23.4 Diaphragm electrode method	0.5 mg/L or more	
		24.1 Phenols	(0.025 ~ 0.05) mg/L	
		25.1 Anionic surface active agents	(0.025 ~ 0.05) mg/L	
		27. Hexane extracts	(5 ~ 500) mg/L	
		29. Residual chlorine	-	
		29.4 Diethyl-P-Phenylenediamine method	(0.01 ~ 0.2) mg/L	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
KS I 3206:2008	Water quality	Testing method for industrial water(continue) 41. Total nitrogen 41.2 UV Absorptiometric Analysis 45. Phosphate Ion and phosphorus compounds 45.3 Total phosphorus 48. Arsenic(As) 48.2 Atomic Absorption spectrophotometry 53. Copper(Cu) 53.2 Atomic Absorption spectrophotometry 54. Zinc(Zn) 54.2 Atomic Absorption spectrophotometry 55. Cadmium(Cd) 55.2 Atomic Absorption spectrophotometry 56. Nikel(Ni) 56.2 Atomic Absorption spectrophotometry 58. Lead(Pb) 58.2 Atomic Absorption spectrophotometry 59. Mercury(Hg) 59.1 Atomic absorption spectrophotometry by reduction and evaporation 62. Iron(Fe) 62.2 Atomic Absorption spectrophotometry 63. Chromium(Cr) 63.1.2 Atomic Absorption spectrophotometry 63.2 Chromium(VI)[(Cr(VI))] 63.2.1 UV/VIS Spectrophotometer	(0.005 ~ 0.05) mg/L $\geq 0.003$ mg/L (0.002 ~ 0.01) mg/L (0.2 ~ 4) mg/L (0.05 ~ 2) mg/L (0.05 ~ 2) mg/L (0.3 ~ 6) mg/L (1 ~ 20) mg/L (0.000 5~ 0.01) mg/L (0.3 ~ 6) mg/L (0.2 ~ 5) mg/L (0.002 ~ 0.05) mg/L	N

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
KS I 3217:2008	Water quality	Testing methods for industrial wastewater 11. pH 11.1 glass electrode method 16. Oxygen demand by Potassium Permanganate at 100 °C (COD <sub>Mn</sub> ) 17. Oxygen demand by Potassium Permanganate at 20 °C (COD <sub>Mn20</sub> ) 18. Oxygen demand by Alkaline Potassium Permanganate (COD <sub>OH</sub> ) 19. Oxygen demand by Potassium Dichromate (COD <sub>Cr</sub> ) 32. Residual Chlorine 32.2 diethyl-p-phenylenediamine colorimetry 44. Total nitrogen 44.1 Total sum 45. Phosphate Ion (PO <sub>4</sub> <sup>3-</sup> ) and Total phosphorus 45.1 Phosphate Ion (PO <sub>4</sub> <sup>3-</sup> ) 45.1.1 UV Absorptiometric Analysis-A 51. Cu 51.2 Atomic Absorptiometric Analysis 52. Zn 52.2 Atomic Absorptiometric Analysis 53. Pb 53.2 Atomic Absorptiometric Analysis 54. Cd 54.2 Atomic Absorptiometric Analysis 56. Fe 56.2 Atomic Absorptiometric Analysis 58. Ni 58.2 Atomic Absorptiometric Analysis 60. As 60.3 Atomic Absorptiometric Analysis 64. Cr 64.1 total Chromium [by Cr(III) and Cr(IV)] 64.1.1 UV/VIS Spectrophotometer	0.1 ~ 14.0 $\geq 1 \text{ mg/L}$ $\geq 1 \text{ mg/L}$ $\geq 1 \text{ mg/L}$ $\geq 1 \text{ mg/L}$ $(0.05 \sim 2.0) \text{ mg/L}$ $(0.008 \sim 0.16) \text{ mg/kg}$ $(0.2 \sim 0.5) \text{ mg/L}$ $(0.2 \sim 4) \text{ mg/L}$ $(0.05 \sim 2) \text{ mg/L}$ $(1 \sim 20) \text{ mg/L}$ $(0.05 \sim 2) \text{ mg/L}$ $(0.3 \sim 6) \text{ mg/L}$ $(0.3 \sim 6) \text{ mg/L}$ $(0.005 \sim 0.05) \text{ mg/L}$ $(0.5 \sim 10) \text{ mg/L}$	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS I 3225:2009	Water quality	Equipment for water supply service— Test methods of effect to water quality	-	N
KS I ISO 10301:1997	Water quality	Water quality—Determination of highlyvolatile halogenated hydrocarbons (Gas-chromatographic methods)	(0.01 ~ 50) $\mu\text{g/L}$	N
KS I ISO 11423-1:1997	Water quality	Water quality—Determination of benzene and some derivatives—Part 1 : Head-space gas chromatographic method	2 $\mu\text{g/L}$	N
KS I ISO 11423-2:1997	Water quality	Water quality—Determination of benzene and some derivatives—Part 2 : Method using extraction and gas chromatography	5 $\mu\text{g/L}$	N
KS I ISO 10523:1994	Water quality	Water quality—Determination of pH	0 ~ 14	N
KS I ISO 11083:1994	Water quality	Water quality—Determination of chromium(VI)—Spectrometric method using 1,5-diphenylcarbazide	(0.05 ~ 3) mg/L	N
KS I ISO 11885:1996	Water quality	Water quality—Determination of selected elements by inductively coupled plasma optical emission spectrometry(ICP-OES)	0.1 mg/L	N
KS I ISO 11969:1996	Water quality	Water quality—Determination of arsenic—Atomic absorption spectrometric method(hydride technique)	(1 ~ 10) $\mu\text{g/L}$	N
KS I ISO 14403:2007	Water quality	Water quality—Determination of total cyanide and free cyanide by continuous flow analysis	(10 ~ 100) $\mu\text{g/L}$	N
KS I ISO 15587:2014	Water quality	Water quality—Digestion for the determination of selected elements in water	-	N
KS I ISO 17294:2014	Water quality	Water quality—Application of inductively coupled plasma mass spectrometry(ICP-MS)—Part 2 : Determination of 62 elements	-	N
KS I ISO 23913:2009	Water quality	Water quality—Determination of chromium(VI)—Method using flow analysis(FIA and CFA) and spectrometric detection	FIA: (20 ~ 2 000) $\mu\text{g/L}$ CFA: (2 ~ 200) $\mu\text{g/L}$	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS I ISO 5961:1993	Water quality	Water quality-Determination of cadmium by atomic absorption spectrometry	(0.05 ~ 1) mg/L	N
KS I ISO 6878:2007	Water quality	Water quality-Determination of phosphorus-Ammonium molybdate spectrometric method	(0.005 ~ 0.8) mg/L	N
KS I ISO 7027:1999	Water quality	Water quality-Determination of turbidity	0.1 NTU	N
KS I ISO 7887:2014	Water quality	Water quality-Examination and determination of colour	(0 ~ 48)	N
KS I ISO 8288:2007	Water quality	Water quality-Determination of cobalt, nickel, copper, zinc, cadmium and lead-Flame atomic absorption spectrometric methods	(0.1 ~ 10) mg/L	N
KS I ISO 8467:1993	Water quality	Water quality - Determination of permanganate index	(0.5 ~ 10) mg/L	N
KS I ISO 9174:1998	Water quality	Water quality -- Determination of chromium -- Atomic absorption spectrometric methods	(0.5 ~ 20) mg/L	N
JIS K 0125:2016	Water quality	Testing methods for volatile organic compounds in industrial water and waste water	1 $\mu$ g/kg	N
ISO 5961:1994	Water quality	Water quality-Determination of cadmium by atomic absorption spectrometry	Flam: (0.05 ~ 1) mg/L Electrothermal: (0.3 ~ 3) $\mu$ g/L	N
ISO 6878:2004	Water quality	Water quality-Determination of phosphorus-Ammonium molybdate spectrometric method	0.005 mg/L ~ 0.8 mg/L	N
ISO 7027-1:2016	Water quality	Water quality-Determination of turbidity	(0.05 ~ 400) NTU	N
ISO 7887:2011	Water quality	Water quality-Examination and determination of colour	(0 ~ 48) degree	N
ISO 8288:1986	Water quality	Water quality-Determination of cobalt, nickel, copper, zinc, cadmium and lead-Flame atomic absorption spectrometric methods	1 mg/kg	N
ISO 8467:1993	Water quality	Water quality - Determination of permanganate index	(0.5 ~ 10) mg/kg	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ISO 9174:1998	Water quality	Water quality - Determination of chromium-Atomic absorption spectrometric methods	1 mg/kg	N
ISO 10301:1997	Water quality	Water quality-Determination of highly volatile halogenated hydrocarbons -Gas-chromatographic methods	(0.01 ~ 50) $\mu\text{g/L}$	N
ISO 11423-1:1997	Water quality	Water quality - Determination of benzene and some derivatives - Part 1: Head-space gas chromatographic method	(0.1 ~ 200) $\mu\text{g/L}$	N
ISO 11423-2:1997	Water quality	Water quality - Determination of benzene and some derivatives - Part 2: Method using extraction and gas chromatography	5 $\mu\text{g/kg}$	N
ISO 10523:2008	Water quality	Water quality - Determination of pH	2 ~ 12	N
ISO 11083:1994	Water quality	Water quality - Determination of chromium(VI)-Spectrometric method using 1,5-diphenylcarbazide	(0.05 ~ 3) mg/kg	N
ISO 11885:2007	Water quality	Water quality-Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)	(0.1 ~ 2) mg/kg	N
ISO 14403-2:2012	Water quality	Water quality -- Determination of total cyanide and free cyanide using flow analysis (FIA and CFA) -- Part 2: Method using continuous flow analysis (CFA)	(10 ~ 100) $\mu\text{g/L}$	N
ISO 15587-1:2002	Water quality	Water quality - Digestion for the determination of selected elements in water - Part 1: Aqua regia digestion	-	N
ISO 15587-2:2002	Water quality	Water quality - Digestion for the determination of selected elements in water-Part 2: Nitric acid digestion	-	N
ISO 17294-2:2016	Water quality	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes	(0.1 ~ 10) $\mu\text{g/L}$	N

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## 02 Chemical Testing

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ISO 23913:2006	Water quality	Water quality - Determination of chromium(VI)-Method using flow analysis (FIA and CFA) and spectrometric detection	FIA: (20 ~ 2 000) $\mu\text{g/L}$ CFA: (2 ~ 200) $\mu\text{g/L}$	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ME Notice No.2018-172 (11.05.2018.)	Water quality	Safety standard for sanitation for equipment for water supply service official test method		
		2. Sample preparation	-	
		3. Preparing method of leachate	-	
		4. Preparation of sample liquid	-	
		5. Correction of results	-	
		6. Consumption of KMnO <sub>4</sub>	(0.3 ~ 10) mg/L	
		7. Odour	-	
		8. Taste	-	
		9. Chromaticity	(0. 1 ~ 5) chromaticity	
		10. Evaporation residue	( 2.0 ~ 20 000 ) mg/L	
		11. Turbidity	( 0.02 ~ 400 ) NTU	
		12. Anionic surfactant	(0.01 ~ 1.0) mg/L	
		13. Free Residual Chlorine loss	(0.05 ~ 2.0) mg/L	
		14. Fluorine	IC (0.02 ~ 5.0) mg/L	
		15. Phenols	UV/MS (0.15 ~ 5.0) mg/L	
		16. Cyanide	(0.2 ~ 0.8) µg/L	
		17. Nitrate nitrogen and nitrite nitrogen	(1 ~ 100) µg/L	
		18. Chloride ion	IC (0.02 ~ 20) mg/L	
		23. Copper	UV/MS (0.10 ~ 20) mg/L	
		24. Lead	IC (0.4 ~ 50.0) mg/L	
		25. Manganese	ICP ≥ 0.001 mg/L	
		26. Arsenic	ICP-MS ≥ 0.000 45 mg/L	
		27. Selenium	ICP-MS ≥ 0.000 1 mg/L	
		28. Mercury	ICP-MS ≥ 0.000 1 mg/L	
		29. Zinc	CV/AAS ≥ 0.000 1 mg/L	
		30. Iron	ICP ≥ 0.001 mg/L	
		31. Cadmium	ICP-MS ≥ 0.000 1 mg/L	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2018-172 (11.05.2018.)	Water quality	Safety standard for sanitation for equipment for water supply service official test method(continue)		
		32. Hexavalent Chromium	ICP-MS ≥0.001 35 mg/L UV/VIS ≥0.005 mg/L	
		33. Nickel	≥ 0.0007 mg/L	
		34. Sodium	ICP ≥0.03 mg/L	
		37. 1,1-Dichloroethylene	ICP-MS ≥0.000 4 mg/L	
		38. Trichloroethylene	GC/MS ≥0.001 mg/L	
		39. 1,1,1-Trichloroethane	GC ≥0.000 5mg/L	
		40. Tetrachloroethylene	GC/MS ≥0.001 mg/L	
		41. Benzene	GC ≥0.000 5 mg/L	
		42. <i>cis</i> -1,2-Dichloroethylene	GC/MS ≥0.001 mg/L	
		43. 1,1,2-Trichloroethane	GC/MS ≥0.000 4 mg/L	
		44. Carbon tetrachloride	GC/MS ≥0.000 1 mg/L	
		45. 1,2-Dichloroethane	GC/MS ≥0.000 2 mg/L	
		46. Epichlorohydrin	GC/MS ≥0.001 mg/L	
		47. Vinyl acetate	GC/MS ≥0.001 mg/L	
		48. Styrene	GC/MS ≥0.001 mg/L	
		49. 1,2-Butadiene	GC/MS ≥0.000 5 mg/L	
		50. 1,3-Butadiene	GC/MS ≥0.000 5 mg/L	
		51. N,N-Dimethylaniline	GC/MS ≥0.001 mg/L	
		52. Amines	AAS ≥5 μg/L	
		53. 2,4-Toluene Diamine	GC/MS ≥0.000 5 mg/L	
		54. 2,6-Toluene Diamine	GC/MS ≥0.000 5 mg/L	
		55. Formaldehyde	HPLC ≥5.0 μg/L	
JIS B 2061:2017	Water quality	Faucets, ball taps and flush valves 5.7 Effect to water quality	- (0.01 ~ 50) mg/L	N
KS I ISO 7827:1994	Water quality	Water quality – Evaluation in an aqueous medium of the “ultimate” aerobic biodegradability of organic compounds – Method by analysis of dissolved organic carbon(DOC)	(10 ~ 40) mg/L	N

