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Established/R	CLASS: C1	TITLE : SMEU	NO.: TS
Established/Revised: Rev.5(May.2006)		SMELL QUALITY OF NON-METALLIC MATERIALS	TSM0505G

This standard has been revised as a consequence of adding the test method to examine the influence on air conditioner smell and the criteria.

Engineering Data Planning Dept.
Engineering Data Control and
Management Div.
TOYOTA MOTOR CORPORATION



TSM0505G

 $\overline{\mathbf{c}}$ CLASS

SMELL QUALITY OF NON-METALLIC MATERIALS

Scope

for automobile compartment and parts associated with the compartment(1) This standard covers the smell quality of non-metallic materials that are used

Note: (1)

Decisions shall be made upon a discussion among the parties concerned.

Classification

Non-metallic materials shall be classified as Table 1 according to the influence on each $smell^{(2)}$.

Г	28	2A	18	Class	
-					
	TSM0505G-2B	TSMO	OMEL	later	
	505G	505G	505G	ial	l
		5G-2A)5G-1A	Material code	
air	Inf	Inf	Inf		
conditioner smell	luenc	luenc	luence on cabin smell		
liti	10 B	;e 0;	;e o;		
oner	cal	n ca	n ca	Ir	
9776	10.5	bin	bin	flu	
11	mell	and	Smel	ence	
	. and	air	1	on	
	llar	cond		Influence on smell	
	ge i	ŢŢŢ		1	
	nflu	oner			
	Influence on cabin smell and large influence on	Influence on cabin and air conditioner smell			
L	ŝ	11			

Note: (2)

evaluation) influence concerned. on each smell shall be determined among the parties (design,

Quality

shall be summarized according to Section 9 The quality of smell shall be tested in accordance with Section 8, and satisfy Table and the result

Prepared and Written by:

Organic Material Dept.

Material Engineering Div. 2

 TOYOTA MOTOR CORPORATION Engineering Data Control and Management Div.

May.2006 Established/ 5 Revised:

IBS: The reciptent of this standard shall undertake the following confidentiality obligations upon the receipt of this standard. The reciptes that discred by shoulding or fire, or return to Toyota Motor Corporation it appropriate, the decements contained in this standard when they are no longer accessing due to testimization of the work concerned or the revision of current varion of this standard, when they are no longer accessing due to the termination while overall by and under sale counted doctor Corporation. They shall not be disclosed in while one in part to any third party without prior written consent of Toyota Motor Corporation.

TOYOTA ENGIN	ENGINEERING Item position	STANDARD Table 2	M0505G Quality Quality A 2A Exial shall n following: Solvent type lex(1) Substrate
	ה ה		rial shall not following: Solvent type non ler(3) Substrate con binder(4) Backing melamine Substrate old taining phenol be aligned light wood(7) Adhesive con hyl isobutyl ket Red sulphur ardant(8) Sisal hemp(10) Felt containing felt containing
Smell Single part test only		Intensity Pleasantness/ unpleasantness Nature Stimulating of smell Fishy Intensity Pleasantness/ unpleasantness Nature Stimulating of smell Fishy	3 max1.5 min. 1 max. 3.5 max2.0 min. 1 max.
Combination of parts	Water extracting condition (Initial) (After aging)	Intensity Pleasantness/ unpleasantness Nature Stimulating of smell Fishy Intensity Pleasantness/ unpleasantness Nature Stimulating	reported -1.5 min1 min 1 max. 1 max. To be reported
indirect material	Dry condition (Initial) (After aging)	Intensity Pleasantness/ unpleasantness Nature Stimulating	3 nax.

For instance, it is contained in opening trim, back door weather strip, quarter window weather strip, etc.

Note: (4)

For instance, it is contained in molded headlining, sunshade trim, etc.

Note: (5)

For instance, it is contained in seat fabric, etc.

Note: (6)

For instance, it is contained in door trim, package tray, quarter trim, seat back board, etc.

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TOYOTA ENGINEERING STANDARD

TSM0505G

Note: (7)

For instance, it is contained in deck board, etc.

