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AUTOMOBILE INDUSTRY STANDARD
OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 43.020

T 40

QC/T 1029-2016

**Polypropylene(PP) cellular
board production for vehicles**

汽车用聚丙烯蜂窝板制品

Issued on: January 15, 2016

Implemented on: July 1, 2016

**Issued by: Ministry of Industry and Information Technology of the
People's Republic of China**

Annex:

**Standard Numbers, Names, Starting Dates
of Implementation for 7 Automotive Industry Standards**

SN	Standard Numbers	Standard Names	Replaced Standard Numbers	Starting Date of Implementation
215	QC/T 1025-2016	Performance Requirements and Bench Test Methods of Automatic Transmission Oil Pump		July 1, 2016
216	QC/T 1026-2016	Performance and Determination of PVC Slush Skin of Automotive Instrument Panel		July 1, 2016
217	QC/T 1027-2016	Technical Requirements for Film Mounted Motor Vehicle Glass		July 1, 2016
218	QC/T 1028-2016	Performance Requirements and Test Methods of Vehicle Vacuum Check Valve		July 1, 2016
219	QC/T 1029-2016	Polypropylene (PP) Cellular Board Production Vehicles		July 1, 2016
220	QC/T 1030-2016	Bus Push-Out Emergency Window		July 1, 2016
221	QC/T 678-2016	Pneumatic Driving Pump of Passenger Door of Bus	QC/T 678-2001	July 1, 2016

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Polypropylene(PP) cellular board production for vehicles

1 Scope

This Standard specifies general requirements, performance requirements, test methods, inspection rules and storage requirements of polypropylene (PP) cellular board product for vehicles.

This Standard is applicable to double or triple layer polypropylene cellular board product such as car roof, side rear cover, luggage cover.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 2918-1998, *Plastics - Standard atmospheres for conditioning and testing*

GB 8410, *Flammability of automotive interior materials*

GB/T 9341-2008, *Plastics - Determination of flexural properties*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 substrate

double or triple layer polypropylene cellular board product without composite fabric

3.2 the composite sheet

polypropylene cellular board product that decorative fabric is combined with the substrate

6.6.1 Sample

Take 5 pieces of 120mm × 10mm samples on the product. The sample thickness is the part thickness.

6.6.2 Test equipment

Tensile machine with a precision of level one.

6.6.3 Test steps

Accurately measure the width and thickness of the specimen with a caliper with an accuracy of 0.02 mm or more. Test according to the provisions of GB/T 9341-2008. The indenter radius is 5 mm, the span is 16 times the thickness of the sample, and the test speed is (2.0 ± 0.4) mm/min. Double-layer polypropylene cellular board head presses on the flat side.

6.7 Resistance to coldness and heat

6.7.1 Sample

3 pieces of products.

6.7.2 Test equipment

Thermostatic oven, low temperature box, humidity box or high and low temperature humid heat box; temperature accuracy is controlled at $\pm 2^{\circ}\text{C}$, humidity accuracy is controlled at $\pm 5\%$.

6.7.3 Test steps

Perform 4 cycles of tests when product in under assembly state, of which $(80 \pm 2)^{\circ}\text{C}/3\text{ h} \rightarrow \text{RT}/1\text{ h} \rightarrow (-40 \pm 2)^{\circ}\text{C} / 3\text{ h} \rightarrow \text{RT}/1\text{ h} \rightarrow (55 \pm 2)^{\circ}\text{C}, 95\%\text{RH}/15\text{ h} \rightarrow \text{RT}/1\text{ h}$ is one cycle (RT refers to room temperature). Observe the appearance change after the test.

6.8 Heat aging resistance

6.8.1 Sample

3 pieces of products.

6.8.2 Test equipment

Thermostatic oven, temperature accuracy is controlled at $\pm 2^{\circ}\text{C}$.

6.8.3 Test steps

Take 3 pieces of products. Accurately measure the main assembly size or outer

Take 5 pieces of 250mm × 50mm samples on the product. Strip 100 mm at one end.

6.12.1 Test equipment

Tensile machine, the accuracy is one level; thermostatic oven, low temperature chamber, humidity chamber, temperature accuracy is controlled at $\pm 2^{\circ}\text{C}$, and the temperature accuracy is controlled at $\pm 5\%$.

6.12.3 Test conditions

- a) Delivery state:
- b) Resistance to coldness and heat: perform 4 cycles of tests, of which $(80 \pm 2)^{\circ}\text{C}/3\text{ h} \rightarrow \text{RT}/1\text{ h} \rightarrow (-40 \pm 2)^{\circ}\text{C} / 3\text{ h} \rightarrow \text{RT}/1\text{ h} \rightarrow (55 \pm 2)^{\circ}\text{C}$, 95%RH/15 h $\rightarrow \text{RT}/1\text{ h}$ is one cycle;
- c) Heat resistance: $(80 \pm 2)^{\circ}\text{C} / 168\text{h}$;
- d) Coldness resistance: $(-40 \pm 2)^{\circ}\text{C} / 24\text{h}$.

6.12.4 Test steps

Place the sample treated according to the above test conditions at room temperature for 2 h. After the decorative fabric is peeled off from the substrate, one end of the substrate is clamped on the clamp on the tensile machine, and one end of the decorative fabric is clamped on the clamp under the tension machine. Perform the 180° peel test with professional fixture at (100 ± 10) mm/min. Measure the maximum load at the time of peeling and record the 50-mm wide sample peel force. Take the average value of the results of the five samples as the test result, in one after the decimal point.

7 Inspection rules

7.1 Testing frequency and project

The testing of cellular board product shall determine the inspection frequency and project according to quality control requirements.

7.2 Re-inspection

When one of the following conditions occurs, it shall be fully tested in accordance with this Standard.

- a) continuous production for more than half a year;
- b) technique conditions change;

Annex A

(normative)

Odor test specification

A.1 Test devices, test conditions

A.1.1 Sample

The sample shall be prepared as much as possible in a considerable area or volume. A 50 cm² sample shall be cut from the part.

A.1.2 Test devices

Electric blast drying oven, temperature accuracy is controlled at $\pm 2^{\circ}\text{C}$. Use glass closed container with a volume of 1 L. The container must be cleaned and dried before each test to ensure that the container is clean and tasteless. It is recommended to use a glass container with a screw cap.

A.1.3 Test conditions

Method A: $(40 \pm 2)^{\circ}\text{C}$, add 50 mL of distilled water to the container, store (24 ± 1) h, support the sample with a metal bracket to ensure that the sample does not touch the water.

Method B: $(80 \pm 2)^{\circ}\text{C}$, store (2 ± 0.1) h.

NOTE: Method B is a rapid test method. Under normal circumstances, the odor at 80°C is greater than the odor at 40°C . If the part is considered to be in a warm condition, no toxic or odor shall occur, then the test of Method A may not be performed.

A.2 Test steps

Place the cut sample into a closed container and test it according to Method A and Method B specified in A.1.3. After taking out, the smell shall be evaluated as follows. The evaluation environment shall meet the requirements of GB/T 2918-1998.

For Method A: after the test container is taken out of the dry box, the first full-time inspector opens the lid $30^{\circ} \sim 45^{\circ}$ on one side and sniffs the lid quickly to ensure that the container is closed, then passes the container to the second full-time inspector; the second full-time inspector shall pass the container to the third full-time inspector for assessment. Each full-time inspector shall give an evaluation score immediately after the smell.

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