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## **02 Chemical Testing**

### 02.021 Water quality

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>	
ME Notice No.2021-15 (02.08.2021.)	Water quality	The Standard of Official Water Quality Testing of Potable Water ES 05301.1c_Hardness-EDTA Titrimetric Method ES05302.1c_Consumption of KMnO4-Acid ES 05302.2b_Consumption of KMnO4-Alkali ES 05303.1c_Odor ES 05304.1c_Taste ES 05305.1c_Color-Visual Comparison Method ES 05305.2_Color-Colorimetry ES 05306.1c_pH-Electrometric Method ES 05307.1c_Total Solids ES 05308.1d_Turbidity ES05309.1d_Surfactants-UV/Visible Spectrometry ES 05309.2b_Anionic Surfactants-Continuous Flow Analysis ES 05310.1b_Residual Chlorine-DPD Colorimetry ES 05310.2b_Residual Chlorine-OT Colorimetry ES 05311.1b_Phenols-UV/Visible Spectrometry ES 05311.2b_Phenols-Continuous Flow Analysis(CFA) ES 05351.a_Fluoride, F ES 05351.1b_Fluoride-Ion Chromatography ES 05351.2c_Fluoride-UV/Visible Spectrometry ES 05352.2a_Cyanide-Continuous Flow Analysis ES 05353.1d_Ammonia Nitrogen-UV/Visible Spectrometry ES 05353.2b_Ammonium Nitrogen-Ion Chromatography ES 05353.3a_Ammonia Nitrogen-Continuous Flow Analysis(CFA) ES 05354.a_Nitrate Nitrogen ES 05354.1b_Nitrate Nitrogen-Ion Chromatography ES 05354.2b_Nitrate Nitrogen-UV/Visible Spectrometry		1 mg/L (0.3 ~ 10) mg/L - - - (0 ~ 100) °C 5 mg/L (0.1 ~ 12.0) 5 mg/L ~ 20 000 mg/L (0.02 ~ 400) NTU (0.1 ~ 1.4) mg/L 0.1 mg/L ~ 1.4 mg/L (0.05 ~ 2.0) mg/L (0.01 ~ 10.0) mg/L 0.005 mg/L 0.005 mg/L ~ 0.10 mg/L (0.02 ~ 5.0) mg/L 0.02 mg/L ~ 5.0 mg/L 0.15 mg/L ~ 5.0 mg/L (0.01 ~ 0.05) mg/L (0.01 ~ 1.0) mg/L (0.06 ~ 1.0) mg/L (0.01 ~ 1.0) mg/L 0.02 mg/L ~ 20 mg/L 0.10 mg/L ~ 20 mg/L	N

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-15 (02.08.2021.)	Water quality	The Standard of Official Water Quality Testing of Potable Water(continue)		
		ES 05355.a_Chloride, Cl-	0.4 mg/L ~ 50.0 mg/L	
		ES 05355.1b_Chloride-Ion Chromatography	0.4 mg/L ~ 100.0 mg/L	
		ES 05355.2b_Chloride-Silver Nitrate Titrimetric method		
		ES 05356.a_Sulfate		
		ES 05356.1b_Sulfate-Ion Chromatography	0.1 mg/L ~ 100.0 mg/L	
		ES 05356.2b_Sulfate-EDTA Titrimetric Method	2 mg/L ~ 300 mg/L	
		ES 05357.b_Anions	-	
		ES 05357.1c_Anions-Ion Chromatography	-	
		ES 05358.1b_Bromate-Ion Chromatography	0.000 5 mg/L	
		ES 05400.e_Metals	-	
		ES 05400.2c_Metals-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.001 mg/L ~ 0.016 mg/L	
		ES 05400.3f_Metals-Inductively Coupled Plasma-Mass Spectrometry	0.000 10 mg/L ~ 0.013 76 mg/L	
		ES 05401.c_Copper, Cu		
		ES 05401.2c_Copper-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.003 mg/L ~ 50 mg/L	
		ES 05401.3c_Copper-Inductively Coupled Plasma-Mass Spectrometry	0.000 45 mg/L	
		ES 05402.c_Lead, Pb		
		ES 05402.lc_Lead-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.005 mg/L ~ 50 mg/L	
		ES 05402.3c_Lead-Inductively Coupled Plasma-Mass Spectrometry	0.000 37 mg/L	
		ES 05403.c_Manganese		
		ES 05403.2c_Manganese-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.001 mg/L ~ 50 mg/L	
		ES 05403.3c_Manganese-Inductively Coupled Plasma-Mass Spectrometry	0.000 15 mg/L	
		ES 05404.c_Boron, B		
		ES 05404.1c_Boron-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.002 mg/L ~ 50 mg/L	
		ES 05404.3a_Boron-Inductively Coupled Plasma-Mass Spectrometry	0.000 39 mg/L	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-15 (02.08.2021.)	Water quality	The Standard of Official Water Quality Testing of Potable Water(continue) ES 05405.b_Arsenic, As ES 05405.1c_Arsenic-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05405.3c_Arsenic-Inductively Coupled Plasma-Mass Spectrometry ES 05406.c_Selenium, Se ES 05406.2c_Selenium-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05406.3c_Selenium-Inductively Coupled Plasma-Mass Spectrometry ES 05407.b_Mercury, Hg ES 05407.1c_Mercury-Cold Vapor/Atomic Absorption Spectrometry ES 05408.c_Zinc, Zn ES 05408.2c_Zinc-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05408.3c_Zinc-Inductively Coupled Plasma-Mass Spectrometry ES 05409.b_Aluminium, Al ES 05409.2b_Aluminium-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05409.4b_Aluminium-Inductively Coupled Plasma-Mass Spectrometry ES 05410.a_Iron, Fe ES 05410.3b_Iron-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05410.4b_Iron-Inductively Coupled Plasma-Mass Spectrometry ES 05411.b_Cadmium, Cd ES 05411.2b_Cadmium-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05411.3b_Cadmium-Inductively Coupled Plasma-Mass Spectrometry	0.010 mg/L ~ 100 mg/L 0.002 87 mg/L 0.005 mg/L ~ 100 mg/L 0.000 49 mg/L 0.000 5 mg/L ~ 0.01 mg/L 0.001 mg/L ~ 100 mg/L 0.000 23 mg/L 0.016 mg/L ~ 100 mg/L 0.001 82 mg/L 0.003 mg/L ~ 100 mg/L 0.013 76 mg/L 0.002 mg/L ~ 50 mg/L 0.000 36 mg/L	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-15 (02.08.2021.)	Water quality	The Standard of Official Water Quality Testing of Potable Water(continue) ES 05412.a_Chromium, Cr ES 05412.2b_Chromium-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 05412.3b_Chromium-Inductively Coupled Plasma-Mass Spectrometry ES 05501.1b_Organophosphorus Pesticides-Gas Chromatography-Mass Spectrometry ES 05501.2b_Organophosphorus Pesticides-Gas Chromatography ES 05502.1b_Carbaryl-High Performance Liquid Chromatography ES 05502.2b_Carbaryl-Gas Chromatography ES 05551.c_Chlorine Disinfection By-products ES 05551.1c_Chlorine Disinfection By-products-Gas Chromatography Mass Spectrometry ES 05551.2c_Chlorine Disinfection By-products-Gas Chromatography	0.003 mg/L - 50 mg/L 0.001 35 mg/L 0.0005 mg/L 0.0005 mg/L 0.005 mg/L 0.0005 mg/L 0.0005 mg/L 0.0005 mg/L ~ 0.050 mg/L 0.0005 mg/L ~ 0.050 mg/L	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-15 (02.08.2021.)	Water quality	The Standard of Official Water Quality Testing of Potable Water(continue)		
		ES 05552.1b_Haloacetic Acids-Gas Chromatography-Mass Spectrometry	0.001 mg/L	
		ES 05552.2b_Haloacetic Acids-Gas Chromatography	0.001 mg/L	
		ES 05601.c_Volatile Organic Compounds		
		ES 05601.1c_Volatile Organic Compounds-Purge·TrapGas Chromatography-Mass Spectrometry	0.001 mg/L ~ 0.05 mg/L	
		ES 05601.2c_Volatile Organic CompoundsPurger·Trap-Gas Chromatography	0.000 5 mg/L ~ 0.003 mg/L	
		ES 05601.3c_Volatile Organic Compounds-Headspace-Gas Chromatography	0.000 5 mg/L ~ 0.001 mg/L	
		ES 05601.4c_Volatile Organic Compounds-Micro Liquid Extraction/ Gas Chromatography/Mass Sepctrometry	0.001 mg/L ~ 0.05 mg/L	
		ES 05602.1b_1,4-Dioxane-Liquid Extraction/Gas Chromatography/Mass Spectrometry	0.001 mg/L	N
		ES 05602.2b_1,4-Dioxane-Solid Extraction/Gas Ghromatography/Mass Spectrometry	0.001 mg/L	
		ES 05602.3b_1,4-Dioxane-Headspace-Gas Chromatography-Mass Spectrometry	0.001 mg/L	
		ES 05602.4b_1,4-Dioxane-Purge·Trap-Gas Chromatography-Mass Spectrometry	0.001 mg/L	
		ES 05701.Id Total Coliforms-Multiple Tube Fermentation Technique	0 CFU/mL	
		ES 05702.1c Total Colony Counts in 35°C -Pour Plate Method	0 CFU/mL	
		ES 05703.1c Total Coliforms-Multiple Tube Fermentation Technique	Not detected / 100 mL, Not detected / 100 mL	
		ES 05705.Id Escherichia coli-Multiple Tube Fermentation Technique	Not detected / 100 mL, Not detected / 100 mL	
		ES 05705.Id Escherichia coli-Multiple Tube Fermentation Technique	Not detected / 100 mL, Not detected / 100 mL	

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-14 (02.08.2021.)	Water quality	Water pollution official test methods ES 04302.1b n-Hexane extracts ES 04303.1b Suspended Solids ES 04305.1c BOD ES 04306.1b hydrogen ion concentration ES 04308.1e dissolved oxygen-titration ES 04315.1b COD-titration-acid potassium permanganate ES 04350.1b Anions-Ion Chromatography ES 04351.3a Fluoride-Ion Chromatography ES 04353.3b Cyanide-Continuous Flow Analysis (CFA) ES 04354.2a Nitrite-N-Ion Chromatography ES 04356.1a chloride-Ion Chromatography ES 04359.0 Anionic Surfactant ES 04359.1d Anionic Surfactants-UV/Visible Spectrometry ES 04359.2b Anionic Surfactants-Continuous Flow Analysis ES 04361.1a Nitrogen Nitrate-Ion Chromatography ES 04362.0 Total phosphorus ES 04362.1c Total phosphorus-UV/Visible Spectrometry ES 04362.2b Total phosphorus-Continuous Flow Analysis ES 04363.0 Total Nitrogen ES 04363.1a Total Nitrogen-UV/Visible Spectrometry-Oxidation Method ES 04363.2b Total Nitrogen-UV/Visible Spectrometry-Cadmium-Copper Reduction Method ES 04363.3b Total Nitrogen-UV/Visible Spectrometry-Deoxidize Distillation-Kledahl Method ES 04363.4c Total Nitrogen-Continuous Flow Analysis	(0.5 ~ 200) mg/L (0.01 ~ 25) mg/L - 0.1 ~ 14.0 0.1 mg/L - (0.1 ~ 1) mg/L (0.1 ~ 1) mg/L (0.01 ~ 0.1) mg/L (0.1 ~ 1) mg/L (0.1 ~ 1) mg/L 0.02 mg/L 0.09 mg/L (0.1 ~ 1) mg/L 0.005 mg/L 0.003 mg/L 0.1 mg/L 0.004 mg/L 0.02 mg/L 0.06 mg/L	N

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing
ME Notice No.2021-14 (02.08.2021.)	Water quality	Water pollution official test methods(continue) ES 04365.0a Phenols ES 04365.1c Phenols-UV/Visible Spectrometry ES 04365.2b Phenols-Continuous Flow Analysis ES 04366.1b Sulfate-Ion Chromatography ES 04401.0 Cu ES 04401.1a Cu-Atomic Absorption Spectrometry ES 04401.3a Cu-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 04401.4a Cu-Inductively Coupled Plasma-Mass Spectrometry ES 04402.0 Lead, Pb ES 04402.1a Lead-Atomic Absorption Spectrometry ES 04402.3a Lead-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 04402.4a Lead-Inductively Coupled Plasma-Mass Spectrometry ES 04406.0 As ES 04406.3a As-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 04406.4a As-Inductively Coupled Plasma-Mass Spectrometry ES 04408.0 Hg ES 04408.1b Mercury-Cold Vapor-Atomic Absorption Spectrometry ES 04408.4b Mercury-Cold Vapor-Atomic Fluorescence Spectrometry ES 04409.0 Zn ES 04409.1a Zn-Atomic Absorption Spectrometry ES 04409.3a Zn-Inductively Coupled Plasma-Atomic Emission Spectrometry ES 04409.4a Zn-Inductively Coupled Plasma-Mass Spectrometry ES 04412.0 Fe ES 04412.1c Fe-Atomic Absorption Spectrometry ES 04412.3a Fe-Inductively Coupled Plasma-Atomic Emission Spectrometry	Extraction: 0.005 mg/L Direct: 0.05 mg/L 0.007 mg/L (0.5 ~ 5) mg/L 0.008 mg/L 0.006 mg/L 0.002 mg/L 0.04 mg/L 0.04 mg/L 0.002 mg/L 0.05 mg/L 0.006 mg/L 0.000 5 mg/L 0.000 5 mg/L 0.002 mg/L 0.002 mg/L 0.006 mg/L 0.03 mg/L 0.007 mg/L	N