Note: (8)

For instance, it is contained in cemedine G284 blue, cemedine G284 blue-1.

Note: (9)

For instance, it is contained in fire retardant for interior parts, etc.

Note: (10)

For instance, it is contained in molded headlining,

Note: (11)

instance, it is contained in acoustic felt, etc.

4. General Test Conditions

4.1 Test Environment

2 ರ As a rule, tests shall be conducted in a laboratory at a temperature of $23\pm$ for some inevitable reasons, inform the actual test environment. and relative humidity of 50±5 %. If this test environment can not be held

4.2 Tesking Container

on it. in the test once, make sure that a lid is not loosened and there remains no smell shall be as shown in Fig. 1. other types of containers may be used. test and indirect material test, and a $20-\mathrm{L}$ can for combined parts test. container shall preferably be a 4-L The specification for a testing container shall be as shown in Table 3. sure that there is no smell on it. Wash the container by the following steps and make can and 2-L glass bottle for single part When reusing the container that The specification for typical containers was used Testing

Steps for washing the container

- (1) Wash the container with unscented liquid detergent.
- (2) Rinse the container well with water and then wipe it off.
- (3) Wash with acetone.
- (4) Leave the container in the laboratory until any smell of the solvent cannot be noticed. Then dry it in a drying machine for 30 min at 110 C.
- (5) Wash a lid of the container according to the same procedures above

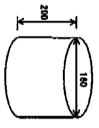
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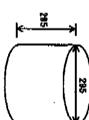
Size	Capacity (L) 1 to 20	Material
	(L)	
Inside	1 to 2	Steel,
Inside diameter of the opening shall be \$70 mm or more.	0	Steel, stainless, glass etc. giving off less smell of itself
O#		, gl
Pe Ch		ā\$\$
openin		etc. g
ghal		iving .
<u> </u>		off
1.		less
100		smel
F		1 01
mn or more.		itself

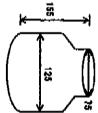
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Can

20-1 stainless can (t)

2-L glass bottle

4-1 steel ۲ Typical Containers for Smell Test (Unit: man)

E1g.

Note: (12)
Can supplier: ex. |
Note: (13)
Can supplier: ex. Minesawa Koki

Iuchi Seieido

Test Types

Test types shall be 29 shown in Table

Table 4 Test

		indic a seer speed	
Test parts	Dry/wet	Dry/wet Initial smell/smell after aging	Test method
Single part	Dry	Initial smell	Section 8.1
		Smell after aging	
	₩et	Initial smell	Section 8.2
		Smell after aging	
Combined parts		Initial smell	Section 8.4
		Smell after aging	
Indirect	Dry	Initial smell	Section 8.5
materials(14)		Smell after aging	

Note: $\{14\}$ Indirect materials here shall be materials such as interior painting, sealer, in-process adhesive and so on that are used in the vehicle manufacturing process $\{O_M, O_T, \text{ and } O_B\}$.

NOTES. The recipient of this standard shall undertake the following confidentiality obligations upon the manipt of this standard shall undertake the following confidentiality obligations upon the manipt of this value of the standard shall be decreased as the following the confidential of the work command or the standard shall be shall be decreased on the standard section of the standard shall be
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6. Test Preparations

6.1 Selection of Panelists

As a rule, five kinds of standard smells $^{(15)}$ shown in Table 5 shall be used and five years (or 3 years for those aged 40 or more). are valid for 5 years and new panelists shall be selected after the elapse of proper answers to all of the standard smells as panelists. panelists shall be selected as described as follows. Panelists shall be selected Select persons who gave As a rule, panelists

- Assign one tester for each testee.
- (2) A tester shall select two smelling papers at random out of the five smelling papers (16) numbered 1 through 5, and dip them by approximately 1 cm from the tip of each paper into the standard smell A. the contrast solution $^{(17)}$ likewise. papers (16) Dip remaining three papers in
- (3) Eand out the five smelling papers to the testees and let them smell the papers. The testees shall smell each paper one by one to check if any smell is noticed. not too close to touch Upon checking, let them hold each smelling paper close to their nose but it.
- (4) After smelling the five papers, the testees shall enter the two numbers whose papers they thought had smells on the answer sheet. If the testee fails to notice the smell by one time smelling, let them smell it again.
- (5) Repeat the test for the standard smell B, C, D, and E likewise

Note: (15)

expiration date shall be used. The standard smells used for selecting panelists: ex. sold by Daiichi Yakuhin Sangyo, etc. The standard smells and contrast solutions with a valid

Note: (16)

No-smell, 0.7 cm-wide and 15 cm-long filter papers.

