

FMVSS 302 Flammability test for motor vehicle interiors

The test method

Federal Motor Vehicle Safety Standards (FMVSS) are U.S. federal regulations. Standard FMVSS 302 relates to the burning behaviour of materials used inside road vehicles such as passenger cars, trucks, buses and agriculture machinery. It was developed to help reduce deaths and injuries to occupants caused by vehicle fires, especially from discarded cigarettes and matches. Most automotive OEMs specify flammability testing based on FMVSS 302 and technically equivalent OEM standards.

The test sample is held horizontally in a U-shaped holder and exposed to a flame for 15 seconds in a combustion chamber, in order to see if/when the flame extinguishes, or the time taken for the flame to pass a defined distance. The burning rate per minute is then calculated. For most automotive applications, a burning rate of no more than 100 mm/min is acceptable, although some vehicle manufacturers have tightened the requirements.

The test protocol described in FMVSS 302 can be used for testing label materials individually, or when applied to substrates.



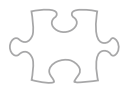
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Tested materials

Avery Dennison offers a range of materials that, when tested on their own, meet FMVSS 302 flammability requirements.

| Product Code | Product Description | Burning rate (mm/min) | |
|--------------|--|-----------------------|-----------------|
| | | Machine direction | Cross direction |
| BF481 | Transfer PO White - S8020 - BG42wh | 0 | 0 |
| BF483 | Transfer PO Clear - S8020 - BG42wh | 0 | 0 |
| AA648 | PVC Outdoor White - AL170 - BG42wh | 0 | 0 |
| AA948 | PVC Outdoor Matt White - AL170 - BG42wh | 0 | 0 |
| AZ880 | PVC Outdoor Clear - AL170 - BG42wh | 0 | 0 |
| AW627 | PVC Outdoor Matt Clear - AL170 - BG42wh | 0 | 0 |
| AE492 | PVC Outdoor Yellow - AL170 - BG42wh | 0 | 0 |
| AE357 | Transfer PVC 50 Cast White - S8065 - BG50wh | 0 | 0 |
| AI995 | Transfer PVC 50 Cast Clear - S8065 - BG50wh | 69 | 64 |
| AE416 | Transfer PVC 50 Cast Silver - S8065 - BG50wh | 0 | 0 |
| AE359 | Transfer PVC 50 Cast Yellow - S8065 - BG50wh | 0 | 0 |

In addition, several materials have been tested successfully to FMVSS 302 standards when they have been applied full surface to slow burning plastic panels used in the automotive industry.

For the tests the following panels were used:

Lanxess Durethan BKV30H2.0; Color: 901510, caliper: 3 mm, with a burning rate of 4,1 mm/min.

| Product Code | Product Description | Burning rate (mm/min) |
|---------------|---|-----------------------|
| | Of label material tested in combination with Lanxess Durethan BKV30H2.0 | |
| AA642 | Transfer PET white TOP – AL170 | 17,2 |
| AA670 | Transfer PET white TOP – S8015 | 13,6 |
| AJ059 | Transfer PET white TOP – S8049 | 14,4 |
| AF030 | Transfer PET matt white TC6 – S8001 | 8,2 |
| AA145 | Transfer PET matt white – AL170 | 16,6 |
| AF032 | Transfer PET matt chrome TOP – S8001 | 13,4 |
| AD221 | Transfer PET matt chrome TOP – S8030 | 4,9 |
| AA146 | Transfer PET matt silver – AL170 | 10,7 |
| AA642 + AC747 | Transfer PET white TOP – AL170 laminated with Overlam PET 25 matt – AL170 | 13,1 |
| AJ059 - AC747 | Transfer PET white TOP – S8049 laminated with Overlam PET 25 matt – AL170 | 8,6 |

All listed materials burnt at a rate far below 100 mm/min and thus pass the requirements of FMVSS 302, when tested in combination with a slow burning plastic panel as described.

For further information please look on our website or contact your Avery Dennison sales representative.

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Label and
Packaging Materials

North Asia
5th Floor, Hongye Park
1801 Hongmei Road,
Xuhui District 200233,
Shanghai, China
+86 21 33951888

**South Asia Pacific and
Sub-Saharan Africa**
460 Alexandra Road
#28-02/03
Singapore 119963
+65 6430 7000

Europe
Willem Einthovenstraat 11
2342 BH Oegstgeest
The Netherlands
+31 85 000 2000

Latin America
Rodovia Vinhedo-
Viracopos, KM 77
CEP 13280-000
Vinhedo - SP, Brazil
+55 19 3876-7600

North America
8080 Norton Pkwy
Mentor, OH 44060
800.944.8511