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## **02 Chemical Testing**

### 02.021 Water quality

Test method	Products and materials	Standard designation	Test range	Field testing	
ME Notice No.2021-14 (02.08.2021.)	Water quality	Water pollution official test methods(continue)			
		ES 04413.c Cd			
		ES 04413.1a Cd-Atomic Absorption Spectrometry	0.002 mg/L		
		ES 04413.3a Cd-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.004 mg/L		
		ES 04413.4a Cd-Inductively Coupled Plasma-Mass Spectrometry	0.002 mg/L		
		ES 04414.0 Cr			
		ES 04414.1c Cr-Atomic Absorption Spectrometry	Acid treatment : 0.01 mg/L Solvent extraction : 0.001 mg/L		
		ES 04414.3a Cr-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.007 mg/L		
		ES 04414.4a Cr-Inductively Coupled Plasma-Mass Spectrometry	0.000 2 mg/L		
		ES 04415.0 Cr6+			
		ES 04415.1b Cr6+-Atomic Absorption Spectrometry	0.01 mg/L		
		ES 04415.2c Cr6+-UV/Visible Spectrometry	0.04 mg/L		
		ES 04415.3b Cr6+-Inductively Coupled Plasma-Atomic Emission Spectrometry	0.007 mg/L		
		ES 04501.1b Di-(2-Ethylhexyl)Phthalate-solvent extraction-Gas Chromatography-Mass Spectrometry	(0.002 5 ~ 0.025) mg/L		
		ES 04503.1b Organophosphorus Pesticides-Gas Chromatography	(0.000 5 ~ 0.005) mg/L		
		ES 04504.1b Polychlorinated Biphenyls-solvent extraction, Gas Chromatography	(0.000 5 ~ 0.005) mg/L		
		ES 04601.4b 1,4-Dioxane-solvent extraction, Gas chromatography-Mass Spectrometry	(0.01 ~ 0.1) mg/L		
		ES 04602.1b Vinyl Chloride, Acrylonitrile, Bromoform, - Headspace Gas Chromatography-Mass Spectrometry	(0.005 ~ 0.05) mg/L		
		ES 04603.0 Volatile Organic Compounds	(0.001 ~ 0.01) mg/L		

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## **02 Chemical Testing**

### 02.024 Soil

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
NIER Notice No.2018-53 (12.07.2018.)	Soil	Standard for the examination of soil pollution		
		ES 07301.1b Moisture content	Min 0.1 %	
		ES 07302.1b pH-glass electrode method	0.1 ~ 14.0	
		ES 07351.1b Fluoride-ultraviolet/visible spectrometry	Min 10 mg/kg	
		ES 07352.1b Cyanide-ultraviolet/visible spectrometry	Min 0.2 mg/kg	
		ES 07400.2c Metals-inductively coupled plasma-atomic emission spectrometry	Copper: Min 1.0 mg/kg Lead: Min 1.5 mg/kg Nickel: Min 0.4 mg/kg Arsenic: Min 1.50 mg/kg Zinc: Min 1.0 mg/kg Cadmium: Min 0.10 mg/kg	N
		ES 07401.2a Copper-inductively coupled plasma-atomic emission spectrometry	Min 1.0 mg/kg	
		ES 07402.2a Lead-inductively coupled plasma-atomic emission spectrometry	Min 1.5 mg/kg	
		ES 07403.2a Nickel-inductively coupled plasma-atomic emission spectrometry	Min 0.4 mg/kg	
		ES 07404.2a Arsenic-inductively coupled plasma-atomic emission spectrometry	Min 1.50 mg/kg	
		ES 07405.1b Mercury-cold vapor atomic absorption spectrophotometry	Min 0.05 mg/kg	
		ES 07406.2a Zinc-inductively coupled plasma-atomic emission spectrometry	Min 1.0 mg/kg	
		ES 07407.2a Cadmium-inductively coupled plasma-atomic emission spectrometry	Min 0.10 mg/kg	
		ES 07408.1b Hexavalent Chromium-ultraviolet/visible spectrometry	Min 0.5 mg/kg	
		ES 07501.1b Organophosphorus pesticides-gas chromatography	EPN: Min 0.05 mg/kg Parathion: Min 0.05 mg/kg Methyl demeton: Min 0.05 mg/kg Diazinon: Min 0.05 mg/kg Phenthroate: Min 0.05 mg/kg	

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## **02 Chemical Testing**

### 02.024 Soil

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
NIER Notice No.2018-53 (12.07.2018.)	Soil	Standard for the examination of soil pollution(continue)		
		ES 07501.2b Organophosphorus pesticides-gas chromatography-mass spectrometry	EPN: Min 0.05 mg/kg Parathion: Min 0.05 mg/kg Methyl demeton: Min 0.05 mg/kg Diazinon: Min 0.05 mg/kg Phenthroate: Min 0.05 mg/kg	
		ES 07551.1c Benzo(a)pyrene-gas chromatography-mass spectrometry	Min 0.005 mg/kg	
		ES 07552.1c TPH-gas chromatography	Min 50 mg/kg	
		ES 07553.1c Phenols-gas chromatography	Phenols: Min 0.02 mg/kg, PCP: Min 0.1 mg/kg	
		ES 07554.1b PCBs-gas chromatography	Min 0.05 mg/kg	
		ES 07600.1b Volatile organic compounds-purge·trap Gas chromatography-mass spectrometry	Min 0.1 mg/kg	N
		ES 07601.1a Benzene, Toluene, Ethylbenzene, Xylene-purge·trap Gas chromatography-mass spectrometry	Min 0.1 mg/kg	
		ES 07601.2a Benne, Toluene, Ethylbenzene, Xylene-purge·trap Gas chromatography	Benzene: Min 0.2 mg/kg, Toluene: Min 0.1 mg/kg, Ethylbenzene: Min 0.1 mg/kg, Xylene: Min 0.5 mg/kg	
		ES 07602.1a Trichloroethylene, Tetrachloroethylene-purge·trap Gas chromatography-mass spectrometry	Min 0.1 mg/kg	
		ES 07602.2a Trichloroethylene, Tetrachloroethylene-purge·trap Gas chromatography	Min 0.1 mg/kg	
		ES 07603.1 1,2-Dichloroethane-purge·trap Gas chromatography-mass spectrometry	Min 0.1 mg/kg	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
ASTM E1613-12	Baby Products	Standard Test Method for Determination of Lead by Inductively Coupled Plasma Atomic Emission Spectrometry(ICP-AES), Flame Atomic Absorption Spectrometry (FAAS), or Graphite Furnace Atomic Absorption Spectrometry (GFAAS) Techniques	ICP-AES: $\geq 5$ mg/kg FAAS: $\geq 10$ mg/kg GFAAS: $\geq 5$ mg/kg	N
CPSC-CH-E100 1-8.3:2012	Baby Products	Standard Operating Procedure for Determining Total Lead (Pb) in Metal Children's Products (including Children's Metal Jewelry), Revision November 15, 2012	$\geq 10$ mg/kg	N
ASTM E1645 - 20a	Baby Products	Standard Practice for Preparation of Dried Paint Samples by Hotplate or Microwave Digestion for Subsequent Lead Analysis	$\geq 10$ mg/kg	N

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS M 6956:2022	Baby Products	Determination of hazardous chemical substances of recycled rubber powder	-	
		7. Determination of lead, cadmium, zinc, barium, chromium and hexavalent chromium content	-	
		7.1 Test Method for Determination of lead, cadmium, zinc, barium by Inductively Coupled Plasma Atomic Emission Spectrometry(ICP-AES)	Pb: $\geq 5$ mg/kg, Cd: $\geq 1$ mg/kg, Zn: $\geq 1$ mg/kg, Ba: $\geq 1$ mg/kg, Cr: $\geq 1$ mg/kg	
		7.3 Ultraviolet/Visible Spectroscopy - hexavalent chromium content	Cr(VI): $\geq 1$ mg/kg	
		8. Mercury content measurement	Hg: $\geq 1$ mg/kg	
		8.1 CV-AAS	Hg: $\geq 1$ mg/kg	
		8.2 TDA-AAS	Hg: $\geq 1$ mg/kg	
		9. Individual volatile organic compound (IVOC) content measurement	-	N
		9.1 Liquid direct injection method	Benzene: $\geq 0.5$ mg/kg, Toluene,Ethylbenzene. Xylene,Styrene : $\geq 5.0$ mg/kg,	
		9.2 Headspace method	Benzene: $\geq 0.5$ mg/kg, Toluene,Ethylbenzene. Xylene,Styrene : $\geq 5.0$ mg/kg,	
		10. Determination of polycyclic aromatic hydrocarbons (PAHs) content	PAHs : each $\geq 0.5$ mg/kg	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
BS EN 71-3:2019 + A1:2021	Baby Products	Safety of toys Migration of certain elements	Al: $\geq 5$ mg/kg Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg B: $\geq 50$ mg/kg Cd: $\geq 5$ mg/kg Cr: $\geq 5$ mg/kg Co: $\geq 10$ mg/kg Cu: $\geq 5$ mg/kg Pb: $\geq 5$ mg/kg Mn: $\geq 5$ mg/kg Hg: $\geq 5$ mg/kg Ni: $\geq 10$ mg/kg Se: $\geq 5$ mg/kg Sr: $\geq 50$ mg/kg Sn: $\geq 5$ mg/kg Zn: $\geq 50$ mg/kg MeT: $\geq 0.5$ mg/kg	N
			MBT: $\geq 0.5$ mg/kg TBT: $\geq 0.5$ mg/kg MOT: $\geq 0.8$ mg/kg DOT: $\geq 0.5$ mg/kg DBT: $\geq 0.5$ mg/kg DProT: $\geq 0.5$ mg/kg TeBT: $\geq 0.5$ mg/kg DPhT: $\geq 1.0$ mg/kg TPhT: $\geq 0.5$ mg/kg	N

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2017-0018 (01.31.2017.)	Baby Products	Children's Products Common Safety Standards		N
		6.1 Test methods for hazardous materials safety requirements		
		6.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		6.1.2 Phthalate plasticizers	each $\geq 50$ mg/kg	
		6.1.3 Hazardous elements contents	each $\geq 10$ mg/kg	
		6.1.4 pH	2 ~ 13	
		6.1.5 Formaldehyde	$\geq 15$ mg/kg	
KATS Notice No.2020-146 (07.24.2020.)	Baby Products	6.1.6 Aryl amine	each $\geq 5$ mg/kg	N
		Safety confirmation standard - Annex 67	-	
		Indoor Floorcoverings	-	
		PVC Floorcoverings		
		4.2 Phthalate plasticizers	DEHP: $\geq 50$ mg/kg DBP: $\geq 50$ mg/kg BBP: $\geq 50$ mg/kg DINP: $\geq 50$ mg/kg DIDP: $\geq 50$ mg/kg DNOP: $\geq 50$ mg/kg	
KATS Notice No.2020-0037 (03.01.2020.)	Baby Products	Supplier's Conformity Confirmation standard - Annex 3 Furniture	-	N
		5.1 hazardous substance	-	
		Emission rate of formaldehyde (Desiccator)	$\geq 0.1$ mg/L	
		Emission rate of formaldehyde (Small chamber)	$\geq 0.002$ mg/m <sup>2</sup> · h	
		Emission rate of toluene(Small chamber)	$\geq 0.002$ mg/m <sup>2</sup> · h	
		Emission rate of total volatile organic compounds (Small chamber)	$\geq 0.002$ mg/m <sup>2</sup> · h	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-020 (03.01.2020.)	Baby Products	Supplier's Conformity Confirmation standard - Annex 14 Furniture for children	-	N
		6.9.8 Formaldehyde, toluene, total volatile organic compounds emitted by wood	Formaldehyde: $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$ Toluene: $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$ TVOC: $\geq 0.002 \text{ mg/m}^2 \cdot \text{h}$	
		6.9.9 Migration of hazardous elements	Sb: $\geq 5 \text{ mg/kg}$ As: $\geq 3 \text{ mg/kg}$ Ba: $\geq 5 \text{ mg/kg}$ Cd: $\geq 5 \text{ mg/kg}$ Cr: $\geq 5 \text{ mg/kg}$ Pb: $\geq 5 \text{ mg/kg}$ Hg: $\geq 5 \text{ mg/kg}$ Se: $\geq 5 \text{ mg/kg}$	
		6.9.10 Content of Hazard elements	Total Pb: $\geq 10 \text{ mg/kg}$ Total Cd: $\geq 10 \text{ mg/kg}$	
		6.9.11 Content of Phthalate plasticizers	DEHP: $\geq 50 \text{ mg/kg}$ DBP: $\geq 50 \text{ mg/kg}$ BBP: $\geq 50 \text{ mg/kg}$ DINP: $\geq 50 \text{ mg/kg}$ DIDP: $\geq 50 \text{ mg/kg}$ DNOP: $\geq 50 \text{ mg/kg}$	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
ME Not6ce No.2022-6 (02.07.2022.)	Baby Products	Environmental harmful factor process test standard ES 12702.1 Lead(Pb), cadmium(Cd)_Induced-coupled plasma atomic emission spectroscopy(ICP-AES) in paints and varnishes	- Pb: $\geq 10.0$ mg/kg Cd: $\geq 10.0$ mg/kg	N
		ES 12704.1 Lead (Pb), cadmium(Cd)_Inductively coupled plasma atomic emission spectroscopy(ICP-AES) in synthetic resin and rubber and wood finishes	Pb: $\geq 10.0$ mg/kg Cd: $\geq 10.0$ mg/kg	
		ES 12705.1 Mercury(Hg) in paints and finishes - Atomic absorption spectroscopy(AAS)	$\geq 5.0$ mg/kg	
		ES 12706.1 Hexavalent chromium (Cr(VI)) - ultraviolet / visible spectroscopy (UV/Vis-spectrometer) in paints and finishes	$\geq 5.0$ mg/kg	
		ES 12708.1 CCA preserved wood - Inductively Coupled Plasma(ICP-AES) - Atomic Emission Spectroscopy(AAS)	Cr: $\geq 20.0$ mg/kg Cu: $\geq 10.0$ mg/kg As: $\geq 5.0$ mg/kg Benzo(a)anthracene(BaA): $\geq 0.1$ mg/kg Benzo(a)pyrene(BaP): $\geq 0.1$ mg/kg Fluoranthene: $\geq 0.1$ mg/kg	
		ES 12709.1 Creosote preserved wood - Gas Chromatography/ Mass spectrometry(GC/MS)		
		ES 12710.1 Formaldehyde in synthetic rubber flooring - ultraviolet / visible spectroscopy (UV/Vis-spectrometer)	$\geq 20$ mg/kg	
		ES 12714.1 Determination of phthalates content in synthetic resine and flooring of synthetic resin - Gas chromatography/Mass Spectrometry	DEHP: $\geq 100$ mg/kg, DBP: $\geq 100$ mg/kg, DINP: $\geq 100$ mg/kg, DIDP: $\geq 100$ mg/kg, DNOP: $\geq 100$ mg/kg, DIBP: $\geq 100$ mg/kg	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS G ISO 8124-3:2010	Baby Products	Safety of toys - Part 3: Migration of certain elements	Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg Cd: $\geq 5$ mg/kg Cr: $\geq 5$ mg/kg Pb: $\geq 5$ mg/kg Hg: $\geq 5$ mg/kg Se: $\geq 5$ mg/kg	N
ISO 8124-3:2020	Baby Products	Safety of toys - Part 3: Migration of certain elements	Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg Cd: $\geq 5$ mg/kg Cr: $\geq 5$ mg/kg Pb: $\geq 5$ mg/kg Hg: $\geq 5$ mg/kg Se: $\geq 5$ mg/kg	N
KS F 3028:2021	Baby Products	Wood for outdoor facilities treated with preservatives by pressure processes	Infiltration degree: (0 ~ 100) % Absorption: $\geq 1$ mg/kg	N
KS F 3025:2021	Baby Products	Foundation wood sill treated with preservatives by pressure processes 8.2 Depth of invasion test	(0 ~ 100) %	N
KS F 2155:2018	Baby Products	Method of determination for preservatives absorption of treated wood 5.4.3 Copper / Alkali Ammonium Based Wood Preservatives (ACQ) Treated Wood	$\geq 1$ mg/L	N