No-smell liquid paraffin

Table 5 Standard Smells

to.	D 7	C 1:	. m	>	No.	
Skatole	7-undecalacton	Isovaleric acid	Methylcyclopentenolone	Å -phenylethyl elcohol	Name	
6 Da	_O CI≒(Ciλ) Cil	сн> сиси,соон	Çon Con	© Съсъон	Structural formula	
10****	10***	10***	10"1.4	10***	Concentration (mass/mass)	

The relations that distant by sheriddes or Res, or return to Tayes bloom Committee of sponsorists, the documents creating in the stratum of them that are no longer careasary due to the territorises of the first concerned or the creating is only at the strategies of the strategies o . The recipient of this remained shall undertake the falloring confidentiality calligations upon the neceipt of this May.2006 Established/ 5 Revised:

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.2 Smell Level Setting

plessant/unpleasant level -1. pleasant/unpleasant of C as 3 (easily recognized smell) and the pleasant/unpleasant level as -2 Dip a smelling paper by approximately 1 cm from the tip into the standard smell C shown in Table 5, and let the testees smell it. Deem the level of smell intensity letting the testees smell the standard smell C with a concentration of 10" For improving accuracy of the evaluation, another small levels may be added by (unpleasant). respectively, Level setting shall be required for all testees prior to the test. level and deem Ĺ and the latter as smell 듅 tormer 8 SE 11 intensity intensity 1.5 and 4.5 and and

Sampling Test Piece

4-L container) as shown in Table 6. specified, calculate by the equation (1) or using standard dimensions (when using standards on respective part and material, or drawing. be transported. Dimensions of the test piece shall be in accordance with the in a bag which rarely leaks gases (made of polyvinyl fluoride, for example) and manufacturing site and testing site are far apart, the test piece shall be scaled be stored in normal state (23±2 two weeks and be instantly used for tests. Manufactured parts shall preferably A test piece shall be taken from parts that were manufactured within the past test piece dimension shall be 1 cm² ્ત If the calculation result is less than 1 relative humidity 50±5 %). If dimension is not

$$AI = A0 \times \frac{TI}{T0} - \dots - (1)$$

surface area of test piece (cm2)

surface area of part <u>A</u>

capacity of testing container (L); 4 L capacity of vehicle compartment (L);

(L); 3000 L as standard

Note: (18)

Capacity of vehicle compartment is also used for calculating the dimension a part in a luggage space

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Other recipient shall discord by shoulding or the property of the stationary obligations. recipions shall dispert by abredding or lay, or return to Toyriz Meter Convention II appropriate the desaurage sized to the standard object they are set length messeasy flat to the technication of the work measures are as size of current version of the standard.

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Table 6 Standard Dimensions	Table 6 Standard Dimensions of Test Piece (When Using 4-L Container) (Unit: cn)
Portion	Dimensions (longitudinal Xlateral Xthickness)
Instrument panel	3×3×product thickness
Roof head lining	4×7×product thickness
Seat surface cover	10×10×product thickness
Seat pad	10×10×2
Door trim	4×7×product thickness
Floor carpet	10×10×product thickness
Package tray trim	3×3×product thickness
Dash silencer	4×4×product thickness
Room partition silencer	4×4×product thickness
Luggage mat	2X3.5Xproduct thickness

7.2 Indirect Materials

A test piece taken from indirect materials shall be pretreated as necessary.

