

ABSpro™ - Flame Retardant

ABSpro - Flame Retardant is a professional, halogen free, self-extinguishing filament which is engineered to meet the UL 94 V-0 flammability standards, meaning that the vertical burning of the filament, or 3D printed object, stops within 10 seconds.

The mixture used for our ABSpro - Flame Retardant Black compound contains a high percentage of PolyCarbonate, ABS and added halogen-free flame retardant modifiers. Even though the compound contains a high percentage of PolyCarbonate, the flame retardant modifiers allows the filament to be printed at relatively low temperatures.

Flame retardancy test procedures

Our ABSpro Flame Retardant filament is engineered to meet UL 94 V-0 standards. The ABSpro Flame Retardant material/filament thus meet the UL 94 V-0 standards based on below followed internal test procedure.

Specimen

Length 125 mm (5 in) x Width 13 mm (0.5 in) x Thickness [typically 0.7 mm (1/32 in) or 1.5 mm (1/16 in) or 3.0 mm (1/8 in)].

Procedure

1. A total of 10 specimens (2 sets) are tested per thickness.
2. Five specimens of each thickness are tested after conditioning for 48 hours at 23 degrees C and 50% RH.
3. Five specimens of each thickness are tested after conditioning for 7 days at 70 degrees C.
4. Each specimen is mounted with long axis vertical
5. Each specimen is supported such that its lower end is 10 mm above Bunsen burner tube.
6. A blue 20 mm high flame is applied to the center of the lower edge of the specimen for 10 seconds and removed. If burning ceases within 30 seconds, the flame is reapplied for an additional 10 seconds. If the specimen drips, particles are allowed to fall onto a layer of dry absorbent surgical cotton placed 300 mm below the specimen.

Requirements for V-0

1. The specimens may not burn with flaming combustion for more than 10 seconds after either application of the test flame.
2. The total flaming combustion time may not exceed 50 seconds for the 10 flame applications for each set of 5 specimens.
3. The specimens may not burn with flaming or glowing combustion up to the holding clamp.
4. The specimens may not drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.
5. The specimens may not have glowing combustion that persists for more than 30 seconds after the second removal of the test flame.

Requirements for V-1

1. The specimens may not burn with flaming combustion for more than 30 seconds after either application of the test flame.
2. The total flaming combustion time may not exceed 250 seconds for the 10 flame applications for each set of 5 specimens.
3. The specimens may not burn with flaming or glowing combustion up to the holding clamp.
4. The specimens may not drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.
5. The specimens may not have glowing combustion that persists for more than 60 seconds after the second removal of the test flame.

Requirements for V-2

1. The specimens may not burn with flaming combustion for more than 30 seconds after either application of the test flame.
2. The total flaming combustion time may not exceed 250 seconds for the 10 flame applications for each set of 5 specimens.
3. The specimens may not burn with flaming or glowing combustion up to the holding clamp.
4. The specimens can drip flaming particles that ignite the dry absorbent surgical cotton located 300 mm below the test specimen.
5. The specimens may not have glowing combustion that persists for more than 60 seconds after the second removal of the test flame.

Please note that testing procedure is applied to ABSpro Flame Retardant specimen as described in the “Specimen” paragraph and that the test results for these specimen meet the requirements for the V-0 rating.