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
		Outdoor sports facilities - Elastic paving materials	-	
KS F 3888-2:2016	Baby Products	8.3 Volatile organic compounds of rubber powder (T-VOCs)	Benzene: $\geq 0.5$ mg/kg Toluene: $\geq 5$ mg/kg Ethylbenzene: $\geq 5$ mg/kg Xylene: $\geq 5$ mg/kg Heavy metal(Pb): $\geq 5$ mg/kg, Heavy metal (Cd, Hg, Cr(VI)): $\geq 1$ mg/kg PAHs:each $\geq 0.5$ mg/kg	N
		8.9 Heavy metals and polycyclic aromatic hydrocarbons (PAHs)	DEHP: $\geq 50$ mg/kg DBP: $\geq 50$ mg/kg BBP: $\geq 50$ mg/kg DINP: $\geq 50$ mg/kg DIDP: $\geq 50$ mg/kg DNOP: $\geq 50$ mg/kg	
		8.10 Phthalate plasticizer		

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS F 3888-1:2022	Baby Products	Artificial turf systems Annex B(Rule) General Information of Artificial turf Mat B.5.18 Hazardous Substance Testing method for Artificial turf system  B.5.18.1 heavy metal	content test : Pb: $\geq 5$ mg/kg Cd, Hg, Cr(VI) : $\geq 1$ mg/kg migration of certain elements test Al: $\geq 5$ mg/kg Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg B: $\geq 50$ mg/kg Cr: $\geq 5$ mg/kg Co: $\geq 10$ mg/kg Cu: $\geq 5$ mg/kg Mn: $\geq 5$ mg/kg Ni: $\geq 5$ mg/kg Se: $\geq 5$ mg/kg Sr: $\geq 5$ mg/kg Sn: $\geq 5$ mg/kg Zn: $\geq 5$ mg/kg	N

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
		B.5.18.2 Total volatile organic compounds(T-VOCs)	Benzene: $\geq 0.5$ mg/kg, Toluene, Ethylbenzene. Xylene: $\geq 5$ mg/kg,	
		B.5.18.3 polycyclic aromatic hydrocarbons (PAHs)	each $\geq 0.5$ mg/kg	
		B.5.18.4 Phthalate plasticizer	DEHP: $\geq 50$ mg/kg DBP: $\geq 50$ mg/kg BBP: $\geq 50$ mg/kg DINP: $\geq 50$ mg/kg DIDP: $\geq 50$ mg/kg DNOP: $\geq 50$ mg/kg	
		Annex C(Rule) General Information of Shock absorbing Pad	-	
		C.2 Test method of shock absorbing (pad/drain plate)	-	
KS F 3888-1:2022	Baby Products		content test : Pb: $\geq 5$ mg/kg Cd, Hg, Cr(VI) : $\geq 1$ mg/kg migration of certain elements test Al: $\geq 5$ mg/kg Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg B: $\geq 50$ mg/kg Cr: $\geq 5$ mg/kg Co: $\geq 10$ mg/kg Cu: $\geq 5$ mg/kg Mn: $\geq 5$ mg/kg Ni: $\geq 5$ mg/kg Se: $\geq 5$ mg/kg Sr: $\geq 5$ mg/kg Sn: $\geq 5$ mg/kg Zn: $\geq 5$ mg/kg	N
		C.2.9 Heavy metal		

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS F 3888-1:2022	Baby Products	C.2.10 Total volatile organic compounds(TVOCs)	Benzene: $\geq 0.5$ mg/kg, Toluene, Ethylbenzene, Xylene: $\geq 5$ mg/kg,	N
		C.2.11 polycyclic aromatic hydrocarbons (PAHs)	each $\geq 0.5$ mg/kg	
		C.2.12 Phthalate plasticizer	DEHP: $\geq 50$ mg/kg DBP: $\geq 50$ mg/kg BBP: $\geq 50$ mg/kg DINP: $\geq 50$ mg/kg DIDP: $\geq 50$ mg/kg DNOP: $\geq 50$ mg/kg	
		Annex D(Rule). General Information of Elastic chip	-	
		D.5 Elastic chip quality	-	
		D.5.6 Heavy metal	content test : Pb: $\geq 5$ mg/kg Cd, Hg, Cr(VI) : $\geq 1$ mg/kg migration of certain elements test Al: $\geq 5$ mg/kg Sb: $\geq 5$ mg/kg As: $\geq 3$ mg/kg Ba: $\geq 5$ mg/kg B: $\geq 50$ mg/kg Cr: $\geq 5$ mg/kg Co: $\geq 10$ mg/kg Cu: $\geq 5$ mg/kg Mn: $\geq 5$ mg/kg Ni: $\geq 5$ mg/kg Se: $\geq 5$ mg/kg Sr: $\geq 5$ mg/kg Sn: $\geq 5$ mg/kg Zn: $\geq 5$ mg/kg	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
KS F 3888-1:2022	Baby Products	D.5.7 Total volatile organic compounds(TVOCs)	Benzene: $\geq 0.5$ mg/kg, Toluene,Ethylbenzene. Xylene: $\geq 5$ mg/kg,	
		D.5.8 polycyclic aromatic hydrocarbons (PAHs)	each $\geq 0.5$ mg/kg	
		D.5.9 Phthalate plasticizer	DEHP: $\geq 50$ mg/kg DBP: $\geq 50$ mg/kg BBP: $\geq 50$ mg/kg DINP: $\geq 50$ mg/kg DIDP: $\geq 50$ mg/kg DNOP: $\geq 50$ mg/kg	
KS M 1991:2016	Baby Products	Determination of phthalate plasticizers in polymer materials	-	N
		Di-n-butyl phthalate (DBP)	$\geq 50$ mg/kg	
		Butyl benzyl phthalate (BBP)	$\geq 50$ mg/kg	
		Di(ethylhexyl) phthalate (DEHP)	$\geq 50$ mg/kg	
		Di-n-octyl phthalate (DNOP)	$\geq 50$ mg/kg	
		Di-isobutyl phthalate (DINP)	$\geq 50$ mg/kg	
		Di-iso-decyl phthalate (DIDP)	$\geq 50$ mg/kg	
MOTIE Notice No.2019-0201 (12.03.2019.)	Baby Products	Children's Products Common Safety Standards		N
		4.1 Test methods for hazardous materials safety requirements	-	
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances Test Method	$\geq 0.01$ mg/kg	
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	

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## **02 Chemical Testing**

### 02.034 Baby Products

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0132 (07.19.2021.)	Baby Products	Children's Products Common Safety Standards		N
		4.1 Test methods for hazardous materials safety requirements	-	
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances Test Method	Total $\geq 0.01$ mg/kg	
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	
		Children's Products Common Safety Standards		
MOTIE Notice No.2021-0229 (12.29.2021.)	Baby Products	4.1 Test methods for hazardous materials safety requirements		N
		4.1.1 Migration of certain elements	each $\geq 5$ mg/kg	
		4.1.2 Hazardous elements contents	each $\geq 10$ mg/kg	
		4.1.3 Phthalate plasticizers	each $\geq 50$ mg/kg	
		4.1.4 N-Nitrosamines and N-Nitrostable substances	N-nitrosamines : each $\geq 0.002$ mg/kg N-nitrosable substance : each $\geq 0.002$ mg/kg	
		4.1.5 Formaldehyde	$\geq 15$ mg/kg	
		4.1.6 Aryl amine	each $\geq 5$ mg/kg	
		4.1.7 pH	2 ~ 13	
		Children's Products Common Safety Standards		
		4.1 Test methods for hazardous materials safety requirements		

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## **09 Biological Testing**

### 09.002 Microorganisms

Test method	Products and materials	Standard designation	Test range	Field testing
KS I 3206:2008 (12.31.2018.)	Microorganism s	Testing method for industrial water 65 Test for bacteria 65.2 Total count of bacteria	more than 0 CFU/g(mL)	N
MFDS Notice No.2021-69 (08.09.2021.)	Microorganism s	Food criteria and standard 8. General test method 4. Microbiological method 4.5 The method for enumeration of general bacteria 4.5.1 number of bacteria A. standard plate-counting method	more than 0 CFU/g(mL)	N
MFDS Notice No.2021-69 (08.09.2021.)	Microorganism s	Food criteria and standard 8. General test method 4. Microbiological method 4.10 The number of fungi (The Number of yeast and mould)	more than 0 CFU/g(mL)	N
MFDS Notice No.2021-61 (07.15.2021.)	Microorganism s	The Korean Pharmacopoeia Twelfth Edition General Test 12. Sterility test	(Negative/Positive)	N
ISO 11737-1:2018/ Amd1:2021	Microorganism s	Sterilization of health care products-- Microbiological methods - Part 1 : Determination of a population of microorganisms on products	more than 0 CFU/g(mL)	N
ISO 11737-2:2019	Microorganism s	Sterilization of health care products-- Microbiological methods - Part 2: Tests of sterility performed in the definition, validation and maintenance of a sterilization process	(Negative/Positive)	N
MFDS Notice No.2021-61 (07.15.2021.)	Microorganism s	The Korean Pharmacopoeia Twelfth Edition General Tests 13. Microbial Limit Test - Total viable count Methods	more than 0 CFU/g(mL)	N
	Microorganism s	The Korean Pharmacopoeia Twelfth Edition General Tests 13. Microbial Limit Test - Tests for Specified Micro-organisms	more than 0 CFU/g(mL)	

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## **09 Biological Testing**

### 09.002 Microorganisms

Test method	Products and materials	Standard designation	Test range	Field testing
MFDS Notice No.2020-12 (02.25.2020.)	Microorganisms	Regulations on the Safety Standards, etc. of Cosmetics Appendix 4. Standards and Test Methods of Distributed Cosmetics I General cosmetics 11. Microbial Limit Test 2) Total viable aerobic count  Regulations on the Safety Standards, etc. of Cosmetics Appendix 4. Standards and Test Methods of Distributed Cosmetics I General cosmetics 11. Microbial Limit Test 3) Tests for Specified Micro-organisms	more than 0 CFU/g(mL)  more than 0 CFU/g(mL)	N
MOTIE Notice No.2017-0016 (01.31.2017.)	Microorganisms	Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.2 Microbial Limit Test - Total viable aerobic count  Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.3 Microbial Limit Test - Tests for Specified Micro-organisms	more than 0 CFU/g(mL)  more than 0 CFU/g(mL)	N
MOTIE Notice No.2020-0229 (12.30.2020.)	Microorganisms	Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.2 Microbial Limit Test - Total viable aerobic count  Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.3 Microbial Limit Test - Tests for Specified Micro-organisms	more than 0 CFU/g(mL)  more than 0 CFU/g(mL)	N

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## **09 Biological Testing**

