

KES

Paint Film

KES C-F001

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kia motors

1. Scope of Application

This standard specifies the paint film for anti-corrosion and decoration of automobile parts (hereinafter referred to as parts).

2. Meaning of Terminology

The terminology used in this standard shall be as follows.

- (1) Inside of car: The place which does not expose to rain and wind directly or indirectly in finished car state and in the attached state to the car.
- (2) Outside of car: The place other than inside of car.
However, lower part outside the car shall be excluded.
- (3) Lower part outside the car: The components which are attached to the bottom such as floor or tire house where the main purpose of coating is anticorrosion
- (4) Interior: Interior indicates the following places.
 - (a) Visible place when inspection
 - (b) Visible place when getting in and out
 - (c) Visible place when disassemble for repair
- (5) Exterior: The place other than interior
- (6) Effective Face: As important surfaces in terms of use, they are such as follows (Detailed indication shall be made in the drawings).
 - (a) The surfaces of which conditions are visible
 - (b) The surfaces susceptible to wear or flaw
 - (c) The surfaces which could affect to performance due to occurrence of corrosion, change in film and peeling off.
- (7) Standard Article: Finished article, test piece or sample which have been preserved in cold and dark places so as to avoid influences by direct sunlight, moisture and dust for periodical observation or comparison with the test piece after test. It should be approved by KIA's material test dept and inspection dept

3. Type and Symbol

Types and symbols of film shall be the combination of common performance and optional function.

(1) Common Performance

The type and the symbol of film as a common performance are 5 kinds as shown in table 1 depending on the sections of car.

Table 1

Coated Section	Interior of car		Exterior of Car		Lower Part of exterior
	Inside	Outside	Inside	Outside	
Type and Symbol	TA 1	TA 2	TB 1	TB 2	TC

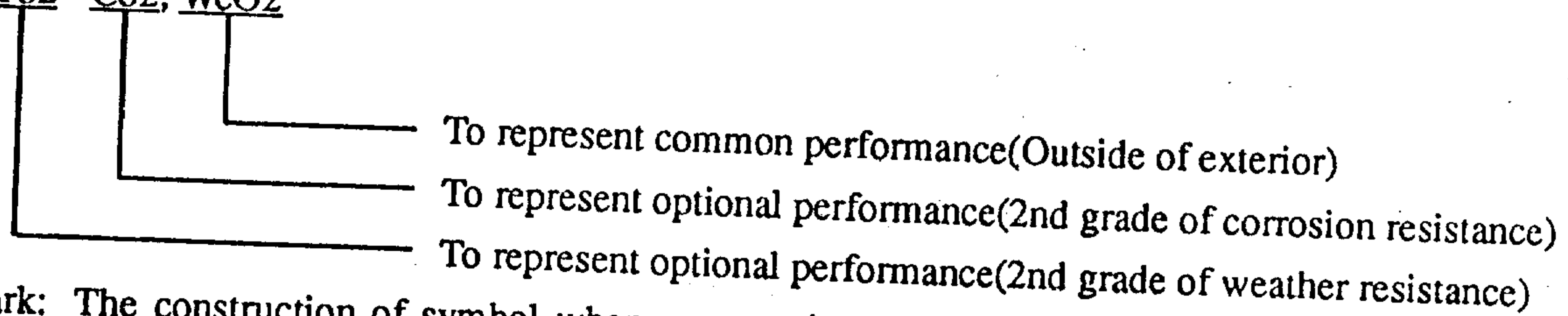
Remark: If the parts span both exterior and interior, or both inside and outside, design dept of KIA shall determine the kind of film.

(2) Optional Performance: The types and the symbols of film as an optional performance shall be in accordance with Attached Table 1 ~ 8, and the grades shall be determined depending on use.

(3) Representation;

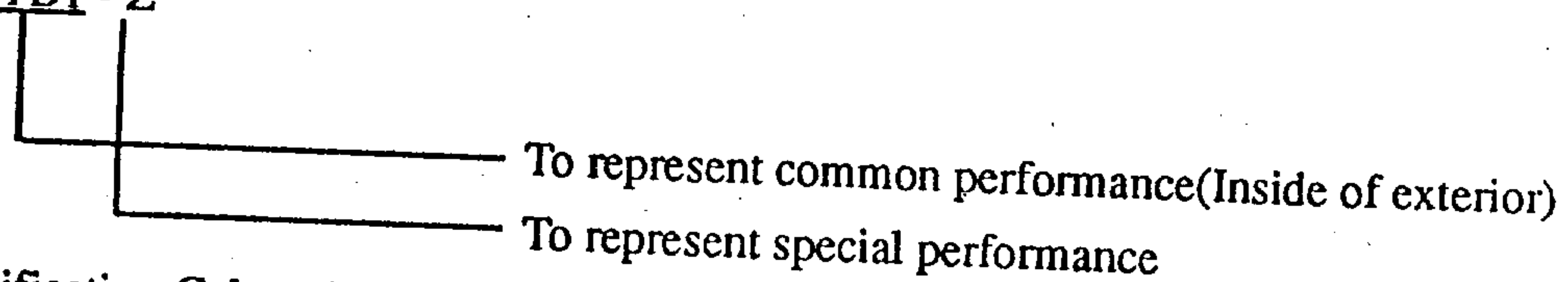
Representation of film shall be the combination of common performance symbol and optional performance symbol.