7.2.1 Pretreatment

in terms of smell⁽¹⁷⁾. Pretreatment shall be conducted by placing the test piece on a non-smell material (such as aluminum foil) which can withstand the plant, and the like, the material shall be pretreated under the worst conditions in terms of smell (19). Pretreatment shall be conducted by placing the test piece pretreatment conditions. differs according to the portion to which the material is used, vehicle model, coating process as in the case of body sealer, the test piece shall be heated history. heat history, and then used for smell tests. under the conditions (140 °C for 30 min ×2 sets for example) equivalent to that Pretreatment shall be conducted under the same condition as the actual processing For example, if the material is subjected to a heat history in the If the history for the same material

Such as lower limit value for processing temperature and processing time.

NOTES: The recipient of the standard aftell undertake the following confidentiality diligations upon the receipt of this Established/ 5 membranes shall desart by shapebong or the, or return to Toyas Metor Corporation if appropriate, the decimants are the content of the text content of the May. 2006 of the text content of the

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7.2.2 Amount of Test Piece

The amount of test piece shall be in accordance with the standards on respective of surface area). of test piece shall be 1 g. by the equation (2). part and material, or drawing. calculated in accordance with the method as specified in Section 7.1 (calculation If the calculation result is less than 1 g, the amount However, the amount of paint material shall be If the amount is not specified, calculate it

$$BI = B0 \times \frac{T1}{T0}$$
 ---- (2)

amount of test piece (g)

BO: amount used in vehicle compartment (g)

capacity of testing container (L)

capacity of vehicle compartment (L); 3000 L as standard

8. Smell Test

8.1 Smell Test for Single Part under Dry Condition

8.1.1 Initial Smell

Tests for initial smell shall be conducted by the following steps

(1) Reating test piece

(a) Place the test piece specified in Section 7.1 in the container specified in Section 4.2 and cover the container with a lid.

(b) Place the container in a drying machine and heat it for 1 h. and material, or drawing. If there shall conform to Fig. 2 or Table 7. Fig. 2 nor Table 7, a heating temperature shall be decided through discussion among parties concerned with reference to Table 8. temperature shall be in accordance with the standards of respective part If there is no specification, the temperature For parts which are not described in A heating

until it heating, take the container out of the drying machine and cool it reaches room temperature.

(2) Smell level setting

Smell level shall be set just before smelling. shall conform to Section 6.2. The method for level setting

(3) Smelling

shown in Table 9. Open the cover of the container by sliding it by 3 to 4 cm and let panelists smell one by one. Then the panelists shall evaluate the smell by filling containers and test pieces shall be required per test shall be five or more. the evaluation sheet in Attached Table 1 (see Fig. 3). The number of panelists For example, when using a 4-L container, two or more The number of panelists per container shall be as

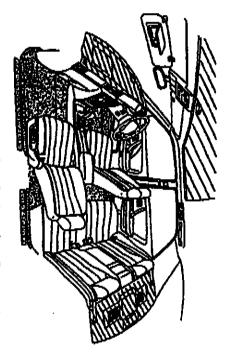
(4) Results evaluation

The results shall be evaluated in accordance with Section 9.

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Fig. 2 Reating Temperatures

Table 7 Heating Temperatures

60±2	Carpet, luggage compartment trim, door trim carpet, scuff plate
	seat, door trim, room partition silencer, dash silencer
80±2	Pillar garnish, roof head lining, sun visor, lover instrument panel,
100±2	Instrument panel, package tray, sunshade trim
temperature (T)	
Stitzber	不得行行任

Portion	Heating temperature (で)
With direct sunrays	80±2
No direct sunrays	60±2

Table ø

5	11 to 20
u.	4 to 10
2	2 to 3
1	14
Number of panelists	Capacity (L)
STREET, AT PRINCES OF SALE SALES	TOTAL C STATE



Fig. w How to Smell Test Piece

pleas shall dispend by shredding or fire at entern to Topes bloom Companiton II septoprises, the decommodate of in this sension of them they are no leager necessary due to the termination of fills before concerned at the Scar for All Scar (1971), the Company (when thereto are sensed by and under soils control at Topes) African Topes with the the dispend in whether in pant to any clind party without pater written content at Topes) African Topes with the the dispend in whether in pant to any clind party without pater written content at Proposideed shall undertake the feltweing confidentially obligations upon the receipt of this Bstabilshed!

