

KES

Vacuum Plating

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1. Scope of Application

This standard specifies the quality and testing method of the portions of plastic parts equipped on automobiles that the metallic gloss plating, for example, chromium, chromium alloy, aluminium, etc. is applied on the base material by dry method, and that the metallic surface is protected with organic coating(hereinafter referred to as the "vacuum plating").

Remark: This standard shall apply to vacuum-plated articles, cold-spattered articles, etc. and not apply to hot-stamped articles.

2. Definition of Terminology

The principal terminology used in this standard shall mean as follows: (The detail shall be indicated in a drawing.)

- (1) Significant surface: Important surface for use which is either one of the following:
 - (a) Surface visible from ordinary direction in the using condition.
 - (b) Surface easily abraded or flawed.
 - (c) Surface which suffers the change in function by corrosion and change or peeling of coating.
- (2) Target quality sample: Completed article, test piece, minimum acceptable sample, etc. preserved in a dry case placed in a cold and dark place uninfluenced from sunlight, temperature, humidity, dust and others for observing periodically or comparing with specimen after test, which is approved by KIA Inspection Department.

3. Symbols

The symbols of the vacuum plating shall be based on the plastic base material, as shown in Table 1.

Table 1

Plastic Base	Symbol
Hard	VP1CR
Soft	VP2Cr

- Remarks 1. The hard means the material of which the modulus of flexural elasticity is 4000 kgf/cm² or more.
2. The soft means the material of which the modulus of flexural elasticity is under 4000 kgf/cm².

4. Quality

The quality of the vacuum plating shall conform to the standards shown in Table 2 after testing according to 5, Testing Method. When a special quality is required, the specification shall be indicated in a drawing.

Table 2

Test Item	Testing Method Condition	Evaluation Item Method		Evaluation Standard	Applicable Item to Testing Method
Appearance	—	—	—	No crack, peeling, blister, dulling, pinhole, flaw, uneven tone, flows nor foreign matter (dust).	5.2
Color and brightness	—	—	—	Within the limit of target quality sample.	5.3
Adhesive-ness *1	Scribing method	—	—	100/100	5.4
	Scratching method	—	—	No peeling.	
Hardness	—	—	—	VP1Cr: 2H or harder VP2Cr: HB or harder	5.5
Flexibility *2	—	—	—	No crack. *3	5.6
Warm water resistance	—	Appearance	—	No crack, peeling, blister nor dulling. *4	5.7
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
Weather-ability and warm water resistance	—	Appearance	—	No crack, peeling, blister nor dulling.	5.8
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	

Table 2 (Continued)

Test Item	Testing Method Condition	Evaluation Item Method		Evaluation Standard	Applicable Item to Testing Method
Moisture resistance	—	Appearance	—	No crack, peeling, blister nor dulling. *4	5.9
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
Benzine resistance	—	Appearance	—	No crack, peeling, blister nor dulling.	5.10
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
Guard wax resistance	—	Appearance	—	No crack, peeling, blister nor dulling.	5.11
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
Guard max remover resistance	Method A (Immersion method)	Appearance	—	No crack, peeling, blister nor dulling.	5.12
		Color and brightness	—	Within the limit of target quality sample.	
	Method B (Jet washing method)	Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	

Table 2 (Continued)

Test Item	Testing Method Condition	Evaluation Item Method		Evaluation Standard	Applicable Item to Testing Method
Thermal shock resistance	—	Appearance	—	No crack, peeling, blister nor dulling.	5.13
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-mess	Scribing method	100/100	
			Scratching method	No peeling.	
Heat resistance	—	Appearance	—	No crack, peeling, blister nor dulling.	5.14
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
Corrosion resistance	Salt spray method CASS method (Copper-accelerated acetic acidsalt spray testing)	Appearance	—	No rust, crack, peeling nor blister.	5.15
		Color and brightness	—	Within the limit of target quality sample.	
		Adhesive-ness	Scribing method	100/100	
			Scratching method	No peeling.	
		Degree of corrosion	—	Rust must be limited within 1 mm from a scratch and the end of the exposed surface.	

Table 2 (Continued)

Test Item	Testing Method Condition		Evaluation Item Method		Evaluation Standard	Applicable Item to Testing Method
Wear resistance	Rubbing piece method		Appearance	—	No exposure of base material *5 The other defects shall be within the limit of target quality sample.	5.16
	Car washing machine method			—	Within the limit of target quality sample.	
Weatherability (Light fastness)	Method A Accelerated weatherability test (Sunshine carbon weather-meter)	300h	Color and brightness	—	The color change shall be the class 4 or higher. *6	5.17
			Wear resistance	Rubbing piece method	No exposure of base material after wear resistance test of 3000 cycles or less. *5	
		1000h	Appearance	—	No crack, peeling, blister nor dulling.	
			Color and brightness	—	The color change shall be the class 3 or higher. *6	
			Adhesive-ness	Scribing method	100/100 *7	
				Scratching method	No peeling. *7	
	Method B Outdoor weatherability test	1 year	Appearance	—	No crack, peeling, blister nor dulling.	
			Color and brightness	—	The color change shall be the class 4 or higher. *6	
			Adhesive-ness	Scribing method	100/100	
				Scratching method	No peeling.	
			Wear resistance	Rubbing piece method	No exposure of base material after wear resistance test of 3000 cycles or less. *5	