Ex: Tb2 - Co2, WeO2



Remark: The construction of symbol when representing special performance shall be such that the special symbol (Z) is used and the details are written in specification column.

Ex : TB1 - Z



(Specification Column) After being immersed in engine oil(10W - 40) at 120°C for 240hrs, the film should have no peeling-off, crack nor wrinkle.

4. Quality

The quality of effective surface of film should be tested according to general conditions for testing of 5.1 and the test method of 5.2, and should conform to table 2~6 and Attached Table 1-13.

However, if there are special performance indications, it should conform to specifications stipulated in drawings.

Table 2 Quality of Interior of Car

Test Item	Test Method and Condition	Evaluation Item and Method	Quality		KES T-M010 (Test Method for Film property and Shape)
Appearance	—	—	No disclosure of base material, peeling-off, blister cratering, flaw, sagging, flow, orange peel nor foreign particle(dust).	According to necessity, to be within the limit of standard article.	Item 4
Lustre	Method by instrument	—	To be within the limit of standard article (within 5%)		Item 5
Color	—	—	To be within the limit of standard article (Within E0.3)		Item 6
Adhesion	Scrach	—	4th Grade		Item 8
Hardness	—	—	or more HB		Item 9
Grease Resistance	40±2°C 24 Hr	—	No pelling-off, wrinkle nor blister (5%)		Item 24
Corrosion Resistance	—	—	To be in accordance with asterisk 2 (ΔE 0.3)		Item 26
Heat cycle resistance	5 Cycle	Color Adhesion Appearance Appearance	— — —	4th grade 4th grade No peeling, wrinkle nor blistering "	Item 12
		Gloss Color	—	90% or over 5th grade	
		Adhesior Appearance	—	3rd grade No peeling, wrinkle nor blistering	
		Gloss	Visual	No fading of gloss	
			Method		
Alkale	20±2°C	Color Appearance	—	5th grade	
Resistance	1 hr	Gloss Color Appearance		Same as above	Item 16
Alcohol					

Test item	Test Method and Confition	Evaluation item and method		Quality	KES T-M010 (Test Method for film property and shape)
		Color	—	4th grade	
		Adhesion		4th grade	
Resistance	—	Gloss	"	"	Item 17
White Gasoline Resistance Oil	80±2°C	Color			
		Appearance			
		Gloss	"	"	Item 18
		Color			
Resistance Grease Resistance	1 hr	Appearance			
	40±2°C	Gloss	"	"	Item 19
	1 hr	Color			
Corrosion Resistance Light Resistance		Appearance			Item 24
		Gloss	"	"	
		Color			

Test item	Test Method and Confiton	Evaluation item and method		Quality		KES T-M010 (Test Method for film property and shape)
Appearance	—	—	—	No disclosure of basis material, peeling, blistering, crateving, pin hole, sagging, flow, orange peel nor foreign particle(dust).	To be within the limit of standard article depending on necessity	Item 4
Gloss	Method by measuring			To be within the limit of standard article (within 5%)		Item 5
Color	—	—	—	To be within the limit of standard article (within 0.3 of ΔE)		Item 6
Adhesion	—	—	—	4th grade		Item 8
Hardness	—	—	—	HB		Item 9
Print Resistance	70±2℃ 2 hr	—	—	4th grade or over		Item 10
Heat Resistance	80±2℃	Glose Color Adhesion	— Checking Method	90% or over 5th grade 4th grade		Item 11
Thermo cycle Resistance	5 Cycle	Appearance	—	No , peeling, winkle nor blistering		Item 12
Water Resistance	Note(1) 50±2℃ 240 hr Note(2) 40±2℃ 240 hr	Appearance	—			Item 13
		Gloss	Method by measuring instrumont	90% or over		
		Color	—	5th grade		
		Adhesion		3rd grade		
Acid Resistance	Hydro chloride Method 20±2℃ 24 hr	Appearance	—	No , peeling, winkle nor blistering		Item 15
		Gloss	Visual method	No degradation of gloss		
		Color	—	5th grade		