### 09.002 Microorganisms

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-0230 (12.29.2021.)	Microorganism s	Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.2 Microbial Limit Test - Total viable aerobic count	more than 0 CFU/g(mL)	N
		Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.3 Microbial Limit Test - Tests for Specified Micro-organisms	more than 0 CFU/g(mL)	
MOTIE Notice No.2022-0221 (12.14.2022.)	Microorganism s	Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.2 Microbial Limit Test - Total viable aerobic count	more than 0 CFU/g(mL)	N
		Safety Certification Standard Annex 6. Toys Part 11:Microbiological requirement for toys containing aqueous media 4.3 Microbial Limit Test - Tests for Specified Micro-organisms	more than 0 CFU/g(mL)	
ASTM E2149-20	Microorganism s	Standard Test Method for Determining the Antimicrobial Activity of Antimicrobial Agents Under Dynamic Contact Conditions	(0 ~ 100) %	N
ASTM E2315-16	Microorganism s	Standard Guide for Assessment of Antimicrobial Activity Using a Time-Kill Procedure	(0 ~ 100) %	N
NIER Notice No.2022-6 (02.07.2022.)	Microorganism s	Environmental harmful factor process test standard ES 12711.1a Examination of parasites (eggs) in sand and soil - Microscopic counting	(Negative/Positive)	N

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(Branch Site-2) 29, Heungan-daero, Gunpo-si, Gyeonggi-do, Republic of Korea

## **01 Mechanical Testing**

### 01.001 Metal and related products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS B 0802:2003	Metal and related products	Method of Tensile Test for Metallic Materials	Test load: (4 ~ 900) kN	N
KS B 0804:2001	Metal and related products	Metallic materials – Bend test	Test load: (4 ~ 900) kN	N
KS B 0805:2000	Metal and related products	Method of Brinell Hardness Test	(213 ~ 504) HBW	N
KS B 0806:2000	Metal and related products	Method of Rockwell and Rockwell Superficial Hardness Test	(71 ~ 81) HRA (41 ~ 91) HRBW (26 ~ 45) HRC	N
KS D 3507:2019	Metal and related products	Carbon Steel Pipes for Ordinary Piping	-	N
		11.4 Flatting test	The outer diameter: (1 ~ 750) mm	
KS D 3517:2008	Metal and related products	Carbon Steel Tubes for Machine Structural Purposes	-	N
		9.4 Flatting test	The outer diameter: (1~750) mm	
ASTM E8/E8M-21	Metal and related products	Standard Test Methods for Tension Testing of Metallic Materials	Test load: (4 ~ 900) kN	N
ASTM E10 - 18	Metal and related products	Standard Test Methods for Brinell Hardness of Metallic Materials	(213 ~ 504) HBW	N
ASTM E18 - 20	Metal and related products	Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials	(71 ~ 81) HRA (41 ~ 91) HRBW (26 ~ 45) HRC	N
JIS G 3444:2021	Metal and related products	Carbon steel tubes for general structural purposes	-	N
		9.2.4 Flatting test	The outer diameter: (1 ~ 750) mm	

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## **01 Mechanical Testing**

### 01.001 Metal and related products

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
JIS G 3445:2021	Metal and related products	Carbon steel tubes for machine structural purposes	-	N
		9.2.4 Flatting test	The outer diameter: (1 ~ 750) mm	
JIS Z 2241:2011	Metal and related products	Metallic materials - Tensile testing - Method of test at room temperature	Test load: (4 ~ 900) kN	N
JIS Z 2243-1:2018	Metal and related products	Brinell hardness test - Part 1 : Test method	(213 ~ 504) HBW	N
JIS Z 2245:2021	Metal and related products	Rockwell hardness test-Test method	(71 ~ 81) HRA (41 ~ 91) HRBW (26 ~ 45) HRC	N
JIS Z 2248:2006	Metal and related products	Metallic materials -- Bend test	Test load: (4 ~ 900) kN	N
ISO 6506-1:2014	Metal and related products	Metallic materials-Brinell hardness test-Part 1:Test method	(213 ~ 504) HBW	N
ISO 6508-1:2016	Metal and related products	Metallic materials-Rockwell hardness test-Part 1:Test method	(71 ~ 81) HRA (41 ~ 91) HRBW (26 ~ 45) HRC	N

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## **01 Mechanical Testing**

### 01.012 Mechanical elements

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS B 1531:2019	Pipe fittings	Screwed type malleable cast iron pipe fittings		N
		6.1 Leakage	(0 ~ 1.0) MPa	
		6.2 Pressure-resistant	(0 ~ 5.0) MPa	
KS B 1533:2016	Pipe fittings	Screwed type steel pipe fittings		N
		5.3 Leakage	(0 ~ 1.0) MPa	
		5.4 Pressure-resistant	(0 ~ 5.0) MPa	
KS B 1536:2019	Pipe joints	Bellows type expansion pipe joints		N
		9.3 Dimension	(0 ~ 5) m	
		9.4 Expansion Length	(0 ~ 5) m	
		9.5 Pressure-resistant	(0 ~ 5.0) MPa	
		9.6 Leakage	(0 ~ 1.0) MPa	
		9.7 Durability	(0 ~ 1.0) MPa	
KS B 1537:2018	Pipe fittings	Flare type and brazing type fittings for refrigerants		N
		9.b)-1) Pressure-resistant	(0 ~ 7.0) MPa	
		9.b)-2) Leakage	(0 ~ 3.5) MPa	
KS B 1538:2018	Steam strainers	Cast iron 1 MPa Y type steam strainers		N
		7.3 water pressure-resistant	(0 ~ 5.0) MPa	
KS B 1539:2015	Flexible hoses	Metallic flexible hoses		N
		5. Dimension	(0 ~ 5) m	
		7.c) Pressure-resistant	(0 ~ 5.0) MPa	
		8.1 Vibration test	(0 ~ 5.0) MPa	
		8.2 Cyclic-Bending test	(0 ~ 5.0) MPa	
		8.3 Tensile test	(0 ~ 100) kN	
KS B 1543:2017	Pipe fittings	Steel plate butt-welding pipe fittings		N
		4. Pressure-resistant	(0 ~ 70) MPa	
KS B 1547:2019	Pipe fittings	Light gauge stainless steel pipe press fittings for ordinary piping		N
		8.2 Pressure-resistant	(0 ~ 5.0) MPa	
		8.3 Leakage	(0 ~ 1.0) MPa	
		8.4 Tensile test	(0 ~ 100) kN	
		8.5 Connection water pressure-resistant	(0 ~ 5.0) MPa	

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## **01 Mechanical Testing**

### 01.012 Mechanical elements

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 2301:2016	Valves	Bronze gate, globe, angle and check valves	-	N
		9.1 Valve Body Pressure-resistant		
		9.1.1 Water pressure-resistant	(0 ~ 3.0) MPa	
		9.1.2 Air pressure-resistant	(0 ~ 1.0) MPa	
		9.2 Valve Seat Leakage Test		
		9.2.1 Water pressure-resistant	(0 ~ 3.0) MPa	
		9.2.2 Air pressure-resistant	(0 ~ 1.0) MPa	
KS B 2304:2001	Valves	General rules for inspection of valves	-	N
		7. Dimension	(0 ~ 300) mm	
		9.2 Valve Body Pressure-resistant		
		9.2.1 Water pressure-resistant	(0 ~ 3.0) MPa	
		9.2.2 Air pressure-resistant	(0 ~ 2.5) MPa	
		9.3 Valve Seat Leakage Test		
		9.3.1 Pressure-resistant	(0 ~ 3.0) MPa	
		9.3.2 Air pressure-resistant	(0 ~ 2.5) MPa	
KS B 2308:2016	Valves	Ball valve	-	N
		9. Coating thickness (Ni, Cr)	Cr:(0.01 ~ 10) µm Ni:(0.1 ~ 50) µm	
		10.2 Body Pressure-resistant	(0 ~ 3.0) MPa	
		10.3 Leakage	(0 ~ 3.0) MPa	
		Faucets		
KS B 2331:2017	Faucets	6. Coating thickness (Ni, Cr)	Cr:(0.01 ~ 10) µm Ni:(0.1 ~ 50) µm	N
		7.1 Dimension	(0 ~ 300) mm	
		8.2 Flow-rate performance	(0 ~ 15) L	
		8.3 Pressure-resistant	(0 ~ 2.45) MPa	
		8.4 Water hammer limitation performance	(0 ~ 1.5) MPa	
		8.5 Durability	(0 ~ 1.0) MPa	
		8.6 Backwater Performance	(0 ~ 2.45) MPa	
		Sluice valves for water works		
KS B 2332:2016	Valves	10.1 Valve Body Pressure-resistant	(0 ~ 3.0) MPa	N
		10.2 Valve Seat Leakage Test	(0 ~ 3.0) MPa	
		10.5 Coating thickness	(0 ~ 1 000) µm	
		Butterfly valves for water works		
KS B 2333:2016	Valves	8.4 Coating thickness	(0 ~ 1 000) µm	N
		9.1 Valve Body Pressure-resistant	(0 ~ 3.0) MPa	
		9.2 Valve Seat Leakage Test	(0 ~ 3.0) MPa	

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## **01 Mechanical Testing**

### 01.012 Mechanical elements

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 2334:2016	Valves	Ductile cast iron gate valves for water works		N
		9.5 Coating Test		
		Coating thickness	(0 ~ 1 000) $\mu\text{m}$	
		10.4 Pressure Test		
		a) Valve Body Pressure-resistant	(0 ~ 3.0) MPa	
		b) Valve Seat Leakage Test	(0 ~ 3.0) MPa	
KS B 2342:2017	Snap tap	Snap tap with saddle for water works	-	N
		4.2 Pressure-resistant of Snap tap	(0 ~ 3.0) MPa	
KS B 2350:2015	Valves	Gray cast iron valves	-	N
		6.1 a) Valve Body Pressure-resistant	(0 ~ 3.0) MPa	
		6.1 b) Valve Seat Leakage Test	(0 ~ 3.0) MPa	
KS B 2361:2015	Valves	Cast steel flanged valves	-	N
		6.1 a) Valve Body Pressure-resistant	(0 ~ 3.0) MPa	
		6.1 b) Valve Seat Leakage Test	(0 ~ 3.0) MPa	
KS B 2369:2018	Valves	Flush valves		N
		6.3 Coating thickness (Ni, Cr)	Cr:(0.01 ~ 10) $\mu\text{m}$ Ni:(0.1 ~ 50) $\mu\text{m}$	
		8.2 Washing Performance	(0 ~ 25) L	
		8.3 Pressure-resistant	(0 ~ 2.5) MPa	
		8.4 Fasten Performance	(0 ~ 2.5) MPa	
		8.5 Water hammer limitation performance	(0 ~ 1.5) MPa	
KS B 2813:2019	Valves	Wafer type rubber-seated butterfly valves	-	N
		6. a) Valve Body Pressure-resistant	(0 ~ 5.0) MPa	
		6. b) Valve Seat Leakage Test	(0 ~ 5.0) MPa	
		8. Dimension	(0 ~ 300) mm	
KS B 1546:2015	Pipe fittings	Metal compression fittings for polyethylene pipes		N
		7.1 Pressure-resistant	(0 ~ 10) MPa	
		7.2 Effectiveness about Axial Direction Force	(0 ~ 250) kN	
KS B 1544:2015	Pipe fittings	7.3 Bending Test	(0 ~ 10) MPa	N
		Copper alloy solder-Joint fittings		
		6. Dimension and tolerance	(0 ~ 300) mm	
		8.1 Leakage	(0 ~ 1.0) MPa	
KS B 1506:2016	Flanges	8.2 Pressure-resistant	(0 ~ 5.0) MPa	N
		Stainless steel welding flanges	-	
		Surface finishing	(0.01 ~ 100) $\mu\text{m}$	

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## **01 Mechanical Testing**

### 01.012 Mechanical elements

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 1507:2020	Joints	Flexible grooved joint for steel pipe	-	N
		8.1 Joint Pressure-resistant Strength test	(0 ~ 5.0) MPa	
		8.3 Vibration-resistant Test	(18 ~ 3 000) Hz, (0 ~ 5.0) MPa	
		8.4 Durability Test	(0 ~ 5.0) MPa	
KS B 2822:2019	Valves	Grooved type rubber-seated butterfly valves		N
		6.1 Valve Body Pressure-resistant	(0 ~ 3.0) MPa	
		6.2 Valve Seat Leakage Test	(0 ~ 3.0) MPa	
KS B 0233:2005	Steel bolts and screws	Mechanical properties of steel bolts and screws	-	N
		8.1 Tensile test for machined test pieces	(0 ~ 1 000) kN	
		8.2 Tensile test for full-size bolts, screws and studs	(0 ~ 1 000) kN	
		8.4 Hardness test	(200 ~ 800) HV	
		8.5 Proof load test for full-size bolts, screws	(0 ~ 1 000) kN	
		8.6 Tensile test under wedge loading of full-size bolts and screws	(0 ~ 1 000) kN	
KS B 0241:2016	Steel bolts, screws and stud	Specification for corrosion-resistant stainless steel fasteners	-	N
		6.2.2 Tensile strength	(0 ~ 1 000) kN	
		6.2.3 Stress at 0.2 % permanent strain R <sub>p0.2</sub>	(0 ~ 1 000) kN	
		6.2.4 Elongation after fracture	(0 ~ 300) mm	
		6.2.5 Breaking torque	(0 ~ 100) N·m	
		6.2.6 Tensile test under wedge loading of bolts and screws	(0 ~ 1 000) kN	
KS B 0551:2015	Bolts and screws	Mechanical properties of fasteners Part 7:Torsional test and minimum fracture torques for bolts and screws with nominal diameters 1 mm to 10 mm	(0 ~ 100) N·m	N
KS B 1002:2016	Bolts	Hexagon head bolts and hexagon head screws	-	N
		12.1 Mechanical properties	-	
		Hardness	(200 ~ 800) HV (25 ~ 67) HRC (40 ~ 91) HRB	
		Tensile strength under wedge loading	(0 ~ 1 000) kN	

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## **01 Mechanical Testing**