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- 8.1.2 Smell after Aging
- Tests for smell after aging shall be conducted by the following steps:
- Pretreatment of test piece
- (a) Place the test piece specified in Section 7.1 in the container specified in Section 4.2. on 4.2. At this time, the container shall not be covered. container in a drying machine $^{(20)}$ and heat it at 80 $^{\circ}$ C for 96 h.
- (b) Place the

Note: (20)

Air replacement; 3 or more times per hour

- (c) After heating, take the container out of the drying machine, cool it until it reaches room temperature, and cover it with a lid. it reaches room temperature, and cover it with a
- (2) Heating test piece
- (a) Place the container in a drying machine and heat it for 1 h. Fig. 2 nor Table 7, a heating temperature shall be decided through discussion shall conform to Fig. 2 or Table 7. and material, or drawing. If there is no specification, the temperature temperature shall be in accordance with the standards of respective part among parties concerned with reference to Table 8. For parts which are not described in A heating
- (b) After heating, take the container out of the drying machine and cool it until it reaches room temperature.
- (3) Smell level setting: The same as specified in Section $8.1.1\ (2)$.
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).
- .2 Smell Test for Single Part under Wet Condition
- 8.2.1 Initial Smell

Tests for initial smell shall be conducted by the following steps.

- Pretreatment of test piece
- (a) Apply distilled water that is equivalent to 5% of the test piece in weight over the test piece specified in Section 7.1 as uniformly as possible.
- (b) Place the test piece in the container specified in Section 4.2 and cover the container with a lid.
- (2) Leaving test piece
- with a Leave the container in the laboratory for 1 h under the normal condition with a temperature of 23 ± 2 °C and relative humidity of 50 ± 5 %.
- (3) Smell level setting: The same as specified in Section 8.1.1 (2).
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).

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8.2.2 Smell after Aging

Tests for small after aging shall be conducted by the following steps.

- (1) Pretreatment of test piece
- in Section 4.2. At this time, the container shall not be covered (b) Place the container in a drying machine $^{(20)}$ and heat it at 80 $^{\circ}$ C for (a) Place the test piece specified in Section 7.1 in the container specified C for 96 h.
- (c) After heating, take the container out of the drying machine and cool it unt 11 it reaches room temperature.
- (d) Apply distilled water that is equivalent to 5 % of the test piece in weight the heated test piece as uniformly as possible.
- (a) Place the test piece the container with a lid. in the container specified in Section 4.2 and cover
- (2) Leaving test piece: The same as specified in Section 0.2.1 (2).
- (3) Smell level setting: The same as specified in Section 8.1.1
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).

8.3 Smell Water Extraction Test for Single Part

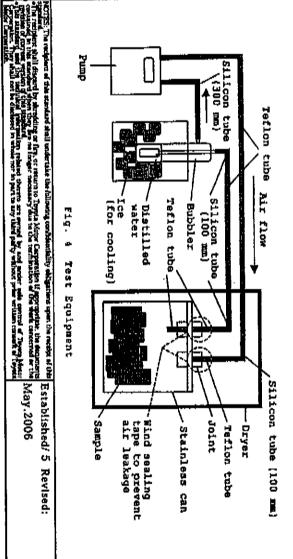
8.3.1 Test Outline

- (1) Preparation for water extraction: prepare test equipment and samples
- (2) Water extraction: heat the sample, sample component that emits
- (3) Smell test: Prepare bag, make standard smell, pour sample, smell, summarize results

8.3.2 Preparation of Water Extraction

(1) Preparation of test equipment

Fig. 4 shows the test equipment. Table 10 lists the tools necessary for the test. Test equipment, tools and devices specified may be used if equivalent performance is guaranteed. must be free from smell, except for reagents. other than and devices However, they



