



**Summary of Substantive Changes  
between the 2014<sup>e2</sup> and the 2017 editions of  
ASTM D4101, “Standard Classification System and Basis for Specification for  
Polypropylene Injection and Extrusion Materials”**

**Presented to the IAPMO Standards Review Committee on February 11, 2019**

**General:** Changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Added a footnote to table PP, Requirements for Unreinforced Polypropylene to replace groups 02 and 03 with 05 (see Table PP)
- Removed the rejection and reheating of material that fails to conform to the requirements of the Standard (see Section 15)
- Removed Flammability test and rewrote footnote E in non-mandatory Table X1.1 to clarify the condition of exposure time (see Table X1.1)

Table PP, Requirements for Unreinforced Polypropylene: Added a footnote to table PP, Requirements for Unreinforced Polypropylene to replace groups 02 and 03 with 05 as follows:

<sup>A</sup>Nominal flow rate is as supplied by the manufacturer of the material. Maximum allowable tolerance =  $\pm 30\%$  per individual lot.

<sup>B</sup>Test specimens are unannealed Test Method D638, Type I tensile bars and shall be tested at 50 mm/min when the material is one that shows a breaking strain greater than 10 %, or at 5 mm/min when the material breaks at a strain equal to or less than 10 %.

<sup>C</sup>MPa  $\times 145 =$  psi.

<sup>D</sup>Test specimens are the center of the unannealed Test Method D638, Type I tensile bars with a nominal 3.2 by 12.7-mm cross section. Span is a nominal 50 mm. Rate of crosshead is 1.3 mm/min using Method I. Report 1 % secant based on strain.

<sup>E</sup>Test specimens are nominal 3.2 mm in width and are at the center section of unannealed Test Method D638, Type I tensile bar.

<sup>F</sup>J/m = ft·lbf/in.  $\times 53.38$ .

<sup>G</sup>Test specimens are nominal 3.2 by 12.7-mm cross section and shall be unannealed.

<sup>H</sup>Minimum values are based on testing the material by Test Method D648, Method A (test span 101.6 mm).

[Both of these groups have been replaced by Group 05. Appendix X2 contains the cell classification values for these two groups from the old Table PP and can be used for materials previously classified with these groupings. All new materials shall be called out using the Group 05 classification above.](#)



Section 15, Rejection and Reheating: Removed the rejection and reheating of material that fails to conform to the requirements of the Standard as follows:

**~~15. Rejection and Reheating~~**

~~15.1—Material that fails to conform to the requirements of this specification may be rejected. If any failure occurs, the materials may be retested to establish conformity. Rejection shall be reported to the supplier promptly and in writing. In case of dissatisfaction with the results of the test, a claim for a reheating may be made.~~

Table X1.1, Test Methods and Conditions: Removed Flammability test and rewrote footnote E in non-mandatory Table X1.1 to clarify the condition of exposure time as follows:

~~3.7—Flammability—D635—127 by 12.7 by 3.2—Injection—mm/min—FA  
D2863—127 by 6.5 by 3.2—Injection—%—FB  
D3801—127 by 12.7 by 3.2—Injection—s—FC—Generate rating based  
on burning time and glow time  
MVSS 302—355 by 102 by 1.25—Injection—mm/min~~

<sup>E</sup>~~The minimum exposure time shall be that necessary to produce a statistically significant change in the property measured, that is for example, tensile strength, impact resistance or color, in the least stable material being evaluated in a product that has been found to be unsuitable for the application due to poor weatherability. The exposure required depends on the material and its application. An exposure time that produces a significant change in one type of material cannot be assumed to be applicable to other types of materials. Exposure conditions shown in the table are to be regarded as nominal.~~