### 01.012 Mechanical elements

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS B 1010:2009	Bolts, Nuts, Washers	Set of high strength hexagon bolt, hexagon nut and plain washers for friction grip joints	-	N
		12.1.1 Mechanical properties test for bolts (Tensile strength)	(0 ~ 1 000) kN (25 ~ 67) HRC	
		12.1.2 Hardness test for nuts	(25 ~ 67) HRC (40 ~ 91) HRB	
		12.1.3 Hardness test for washers	(25 ~ 67) HRC	
KS B 2819:2016	Bolts, Nuts, Washers	Sets of Torque-shear type high tension bolt, hexagon nut and plain washer for structural joints	-	N
		10.1.1 Mechanical test for bolts test pieces (Tensile strength)	(0 ~ 1 000) kN	
		10.1.2 Hardness test for nuts	(25 ~ 67) HRC (40 ~ 91) HRB	
		10.1.3 Hardness test for washers	(30 ~ 45) HRC	
KS B 1012:2017	Nuts	Hexagon nut and hexagon thin nuts		N
		12.1 Mechanical properties	(0 ~ 1 000) kN	
KS B 1016:2015	Bolts	Foundation bolts	-	N
		11.1 Mechanical properties	(0 ~ 1000) kN (22 ~ 34) HRC (67 ~ 100) HRB	
KS B 1329:2017	Washers	Conical spring washers	-	N
		10.2 Compression test	(0 ~ 1 000) kN	
KS B 2402:2009	Springs	Hot formed helical springs	-	N
		10.1 Spring characteristics	(0 ~ 30) kN	
KS B 2403:1979	Springs	Cold coiled helical compression springs	-	N
		7. Spring characteristics and permission error	(0 ~ 30) kN	

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## **02 Chemical Testing**

### 02.001 Steel

Test method	Products and materials	Standard designation	Test range		Field testing
KS D 1652:2007	Steel	Iron and steel—Method for spark discharge atomic emission spectrometric analysis	C	0.013 2 %~ 4.06 %	N
			B	0.000 5 %~ 0.017 %	
			Mg	0.042 %~ 0.073 %	
			Al	0.009 %~ 0.154 %	
			Si	0.17 %~ 1.77 %	
			P	0.015 %~ 0.27 %	
			S	0.000 3 %~ 0.047 %	
			Ti	0.001 6 %~ 0.38 %	
			V	0.003 %~ 0.2 %	
			Cr	0.073 %~ 18.9 %	
			Mn	0.065 %~ 2.00 %	
			Co	0.004 8 %~ 17.16 %	
			Ni	0.008 7 %~ 17.2 %	
			Cu	0.050 6 %~ 0.694 %	
			Zr	0.004 %~ 0.029 %	
			Nb	0.008 %~ 0.07 %	
			Mo	0.011 %~ 2.59 %	
			Sn	0.005 %~ 0.046 %	
			Pb	0.000 6 %~ 0.072 %	

# Korea Laboratory Accreditation Scheme

No. KT006

(Satellite facilities-1) 82, Pyeongtaekhang-ro, Poseung-eup, Pyeongtaek-si,  
Gyeonggi-do, Republic of Korea

## **01 Mechanical Testing**

### **01.015 Industrial machinery**

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ANSI/AMCA Standard 210-16	Industrial machinery	Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/ASHRAE Standard 51-16	Industrial machinery	Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 220 - 21	Industrial machinery	Laboratory Methods of Testing Air Curtains Units for Aerodynamic Performance Ratings	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 230-15	Industrial machinery	Laboratory Methods of Testing Air Circulating Fans for Rating and Certification	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 240-15	Industrial machinery	Laboratory Methods of Testing Positive Pressure Ventilators for Aerodynamic Performance Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 250-12	Industrial machinery	Laboratory Methods of Testing Jet Tunnel Fans for Performance	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 260 - 20	Industrial machinery	Laboratory Methods of Testing Induced Flow Fans for Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 500-D-18	Industrial machinery	Laboratory Methods of Testing Dampers for Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
ANSI/AMCA Standard 500-L-12	Industrial machinery	Laboratory Methods of Testing Louvers for Rating	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
AHRI Standard 410-2001	Industrial machinery	Forced-Circulation Air-Cooling and Air-Heating Coils	Heating31 kW Cooling40 kW	N
AHRI Standard 430-2020	Industrial machinery	Performance Rating of Central Station Air-handling Unit Supply Fans	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N
AHRI Standard 440-2019	Industrial machinery	Performance Ratings of Room Fan-Coils	Heating31 kW Cooling40 kW	N
AHRI Standard 681 - 2017	Industrial machinery	Performance Rating Residential Air Filter Equipment	Air Flowrate <sub>Max</sub> 4 300 m <sup>3</sup> /min Static Pressure(4 ~ 30) kPa	N

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## **01 Mechanical Testing**

### 01.015 Industrial machinery

Test method	Products and materials	Standard designation	Test range	Field testing
AHRI Standard 840 - 2021	Industrial machinery	Performance Rating of Unit Ventilators	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
AHRI Standard 880 - 2017	Industrial machinery	Performance Rating of Air Terminals	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ANSI/ASHRAE Standard 33-2016	Industrial machinery	Method of Testing Forced Circulation Air Cooling and Air Heating Coils	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ANSI/ASHRAE Standard 70-2006	Industrial machinery	Method of Testing for Rating the Performance of Air Outlets and Air Inlets	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ISO 27327-1:2009	Industrial machinery	Fans - Air curtain units - Part 1: Laboratory methods of testing for aerodynamic performance rating	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ISO 5801:2017	Industrial machinery	Industrial fans - Performance testing using standardized airways	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ISO 5802:2001	Industrial machinery	Industrial fans - Performance testing in situ	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
ISO 13350:2015	Industrial machinery	Fans - Performance testing of jet fans	Air FlowrateMax 4 300 m <sup>3</sup> /min Static Pressure:(-4 ~ 30) kPa	N
KS B 6311:2017	Industrial machinery	Testing methods for industrial fans	capacity:max 4 300 m <sup>3</sup> /min static pressure:(-4 ~ 30) kPa	N
KS B 6326:2020	Industrial machinery	Forward curved bladed fans	capacity:max 4 300 m <sup>3</sup> /min static pressure:(-4 ~ 30) kPa	N
KS B ISO 13350:2001	Industrial machinery	Industrial fans - Performance testing of jet fans	capacity:max 4 300 m <sup>3</sup> /min static pressure:(-4 ~ 30) kPa	N
KS B ISO 5802:2001	Industrial machinery	Industrial fans - Performance testing in situ	capacity:max 4 300 m <sup>3</sup> /min static pressure:(-4 ~ 30) kPa	N
KS B 6879:2020	Industrial machinery	Heat-recovery ventilators <Exception> 9.2 Electrical safety test	Heating:31 kW Cooling:40 kW	N
KS B 2101:2003	Industrial machinery	Test procedures for flow coefficient valves	diameter:80 mm differential pressure:100 kPa	N

# Korea Laboratory Accreditation Scheme

No. KT006

## 01 Mechanical Testing

### 01.015 Industrial machinery

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 6350:2019	Industrial machinery	Testing methods for turbo compressors	capacity:max 4 300 m <sup>3</sup> /min static pressure:(-4 ~ 30) kPa	N

# Korea Laboratory Accreditation Scheme

No. KT006

## 03 Electrical Testing

### 03.013 Energy efficiency

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-69 (04.20.2021.)	Electrical machinery for households	Energy efficiency level and standard program 4. Electric cooling conditioners 21. Electric cooling and heating conditioners 27. Electric fan heaters 28. Electric stoves 30. Dehumidifiers 40. Chiller 41. Air compressor	- Cooling:less than 10 kW Consumption power:not more than 30 kW Cooling:less than 23 kW Rated consumption power : 500 W ~ 10 kW Rated consumption power : 500 W ~ 10 kW Rated consumption power : not more than 1 000 W Rated cooling capacity : not more than 7,032 kW Discharge flow rate : (8.5 ~ 365) m <sup>3</sup> /h Discharge gage pressure : (30 ~ 1 000) kPa Consumption power : (2.2 ~ 110) kW	N
MOTIE Notice No.2021-68 (04.20.2021.)	Electrical machinery for industries	The regulation on the promotional spreading of the high efficiency energy equipment & supplies 3. Screw water chillers 7. Centrifugal fans 8. Turbo compressors 10. Temperature/humidity chambers	- Refrigeration ability:not more than 7 032.6 kW Delivery pressure:less than 30 kPa Outer diameter of the impeller : 160 mm~1 800 mm Delivery pressure: not less than 30 kPa Rated cooling capacity : 6 kW ~ 35 kW	N

# Korea Laboratory Accreditation Scheme

No. KT006

## **06 Sound and Vibration Testing**

### 06.001 Sound characteristics

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
ANSI / AMCA Standard 300 - 14	Electrical machinery for industries	Reverberant Room Method for Sound Testing of Fans	PWL : (30 ~ 150) dB(A)	N
ANSI / AMCA Standard 301 - 14	Electrical machinery for industries	Methods for Calculating Fan Sound Ratings from Laboratory Test Data	PWL: (30 ~ 150) dB(A)	N
ISO 13347-1:2004	Electrical machinery for industries	Industrial fans - Determination of fan sound power levels under standardized laboratory conditions - Part 1: General overview	PWL: (30 ~ 150) dB(A)	N
ISO 13347-2:2004	Electrical machinery for industries	Industrial fans - Determination of fan sound power levels under standardized laboratory conditions - Part 2: Reverberant room method	PWL : (30 ~ 150) dB(A)	N
KS B 6361:2017	Electrical machinery for industries	Methods of A-Weighted sound pressure level measurement for fans, blowers and compressors (Exception Appendix B, C, D, E, F)	SPL : (10 ~ 140) dB(A)	N
KS B ISO 13347-1:2004	Electrical machinery for industries	Industrial fans—Determination of fan sound power levels under standardized laboratory conditions—Part 1 : General overview	PWL : (30 ~ 150) dB(A)	N
KS B ISO 13347-2:2004	Electrical machinery for industries	Industrial fans—Determination of fan sound power levels under standardized laboratory conditions—Part 2 : Reverberant room method	PWL : (30 ~ 150) dB(A)	N

# Korea Laboratory Accreditation Scheme

No. KT006

(Satellite facilities-2) 34-46, Bangchon-ro 955beon-gil, Tanhyeon-myeon, Paju-si, Gyeonggi-do, Republic of Korea

## 01 Mechanical testing

01.015 Industrial Machinery

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 6301:2015	Industrial machinery	Testing methods for centrifugal pumps, mixed flow pumps and axial flow pumps	Flow rate:max. 0.1 m <sup>3</sup> /min static pressure:max. 1 MPa	N

## 03 Electrical testing

03.013 Energy efficiency

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2021-68 (04.20.2021.)	Electrical machinery for industries	The regulation on the promotional spreading of the high efficiency energy equipment & supplies  2. Pumps	Nominal diameter:not more than 200 mm Specified Discharge Rate: not more than 15.0 m <sup>3</sup> /min	N

# Korea Laboratory Accreditation Scheme

No. KT006

(Branch site-3) 55 Gungnae-ro, bundang-gu, seongnam-si, Gyeonggi-do, Republic of Korea

## **01 Mechanical Testing**

### 01.013 Physical Tests

Test method	Products and materials	Standard designation	Test range	Field testing
OIML R111:1994	Measuring machines and tools	Weights of classes E <sub>1</sub> , E <sub>2</sub> , F <sub>1</sub> , F <sub>2</sub> , M <sub>1</sub> , M <sub>2</sub> , M <sub>3</sub>	50 kg	N
		3. Maximum permissible errors on verification	-	
		4. Shape	-	
		5. Construction	-	
		6. Material	-	
		7. Density	-	
		8. Surface Conditions	-	
		9. Adjustment	-	
		10. Marking	-	
		11. Presentation	-	
		Chapter 1. Weights of classes E <sub>1</sub> , E <sub>2</sub> , F <sub>1</sub> , F <sub>2</sub> , M <sub>1</sub> , M <sub>2</sub> , M <sub>3</sub>	2 000 kg	
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	3. Maximum permissible errors on verification	-	N
		4. Shape	-	
		5. Construction	-	
		6. Material	-	
		7. Density	-	
		8. Surface conditions	-	
		9. Adjustment	-	
		10. Marking	-	
		11. Presentation	-	

# Korea Laboratory Accreditation Scheme

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## 01 Mechanical Testing

## 01.014 Measuring machines and tools

# Korea Laboratory Accreditation Scheme

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## **01 Mechanical Testing**

### 01.014 Measuring machines and tools

Test method	Products and materials	Standard designation	Test range	Field testing
KS B 5298:2002	Measuring machines and tools	Personal Weighing Instruments for Domestic Use 6. Errors 7. Construction 8. performance 9. Material 11. Presentation 12. Marking	200 kg - - - - - -	N
MOTIE Notice No.2019-33 (02.26.2019.)	Measuring machines and tools	Chapter 1. Standard of Type approval for Gas Meter 8.4.3 Error 8.4.6 Internal Pressure 8.4.7 Pressure Loss	- (0.016 ~ 1 000) m <sup>3</sup> /h (0 ~ 1 000) kPa (0 ~ 6.2) kPa	N
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	Chapter 1. Standard of Type approval for Water Meter 5.2 Maximum Permissible Error 5.6 Pressure Loss 5.7 Internal Pressure	- (0.016 ~ 2 000) m <sup>3</sup> /h (0 ~ 0.2) MPa (0 ~ 2.0) MPa	N
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	Chapter 1. Standard of Type approval for Hot Water Meter 8. Pressure Loss 11.2 Maximum Permissible Error 12.4 Internal Pressure	- (0 ~ 0.2) MPa (0.016 ~ 2 000) m <sup>3</sup> /h (0 ~ 2.0) MPa	N