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ĺ	
	Table 10
	Boulpment,
	Table 10 Equipment, Tools/Devices and Reagents Used for Test
	and Reagents
	Used for
	Test
•	

	Made of silicon rubber capable of blocking sleeve of the bag.	12 Cap	
	h a steeve outsi and a maximum volu if (Flek-Samplar ty	li Bag	
	of measuring integration of measuring integration of measuring integration of the state of the s	10 Gas meter	
	t	9 Nitrogen gas	
	CODCERFE CHANGE	reagent	rest test
	by Gom		
• =	de diameter 6 mm Xoutside diam (#9003 manufactured by Nicoration).	6 Teflon tube	- "" -
New product.	Inside diameter 5 mm X outside diameter New 9 mm (manufactured by Tigers Polymer Corporation).	5 Silicon tube	
	Usable at a rate of 1 L/min while attached to the test equipment $(MP-\Sigma)$ 100H manufactured by Sibata Scientific rechnology Ltd.).	4 Pump	····
h pure wath	Wade of glass. The glass tube ror wash introducing gas shall be in purified with water when 8 mL of purified water is and poured (64834-0 manufactured byultr Supelco). min.	3 Bubbler	
	of 8 mm. Tube diameter in the mouts of 8 mm. Tube diameter in the diameter in the first of the mouts of the m	Z Joint	
with fragrance free mild detergent and let	shall be 3 to 4 b without considering with fragrance whe sample volume (4-5627-04 free mild manufactured by As One Corporation), detergent and let	l .	extraction
etreat	ormance (ex. manufacturer,	No. Item Perf	

(2) Preparation of sample
Prepare 15 test pieces when using a 4-L container specified in Section 7.1.
If the calculation result is less than 1 cm², calculated surface area shall be used for the test piece dimension.

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8.3.3 Water Extraction

- (1) Heating of sample
- (a) Place the sample specified in Section 8.3.2 (2) in the stainless can shown
- (b) Heat using the dryer shown in Fig. 4. temperature in the dryer reached the specified temperature. the concerned parties. The heating duration shall be 4 h after the Table 7, the temperature shall be determined with reference to Table 7 by In Fig. 2 or Table 7. For portions that are not specified in Fig. 2 Heating temperature shall be as shown

(2) Sampling of component that emits smell

- (a) Pour 8 mL of non-smell distilled water in the bubbler shown in Fig. 4 and place the bubbler in the container with ice in it as shown in Fig. 4.
- (b) One hour after the temperature in the dryer reached the specified the component that emits smell in the distilled water. temperature, operate the pump shown in Fig. 4 at a rate of 1 1/min and sample Sampling duration
- (c) Three hours after sampling, stop the pump, remove the bubbler from the test smell test. equipment, seal the opening with a sealing tape, etc., The maximum storage period shall be 24 h after sampling. and store until the

8.3.4 Smell Test

(1) Preparation of bag

Prepare a new bag listed in Table 10 for the test. Use 1 bag for at most 2 panelists, which means 3 bags for 5 panelists.

(2) Preparation of standard smell

to the following concentration and use the solution as standard smell. When the acetic acid concentration is 0.05 mass%: smell intensity 3, pleasantness/unpleasantness -1.5
When the acetic acid concentration is 0.005 mass%: smell intensity 2, pleasantness/unpleasantness -1 Dilute the acetic acid reagent listed in Table 10 with distilled water up

(3) Pouring of sample

sleeve using a silicon rubber cap etc. and leave under room temperature for emits smell is sampled into the bag. Use a syringe and drop 2 mL water in the bubbler where the component that Do the same way for the standard smell too. Fill 2.2 L of N₂ gases and block the

(4) Smelling

comes off the bag. It may be good to slightly move the bag in the horizontal direction so that the smell from the bag reaches the panelist nose. smelllevels. Smell the sample and evaluate according to the evaluation sheet shown in Attached Table 1. The number of panelists shall be 5 or more. When smelling, keep the distance between the sleeve of the bag and the panelist's nose to 3 to 4 cm. Lightly press the bag by hand and smell the odor that First, all panelists should smell the standard smell and synchronize the

(5) Summary of results

Summarize the results as specified in Section 9.

NOTES: The recipient of this standard shall undertake the following confidentiality abligations upon the receipt of this recipient shall discused by streeting or try, or restore to Torpes holder Compression II appropriate, the decreased of the recipient of the standard of the close to the transfer of the standard of the compression of the standard of the compression of the compression of the standard of the compression of the c take the following coefidentially extigations upon the resist of this Established/5 Revised:

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8.4 Smell Test for Combined Parts

of each part, parties concerned shall have a discussion separately. components of each part, part components of each vehicle, and degree of influence shall be instrument panel, head lining, door trim, combination of seat and package of test piece shall conform to Section 7.1. deck board. combined smell shall be conducted by placing multiple parts Parts used for test and portions from which the test pieces are taken If reconsideration seems necessary after considering Dimensions

8.4.1 Initial Smell

Tests for initial smell shall be conducted by the following steps

- Pretreatment of test piece
- (a) Place the test piece in the container specified in Section 4.2.
 (b) Apply distilled water that is equivalent to 5 % of the test piece in weight a líd. over the test piece as uniformly as possible and cover the container with
- (2) Heating test piece
- (a)Place the container in a drying machine and heat it at 60 $ilda{ ilda{C}}$ for 2 h.
- (b) After heating, take the container out of the drying machine and cool it until it reaches room temperature.
- (3) Smell level setting: The same as specified in Section 8.1.1 $\{2\}$
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).

8.4.2 Smell after Aging

Tests for smell after aging shall be conducted by the following steps.
(1) Pretreatment of test piece

- (a) Place the test piece in the container specified in Section 4.2. At this time, 다 container shall not be covered.
- (c) After heating, take the container out of the drying machine, cool it until (b) Place the container in a drying machine (20) and heat it at 80 °C for 96 h.
- it reaches room temperature, and cover it with a lid.

 (d) Apply distilled water that is equivalent to 5 % of the test piece in weight over the test piece as uniformly as possible and cover the container with a lid.
- (2) Heating test piece
- (a) Place the container in a drying machine and heat it at 60 $^{\circ}$ for 2 h. (b) After heating, take the container out of the drying machine and cool until it reaches room temperature.
- (3) Smell level setting: The same as specified in Section 8.1.1 (2).
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).

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- 8.5 Smell Test for Indirect Materials under Dry Condition
- 8.5.1 Initial Smell

Tests for initial smell shall be conducted by the following steps.

- (1) Heating test piece
- (a) Place the test piece specified in Section 7.1 in the container specified in Section 4.2, and cover the container with a lid.
- (b) Place the container in a drying machine and heat it for 1 h. heating temperature shall be decided through discussion among parties concerned with reference to Table 8. shall conform to Fig. 2. and material, or drawing. temperature shall be in accordance with the standards of respective part For parts which are not described in Fig. 2, a If there is no specification, the temperature A heating
- (c) After heating, take the container out of the drying machine and cool it until it reaches room temperature
- (2) Smell level setting: The same as specified in Section 8.1.1 (2).
- (3) Smelling: The same as specified in Section 8.1.1 (3).(4) Results evaluation: The same as specified in Section same as specified in Section 8.1.1 (4).

8.5.2 Smell after Aging

Tests for smell after aging shall be conducted by the following steps

- Pretreatment of test piece
- (a) Place the test piece specified in Section 7.1 in the container specified in Section 4.2. ž this time, the container shall not be covered
- (b) Place the container in a drying machine $^{(20)}$ and heat it at 80 $^{\circ}$ for 96 h.
- (c) After heating, take the container out of the drying machine, cool it until it reaches room temperature, and cover it with a lid.
- (2) Heating test piece
- (a) Place the container in a drying machine and heat it for concerned with reference to Table 8. heating temperature shall be decided through discussion among parties and material, or drawing. If there is no specification, the temperature shall conform to Fig. 2. For parts which are not described in Fig. 2, a temperature shall be in accordance with the standards of respective part A heating
- (b) After heating, take the container out of the drying machine and cool it until it reaches room temperature.
- (3) Smell level setting: The same as specified in Section 8.1.1 (2).
- (4) Smelling: The same as specified in Section 8.1.1 (3).
- (5) Results evaluation: The same as specified in Section 8.1.1 (4).