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## **01 Mechanical Testing**

### 01.014 Measuring machines and tools

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-109 (06.04.2018.)	Measuring machines and tools	Part 2-1 Standard of Type approval for Fuel Dispenser	-	N
		3.2 Accuracy	(0.3 ~ 6.0) m <sup>3</sup> /h	
		3.3 Minimum Measured Quantity	(0.3 ~ 1.2) m <sup>3</sup> /h	
		3.4 Flow Interruption	(0.3 ~ 6.0) m <sup>3</sup> /h	
		3.6 Variation in the Internal Volume of Hose	(0 ~ 100) mL	
		Part 3-1 Standard of Type approval for LPG Dispenser	-	
		3.2 Accuracy	(0.3 ~ 6.0) m <sup>3</sup> /h	
		3.3 Minimum Measured Quantity	(0.3 ~ 1.2) m <sup>3</sup> /h	
		3.5 Variation in the Internal Volume of Hose	(0 ~ 100) mL	
		Part 4-1 Standard of Type approval for Oil Meter	-	
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	4.1 Accuracy	(0.3 ~ 54) m <sup>3</sup> /h	N
		4.2 Minimum Measured Quantity	(0.3 ~ 6) m <sup>3</sup> /h	
		Chapter 1. Standard of Type approval for Graduated Tank	-	
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	6.4 Maximum Permissible Error	(5 ~ 20) L	N
		7.6 Internal Pressure	(0 ~ 0.196) MPa	
		Part 2. Standard of Type approval for Heat Meter	-	
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	6.4.1 Flow Sensor	(0.016 ~ 2 000) m <sup>3</sup> /h	N
		6.4.2 Calculator	(3 ~ 130) °C	
		6.16 Internal Pressure	(0 ~ 2.0) MPa	
		6.17 Pressure Loss	(0 ~ 0.025) MPa	

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No. KT006

## **01 Mechanical Testing**

### 01.014 Measuring machines and tools

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	Chapter 1. Standard of Type approval for Aqueous Urea Solution Dispenser  5.3.2 Accuracy 5.3.3 Minimum Measured Quantity 5.3.4 Gas Elimination Device 5.3.5 Variation in the Internal Volume of Hose	- (0.3 ~ 6.0) m <sup>3</sup> /h (0.3 ~ 1.2) m <sup>3</sup> /h (0.3 ~ 6.0) m <sup>3</sup> /h (0 ~ 100) mL	N
MOTIE Notice No.2018-110 (06.07.2018.)	Measuring machines and tools	Chapter 1. Non Automatic Weighing Instrument  3. Metrological Requirements 4. Technical requirements for a self-or semi-self-indicating instrument. 5. Technical requirements for electronic instruments 6. Technical requirements for non-self-indicating instruments 7. Marking of instruments and modules  Annex A Testing procedures for non-automatic weighing instruments  Annex B Additional tests for electronic instruments  Annex C Testing and certification of indicators and analogue data processing devices as modules of non-automatic weighing instruments  Annex D Testing and certification of digital data processing device, terminals and digital displays as modules of non-automatic weighing instruments  Annex E Testing and certification of weighing modules as modules of non-automatic weighing instruments  Annex F Compatibility Checking of Modules of Non-Automatic Weighing Instruments  Annex G Additional examinations and tests for software-controlled digital devices and instrument	gradations:200 000 (and below) - - - - - - - - - - - - - - - - -	N

# Korea Laboratory Accreditation Scheme

No. KT006

## **03 Electrical Testing**

### 03.005 Measuring instruments

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
KS C 1208:2010	Measuring instruments	Alternating-current electromechanical watt-hour meters 6.1 Limits of error due to variation of the current 6.2 Influence of unbalanced load 6.3 Influence of reversed phase sequence 6.4 Starting and no-load condition 6.5 Influence of self-heating 6.6 Influence of ambient temperature variation 6.7 Influence of voltage variation 6.8 Influence of frequency variation 6.9 Influence of magnetic induction of external origin 6.10 Influence of waveform 6.11 Influence of overcurrents 6.12 Power consumption 6.13 Influence of register 6.14 Influence of oblique suspension 6.15 Acoustic noise 6.16 Vibration test 6.17 Shock test 6.18 Heating 6.19 Insulation 6.20 Durability 7. Structure and size 8. Meter with a transmitter device 11. Mark	0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A (-10 ~ +40) °C ±10 % ±5 % 400 A/turn 3rd harmonic current 10 % Max:2 400 A 3 W, 12 VA 0.02 %, 200 A 0.02 %, 200 A 30 dB wave:16.7 Hz width:4 mm 500 m/s <sup>2</sup> temperature rise coil:65 °C socket :40 °C 5 MΩ minimum 0.02 %, 200 A (145 ~ 298) mm - -	N

# Korea Laboratory Accreditation Scheme

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-230 (12.28.2020.)	Measuring instruments	Standard of type approval for watt-hour meters 1-1 General Requirement 4.4 Power Consumption 5. Construction requirements 5.2.1 Shock test 5.2.2 Vibration test 5.2.3 Spring hammer test 6. Meter marking 7.2 Meter constant 7.3 Initial start-up of the meter 7.4 Test of no-load condition 7.5 Starting current test 7.6 Limits of error due to the variation of the current 7.7 Limits of error due to influence quantities 8.3.2 Dry heat test 8.3.3 Cold test 8.3.4 Damp heat cyclic test 8.3.5 Protection against solar radiation 9.2.2 Voltage dips and short interruption 9.2.3 Electrostatic discharges 9.2.4 Electromagnetic RF fields 9.2.5 Fast transient burst test 9.2.6 Conducted disturbance induced by radio-frequency fields 9.2.7 Surge 9.2.8 Repetitive damped oscillatory waves 9.2.9 External static magnetic fields 9.2.10 Power frequency magnetic fields of external origin 9.2.11 Radio interference suppression 9.3.2.2. Harmonics in the current and voltage circuits - 5 <sup>th</sup> harmonic test 9.3.2.3 Sub-harmonics in the current - burst fired waveform test	Less than 3.0 W, 12.0 VA - 500 m/s <sup>2</sup> 10 Hz ~ 150 Hz 0.2 J ± 0.02 J - 0.02 %, 200 A 0.02 %, 200 A (70 ± 2) °C indoor: (-25 ± 3) °C Outdoor: (-40 ± 3) °C (-10 ~ +55) °C Max. Temp.: +55 °C △U/Max. 100 % Contact discharge: 8 kV Air discharge: 15 kV 30 V/m Max. 4 kV 150 kHz ~ 80 MHz t voltage 4 kV common mode 2.5 kV differential mode 1.0 kV 1 000 AT 400 AT 0.15 MHz ~ 1 GHz 0.02 %, 200 A 0.02 %, 200 A	N

# Korea Laboratory Accreditation Scheme

No. KT006

## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-230 (12.28.2020.)	Measuring instruments	Standard of type approval for watt-hour meters(continue)		
		9.3.2.4 odd harmonics in the current circuit - 90 degree phase fired waveform test	0.02 %, 200 A	
		9.3.2.5 d.c. and even harmonics - half-wave rectified waveform test	0.02 %, 200 A	
		9.3.3 Voltage variation	Max. $U_n$ 115 %	
		9.3.4 Ambient temperature variation	(-10 ~ +40) °C	
		9.3.5 Frequency variation	$f_n \pm 2 \%$	
		9.3.6 Reversed phase sequence	0.02 %, 200 A	
		9.3.7 Operation of auxiliary devices	0.02 %, 200 A	
		9.3.8 Short-time overcurrents	5 kA	
		9.3.9 Self-heating	0.02 %, 200 A	
		9.3.10 Earth fault	0.02 %, 200 A	
		9.3.11 Limits of error due to variation of the current for polyphase meters carrying a single-phase load, but with balanced polyphase voltages applied	0.02 %, 200 A	
		10. Requirements for software controlled measuring instruments	-	
		12 Electrical safety requirements	-	N
		12.3.2 Impulse voltage test	1.2/50 µs impulse, 8 000 V	
		12.3.3 AC voltage test	4 kV	
		12.3.4 Insulation resistance	5 MΩ	
		12.4 Heating	Less than 25 K of rising temp.	
		12.5 Resistance to heat and fire	Terminal block( $960 \pm 15$ ) °C Terminal cover and meter case( $650 \pm 10$ ) °C	
		12.6 Protection against penetration of dust and water	IP51, IP54 refer to KS C IEC 60529	
		1-2 type approval for electromechanical metering equipment		
		4.4 Power Consumption		
		5. Construction requirements	-	
		5.2.3 Spring hammer test	0.2 J ± 0.02 J	
		5.2.1 Shock test	500 m/s <sup>2</sup>	
		5.2.2 Vibration test	16.7 Hz	
		5.9 Influence of slope	0.02 %, 200 A	
		5.10 Noise	less than 30 dB	
		5.11 Durability	0.02 %, 200 A	

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-230 (12.28.2020.)	Measuring instruments	Standard of type approval for watt-hour meters(continue) 5.12 Size 6. Meter marking 7.4 Test of no-load condition 7.5 Starting current test 7.6 Limits of error due to the variation of the current 7.7 Limits of error due to influence quantities 8. Climatic requirements 9.2.10 power frequency magnetic fields of external origin 9.3.2.2 Harmonics in the current and voltage circuits - 3 <sup>th</sup> harmonic test 9.3.3. Voltage variation 9.3.4 Ambient temperature variation 9.3.5 Frequency variation 9.3.6 Reversed phase sequence 9.3.8 Short-time overcurrents 9.3.9 Self-heating 9.3.11 Limits of error due to variation of the current for polyphase meters carrying a single-phase load, but with balanced polyphase voltages applied 9.3.12 Influence of measuring devices 9.3.13 attachment device 9.3.8 Short-time overcurrents 12.3.2 Impulse voltage test 12.3.3 AC voltage test 12.3.4 Insulation resistance 12.4 Heating	0.02 %, 200 A - - 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A (-20 ~ +70) °C 0.5 mT 0.02 %, 200 A $U_n \pm 10 \%$ (-10 ~ +40) °C $f_n \pm 5 \%$ 0.02 %, 200 A 5 kA 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A - 5 kA 1.2/50 $\mu$ s impulse, 6 000 V 2 kV 5 MΩ Coil:less than 65 °C Terminal :less than 40 °C	N

# Korea Laboratory Accreditation Scheme

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-230 (12.28.2020.)	Measuring instruments	Standard of type approval for watt-hour meters(continue) 1-3 type approval for a.c electricity metering equipment 4.4 Power Consumption 5. Construction requirements 6. Meter marking 7.2 Meter constant 7.3 Initial start-up of the meter 7.4 Test of no-load condition 7.5 Starting current test 7.6 Limits of error due to the variation of the current 7.7 Limits of error due to influence quantities 8. Climatic requirements 9. Electromagnetic compatibility 9.3.2 Harmonics in the current and voltage circuits 9.3.3 Voltage variation 9.3.4 Ambient temperature variation 9.3.5 Frequency variation 9.3.6 Reversed phase sequence 9.3.7 Operation of auxiliary devices 9.3.8 Short-time overcurrents 9.3.9 Self-heating 9.3.10 Earth fault 9.3.11 Limits of error due to variation of the current for polyphase meters carrying a single-phase load, but with balanced polyphase voltages applied 10. Requirements for software controlled measuring instruments 12 Electrical safety requirements 13.1 Influence of wet sulfur dioxide 13.2 Influence of salt spray 13.3 Influence of high temperature quenching test	Less than 3.0 W, 12.0 VA - - 0.02 %, 200 A 0.02 %, 200 A (70 ± 2) °C 30 V/m 0.02 %, 200 A 0.02 %, 200 A (-10 ~ +40) °C $f_n \pm 2 \%$ 0.02 %, 200 A 0.02 %, 200 A 5 kA 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A 1.2/50 $\mu$ s impulse, 8 000 V Refer to KS C 1203 4.3 Refer to KS C 1203 4.4 Refer to KS C 1203 4.6	N

# Korea Laboratory Accreditation Scheme

No. KT006

## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-230 (12.28.2020.)	Measuring instruments	Standard of type approval for watt-hour meters(continue) 13.4 Influence of outdoor exposure 13.5 Surface treatment of metallic materials 1-4 type approval for d.c electricity metering equipment 4.4 Power Consumption 5. Construction requirements 6. Meter marking 7.2 Meter constant 7.3 Initial start-up of the meter 7.4 Test of no-load condition 7.5 Starting current test 7.6 Limits of error due to the variation of the current 7.7 Limits of error due to influence quantities 8. Climatic requirements 9. Electromagnetic compatibility 9.3.3 Voltage variation 9.3.4 Ambient temperature variation 9.3.8 Short-time overcurrents 9.3.9 Self-heating 10. Requirements for software controlled measuring instruments 12 Electrical safety requirements	Refer to KS C 1203 4.7 Refer to KS C 1203 4.8 Less than 3.0 W, 12.0 VA - - 0.04 %, 160 A 0.04 %, 160 A 0.04 %, 160 A 0.04 %, 160 A 0.04 %, 160 A (70 ± 2) °C 30 V/m 0.04 %, 160 A (-10 ~ +40) °C 5 kA 0.04 %, 160 A - 1.2/50 μs impulse, 8 000 V	N

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
MOTIE Notice No.2020-017 (02.19.2020.)	Measuring instruments	Standard of type approval for Electric vehicle charging system 1-1. Electric vehicle charging system General Requirements 5. Construction requirements 6. Meter marking 7.2 charging constant 7.3 Test of no-load condition 7.4 Starting current test 7.5 Limits of error due to the variation of the current 7.6 Limits of error due to influence quantities 8.2.1 EMC 8.2.2 External static magnetic fields 8.2.3 Power frequency magnetic fields of external origin 8.3.2 Harmonics in the current and voltage circuits 8.3.3.2 Harmonics in the current and voltage circuits - 5 <sup>th</sup> harmonic test 8.3.2.3 Sub-harmonics in the current - burst fired waveform test 8.3.2.4 odd harmonics in the current circuit - 90 degree phase fired waveform test 8.3.2.5 d.c. and even harmonics - half-wave rectified waveform test 8.3.3 Voltage variation 8.3.4 Ambient temperature variation 8.3.5 Frequency variation 8.3.6 Self-heating 9. Requirements for software controlled measuring instruments 1-2. Standard of type approval for AC Electric vehicle charging system 5. Construction requirements 6. Meter marking 7.2 charging constant 7.3 Test of no-load condition 7.4 Starting current test	0.02 %, 200 A - - 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A 10 V/m, 30 V/m 1 000 AT 400 AT/m Reference Voltage (90 ~ 110) % (-25 ~ +45) °C Reference Frequency ±2 % 0.02 %, 200 A - - 0.02 %, 200 A 0.02 %, 200 A 0.02 %, 200 A	N

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## **03 Electrical Testing**

### 03.005 Measuring instruments

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
MOTIE Notice No.2020-017 (02.19.2020.)	Measuring instruments	Standard of type approval for Electric vehicle charging system(continue)		
		7.5 Limits of error due to the variation of the current	0.02 %, 200 A	
		7.6 Limits of error due to influence quantities	0.02 %, 200 A	
		8. Requirements due to external influence quantities	30 V/m	
		9. Requirements for software controlled measuring instruments	-	
		1-3. Standard of type approval for DC Electric vehicle charging system	-	
		5. Construction requirements	visual inspection	
		6. Meter marking	visual inspection	
		7.2 charging constant	0.04 %, 160 A	
		7.3 Test of no-load condition	0.04 %, 160 A	
		7.4 Starting current test	0.04 %, 160 A	
		7.5 Limits of error due to the variation of the current	0.04 %, 160 A	N
		7.6 Limits of error due to influence quantities	30 V/m	
		8 Requirements due to external influence quantities	-	
		8.1 general	-	
		8.2. EMC	30 V/m	
		8.3 Immunity due to external influence quantities	-	
		8.3.1 general	-	
		8.3.3 Voltage variation	0.04 %, 160 A	
		8.3.4 Ambient temperature variation	(-25 ~ +45 ) °C	
		8.3.6 Self-heating	0.04 %, 160 A	
		9. Requirements for software controlled measuring instruments	-	

# Korea Laboratory Accreditation Scheme

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## 03 Electrical Testing

## 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62052-11:2020	Measuring instruments	Electricity metering equipment-General requirements, tests and test conditions- Part 11 : Metering equipment 5.1 General mechanical requirements 5.2 Case 5.2.2.1 Spring hammer test 5.2.2.2 Shock test 5.2.2.3 Vibration test 5.3 Window 5.4 Terminals-Terminal block(s)-Protective earth terminal 5.5 Terminal cover(s) 5.6 Clearance and creepage distances class I:(0.5 ~ 10.0) mm class II:(1.5 ~ 20.0) mm 5.7 Insulating encased meter of protective class II 5.8 Resistance to heat and fire terminal box:960 °C ± 15 °C terminal cover and enclosure:650 °C ± 10 °C 5.9 Protection against penetration of dust and water IP51 by IEC 60529 5.10 Display of measured values - 5.11 Output device - 5.12 Marking of meter - 6.3.1 Dry heat test (70 ± 2) °C 6.3.2 Cold test inside:(-25 ± 3) °C outside:(-40 ± 3) °C 6.3.3 Damp heat cyclic test (-10 ~ +55) °C 6.3.4 Protection against solar radiation maximum:+55 °C $\Delta U = 100 \%, 1 \text{ s}$ 7.1 Influence of supply voltage $\Delta U = 100 \%, 1 \text{ period}$ $\Delta U = 50 \%, 1 \text{ min}$ 7.2 Heating temperature rise below 25 K impulse withstand : max 6 kV power frequency withstand: max 2 kV 7.3 Insulation		N

# Korea Laboratory Accreditation Scheme

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62052-11:2020	Measuring instruments	Electricity metering equipment-General requirements, tests and test conditions- Part 11 : Metering equipment(continue)		N
		7.4 Immunity to earth fault	-	
		7.5.2 Test of immunity to electrostatic discharges	touch discharge:8 kV aerial discharge:15 kV	
		7.5.3 Test of immunity to electromagnetic RF fields	10 V/m, 30 V/m	
		7.5.4 Fast transient burst test	4 kV	
		7.5.5 Test of immunity to conducted disturbances, induced by radio-frequency fields	10 V	
		7.5.6 Surge immunity test	6 kV	
		7.5.7 Damped oscillatory waves immunity test	max. 3 kV	
		7.5.8 Radio interference suppression	30 MHz ~ 1 GHz	
IEC 62053-11:2003	Measuring instruments	Electricity metering equipment(a.c.) - Particular requirements - Part 11: Electromechanical meters for active energy (classes 0.5, 1 and 2)		N
		5. Mechanical requirements	-	
		6.3.1 Dry heat test	(70 ± 2) °C	
		6.3.2 Cold test	Indoor:(-25 ± 3) °C Outdoor:(-40 ± 3) °C	
		6.3.3 Damp heat cyclic test	(-10 ~ +55) °C	
		6.3.4 Protection against solar radiation	Max:+55 °C	
		7.1 Power consumption	5 W, 10 VA	
		7.2 Influence of short-time overcurrents	7 000 A	
		7.3 Influence of self-heating	0.01 %, 300 A	
		7.4 AC voltage test	4 kV	
		8. Accuracy requirements	0.01 %, 300 A	
		9. Adjustment		

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## **03 Electrical Testing**

### 03.005 Measuring instruments

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
IEC 62053-21:2020	Measuring instruments	Electricity metering equipment-Particular requirements-Part 21: Static meters for AC active energy(classes 0.5, 1 and 2)		
		5. Mechanical requirements	-	
		6.3.1 Dry heat test	(70 ± 2) °C	
		6.3.2 Cold test	Indoor:(-25 ± 3) °C Outdoor:(-40 ± 3) °C	N
		6.3.3 Damp heat cyclic test	(-10 ~ +55) °C	
		6.3.4 Protection against solar radiation	Max:+55 °C	
		7.1 Power consumption	5 W, 10 VA	
		7.2 Influence of short-time overcurrents	7 000 A	
		7.3 Influence of self-heating	0.01 %, 300 A	
		7.4 AC voltage test	4 kV	
		8. Accuracy requirements	0.01 %, 300 A	N
IEC 62053-22:2020	Measuring instruments	Electricity metering equipment-Particular requirements-Part 22: Static meters for AC active energy (classes 0.1S, 0.2S and 0.5S)		
		5. Mechanical requirements	-	
		6.3.1 Dry heat test	(70 ± 2) °C	
		6.3.2 Cold test	Indoor:(-25 ± 3) °C Outdoor:(-40 ± 3) °C	N
		6.3.3 Damp heat cyclic test	(-10 ~ +55) °C	
		6.3.4 Protection against solar radiation	Max:+55 °C	
		7.1 Power consumption	2 W, 10 VA	
		7.2 Influence of short-time overcurrents	below 20 times	
		7.3 Influence of self-heating	0.02 %, 200 A	
		7.4 AC voltage test	4 kV	
		8. Accuracy requirements	0.02 %, 200 A	

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
IEC 62053-23:2020	Measuring instruments	Electricity metering equipment-Particular requirements-Part 23: Static meters for reactive energy(classes 2 and 3)		
		5. Mechanical requirements	-	
		6.3.1 Dry heat test	(70 ± 2) °C	
		6.3.2 Cold test	Indoor:(-25 ± 3) °C Outdoor:(-40 ± 3) °C	N
		6.3.3 Damp heat cyclic test	(-10 ~ +55) °C	
		6.3.4 Protection against solar radiation	Max:+55 °C	
		7.1 Power consumption	2 W, 10 VA	
		7.2 Influence of short-time overcurrents	below 30 times	
		7.3 Influence of self-heating	0.02 %, 200 A	
		7.4 AC voltage test	4 kV	
		8. Accuracy requirements	0.02 %, 200 A	
OIML R 46-1:2012	Measuring instruments	Active electrical energy meters – Part 1: Metrological and technical requirements		
		3 Metrological requirements		
		3.1 Units of measurement	-	
		3.2 Rated operating conditions	-	
		3.3 Accuracy requirements	0.02 %, 200 A	N
		3.4 Requirements for interval and multi-tariff meters	-	
		3.5 Meter markings	-	
		3.6 Protection of metrological properties	-	
		3.7 Suitability for use	-	
		3.8 Durability	-	

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## **03 Electrical Testing**

### 03.005 Measuring instruments

Test method	Products and materials	Standard designation	Test range	Field testing
OIML R 46-2:2012	Measuring instruments	Active electrical energy meters – Part 2: Metrological controls and performance tests 4. Type approval 5. Test program 6. Test procedures for type approval 6.1 Test conditions 6.2 Tests for compliance with maximum permissible errors 6.3 Tests for influence quantities 6.3.15 Electromagnetic fields 6.4 Tests for disturbances 6.4.3 Electrostatic discharge 6.4.4 Fast transients 6.4.6 Radiated, radio frequency(RF), electromagnetic fields 6.4.7 Surges on AC mains power lines 6.4.8 Damped oscillatory waves immunity test 6.4.9 Short-time overcurrent 6.4.10 Impulse voltage 6.4.11 Earth fault 6.4.12 Operation of ancillary devices 6.4.13 Mechanical tests 6.4.13.1 Vibrations 6.4.13.2 Shock 6.4.14 Protection against solar radiation 6.4.15 Protection against ingress of dust 6.4.16 Climatic tests 6.4.16.1 Extreme temperatures – dry heat 6.4.16.2 Extreme temperatures – cold 6.4.16.3 Damp heat, steady-state (non-condensing), for humidity class H1 6.4.16.4 Damp heat, steady-state(non-condensing), for humidity class H2 and HB 6.4.16.5 Water test 6.4.17 Durability test 7. Type evaluation and approval 8. Verification	- - - - - 0.02 %, 200 A 0.02 %, 200 A 10 V/m, 30 V/m Contact discharge: 8 kV Air discharge: 15 kV 4 kV 10 V/m, 30 V/m 6 kV max. 3 kV 5 000 A max. 6 kV - 0.02 %, 200 A - (10 ~ 150) Hz 300 m/s <sup>2</sup> - IP5X according to IEC 60529 - (85 ± 2) °C (-55 ± 2) °C 30 °C, 85 % 55 °C, 95 % IPX4 according to IEC 60529 0.02 %, 200 A - 0.02 %, 200 A	N

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## **03 Electrical Testing**

### 03.005 Measuring instruments

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
OIML R 46-3:2013	Measuring instruments	Active electrical energy meters – Part 3: Test report format 1. Information 2. General 3. Validation procedure (protection of metrological properties) 4. Tests for maximum permissible error 5. Tests for influence quantities 6. Test for disturbances	- - - - - -	N
IEC 62053-24:2020	Measuring instruments	Electricity metering equipment-Particular requirements-Part 24: Static meters for fundamental component reactive energy(classes 0.5S, IS, 1, 2 and 3) 5. Mechanical requirements 6.3.1 Dry heat test 6.3.2 Cold test 6.3.3 Damp heat cyclic test 6.3.4 Protection against solar radiation 7.1 Power consumption 7.2 Influence of short-time overcurrents 7.3 Influence of self-heating 7.4 AC voltage test 8. Accuracy requirements	(70 ± 2) °C Indoor:(-25 ± 3) °C Outdoor:(-40 ± 3) °C (-10 ~ +55) °C Max. tem.: +55 °C 2 W below, 10 VA below Max. current 30 times below 0.02 %, 200 A 4 kV 0.02 %, 200 A	N

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## **03 Electrical Testing**

### 03.005 Measuring instruments

<b>Test method</b>	<b>Products and materials</b>	<b>Standard designation</b>	<b>Test range</b>	<b>Field testing</b>
IEC 62052-31:2015	Measuring instruments	Electricity metering equipment (AC) - General requirements, tests and test conditions - Part 31: Product safety requirements and tests	-	
		5. Information and marking requirements	visual inspection	
		6. Protection against electrical shock	impulse withstand : 12 kV power frequency withstand : 5 kV	
		7. Protection against mechanical hazards	Sharp edge tester	N
		8. Resistance to mechanical stresses	0.20 J ± 0.02 J terminal box : (960 ± 15) °C terminal cover and enclosure: (650 ± 10) °C	
		9. Protection against spread of fire		
		10. Equipment temperature limits and resistance to heat	Less than 100 °C of rising temp	
		11. Protection against penetration of dust and water	IP 51 or IP 54	

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## **03 Electrical Testing**

### 03.008 Wired/Wireless communication devices

Test method	Products and materials	Standard designation	Test range	Field testing
KS C 1234-2-1:2018	Wired/Wireless communication devices	Smart Metering – Water Metering – Part 2-1:TTL communication protocol	1. Physical Layer 2. Data Link Layer	N
EN 13757-3:2018	Wired/Wireless communication devices	Communication systems for meters – Part 3: Application protocols	OMS-Conformance-Test-Vol4_AP L	N

## **03 Electrical Testing**

### 03.012 Software

Test method	Products and materials	Standard designation	Test range	Field testing
OIML D-31:2008	Software	General requirement for software controlled measuring instruments 6.3.2.1 AD 6.3.2.3 VFTSw	-	N
IEC 62056-5-3:2017	Software	Electricity metering data exchange - The DLMS/COSEM suite - Part 5-3:DLMS/COSEM application layer	-	N
IEC 62056-6-1:2017	Software	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-1: Object Identification System (OBIS)	-	N
IEC 62056-6-2:2017	Software	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-2: COSEM interface classes	-	N

End.