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Results Evaluation

Intensity, pleasantness/unpleasantness, and sensory nature of smell shall be evaluated by filling in the evaluation sheet shown in Attached Fig. 1. Bodily sensation and material smell shall be evaluated as necessary. The smell shall be calculated to one decimal place by round-off.) Calculate the nature of smell assuming that ${\bf O}$ is 3, ${\bf O}$ is 2, and ${\bf A}$ is 1, and express the result by as the mean value of the panelists engaged in the evaluation. Use Attached Fig. 2 for evaluating results and the results shall be expressed intensity and pleasantness/unpleasantness level shall be evaluated in $0.5\,\mathrm{mits}$. the mean value of panelists. (The mean value

giest shall dispard by simplifying or list, or rectors to Toyola Motor Carparation if againstripts, the deciments of the sandard when they are so longer necessary doe to the tembration of the order constraint or the sandard or the statement of the sandards.

If the sand the sandard information related thereto are opposed by and statement and toyola become of the sandards information related the sandards of toyola the sandards of the sandards. dard shall andersake the ballowing confidentiality colligations upon the norths of this Established/5 Revised:

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Remark: Sensory nature of Sour smell Sweet smell Burned smell Burned smell Irritating smell Irritating smell Irritating smell Rotten smell Rotten smell Rotten smell Rotten smell Rotten smell	O Benderty nature of an Bour small Enset small Number of an I limited small Notice small Notice small Notice small	Attached Fig. 1 Smell Square Name
Sensory nature of smell Example Sour smell Vinegary smell, citrus smell Syect smell Standard smell D, vanilla extract smell Sweet smell Smell of burned paper or wood Burned smell Smell of dust or powder in the air Irritating smell Thinner, formaldshyde, and ammonia smell Irritating smell Raphthalene and thinner smell Aromatic smell Residentally solutions upon the merical this Fishy smell Snoked squid and (unfresh) fishy smell Rotten smell Garbage smell	Ocdas Ocdas Ocdas Ocdas Ocdas Ocdas Occarial Occarial Occarial Occarial A bomendati A	Date of test Year/Nonth/Day Test piece but to the test and apply round marks to combers corresponding to the intensity immentures of the smell. 5 Stronger than standard smell (strong smell) 5 A little extensive than standard smell (strong smell) 7 A little waster than standard smell (strong smell) 8 A little waster than standard smell (smell recognitable smell) 9 A little waster than standard smell (smell recognitable smell) 1 Wary pleasant 1 Wary pleasant 1 Nather upleasant nor upleasant 1 Nather upleasant (the same level of upleasantness as standard smell) 1 Pleasant (ste same level of upleasantness as standard smell) 1 Wary upleasant 1 Nather upleasant 1 Nather upleasant 2 Pleasant (ste same level of upleasantness as standard smell) 1 Wary upleasant 2 Pleasant (ste same level of upleasantness as standard smell)

Attached

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Year/Month/Day

conditions eamporition Test Ameli Test Results TC #180 **9** 800 Part No. anvironmen Toot alto Part name Test portion (Spec. value) Papeller. Cleanery nature of small? Intensity () of lead} Pleasantness/unpleasantness (-1.5 or core) Sensory nature | Sour of swell Breet hurned Timby : Dusty Irritating (I or less) Arosatio Fishy (1 or less) Rottma Irritation Bodily Aicing credilly sensections semestion Mose refreshing Makes head drawsy Makes bead dirry **Mauseating** Makes one cough Eye irritating Typ irritations Throat refreshing Macorial smell Plantic Eubbor "Hitesy beed dissy Vinylchloride/plasticizer Thinner/solvent Personal Page PAARE. Czethane/e=10= Yar/suphalt Cloth/felt Leather

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