PRODUCT BULLETIN

April 2020

FIREBLOCK™ 2330 Series

Flame-Retardant Gel Coat

DESCRIPTION

FIREBLOCK™ 2330 Series are unpromoted flame-retardant gel coats formulated for use as in-mold coatings for composites manufacturing. FIREBLOCK™ 2330 Series, when used in combination with NORSODYNE™ FIREBLOCK™ resin products, allows manufacturers to fabricate composites parts that meet requirements for a variety of markets, including transportation, building, architecture and construction. No fillers or additives required to achieve flame-retardant or smoke properties.

FIREBLOCK™ 2330 Series gel coats, when used in combination with NORSODYNE™ FIREBLOCK™ H 81269 TF laminating resin, can meet the following:

- UL 94-2006 Plastics Flammability Standard, HB classification
- Docket 90A requirements for transportation applications, including ASTM E162-09 Surface Flammability, and ASTM E662-08 Smoke Generation
- ASTM E84-09 Class 1 for Building/Architecture/Construction

BENEFITS & FEATURES

- Meets the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for Boat Manufacturing and Reinforced Plastic Composites Production
- Meets SCAQMD 1162 requirements
- Compliant with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2008 (RoHS Regulations)
- For use in interior or exterior, non-water immersion applications (1)
- Available in limited colors, primarily white and light gray. Contact your Polynt-Reichhold Sales or Technical Assistance representative for more information.
- Unpromoted and requires the addition of a promoter for proper cure

Note:

(1) For exterior applications, color change and chalking of the surface may be observed. To prevent these surface changes, Fireblock™ 2330 Series gel coats should be protected with a premium grade, exterior UV resistant coating.

PROPERTIES – LIQUID

Property[1]	Unit	2330
Flash Point	°F	88
Weight per Gallon	lbs	12.0
Viscosity[2]	cps	13,000
Thix Index (2/20)	-	7.0
Gel Time[3]	minutes	12
Sag Resistance	mils	Good at 30
Hide	mils	Typically complete at 20-28 depending on color
Tack Free/Dull Gloss Time	minutes	60-90

1) All properties at 25°C/77°F unless otherwise noted
2) Brookfield Viscometer RVF spindle #4 at 4 RPM
3) 100 g mass, 0.09% Cobalt-12, 1.8% Arkema Luperox® DDM-9

PROPERTIES - OTHER

U.S. Standards

Test	FIREBLOCK™ 2330PAWK745	
UL 94 Standard Test for Flammability of Plastic Materials for Parts in Devices and Appliances—MB-349[1][2]	HB Rating	
ASTM E162-08 Surface Flammability of Materials using a Radiant Heat Energy Source—MB-350[1][2]	Flame Spread Index, I_s = 5.82	
ASTM E662 Optical Smoke Density—MB-350[1][2] Specific Optical Density (D_s) at 1.5 min Specific Optical Density (D_s) at 4.0 min	Flaming D_s = 1 D_s = 43	Non-Flaming D_s = 1 D_s = 8
ASTM E84 Standard Method of Test for Surface Burning Characteristics of Building Materials—MB-351[1][2] (NORSODYNE™ FIREBLOCK™H 82169 TF Laminating Resin)	Flame Spread – 20	
	Smoke Developed – 300	
	Rating - Class 1	
ASTM E84 Standard Method of Test for Surface Burning Characteristics of Building Materials—MB-351[1][3] (Dion® FR 7704 laminating resin with 9% MMA and 50% RJ Marshal Maxfil 100)	Flame Spread - 10	
	Smoke Developed 100	
	Rating Class 1	

1) Laminate configuration will affect test performance. Contact Polynt for the specific laminate configurations used to generate these test results
2) Sample preparation: POLYCOR® FIREBLOCK™ 2330PAWK745 with 0.09% Polycor® 970C903 (12% Cobalt Octoate) and 1.5% Arkema Luperox® DDM-9 catalyst; spray applied to 20 mils wet. NORSODYNE™ FIREBLOCK™H 82169 TF laminating resin with Polycor® 970C903 12% Cobalt Octoate and 1.5% Arkema Luperox® DDM-9; 4 plies of CCM2000 CSM 2.0 oz., 4 hours post-cure @ 150°F
3) Sample preparation: POLYCOR® FIREBLOCK™ 2330PAWK745 with 0.09% Polycor® 970C903 (12% Cobalt Octoate) and 2% Arkema Luperox® DDM-9 catalyst; spray applied to 25 mils wet. Dion® FR 7704 with 9% MMA and filled 50% with RJ Marshal Maxfil 100. Filled mix initiated with 1.5% United Initiators MEC-EX. Laminate reinforcement Jushi glass fiber gun roving chopped to 1-2 in. lengths. Glass to resin ratio 31-32%. Laminate cured at room temperature.

Flammability test results for laminates fabricated with FIREBLOCK™ 2330PAWK745 and either NORSODYNE™ FIREBLOCK™ H 81269 TF or Dion® FR 7704 laminating resins are provided above. Test results for actual parts will vary depending on their structure and conditions of use. Each fabricator should verify the performance of FIREBLOCK™ 2330 Series gel coats in their specific application to ensure compliance with applicable national and international industry codes and insurance standards.

International Standards

Country	**Standard**	**FIREBLOCK™ 2330PAWK745**
European Union	EN 45545	HL3
United Kingdom	BS 476, Part 6 • BS 476, Part 7 • BS6853	Class 0 • Class 1 • Cat. 2
France	NF P 92-507 • NF F 16-101	M1 • F1
Spain	UNE 23727	M1 • F1
Germany	DIN 5510	S4 • SR2 • ST2

APPLICATION

FIREBLOCK™ 2330 Series gel coats must be mixed prior to use. Ingredients in the FIREBLOCK™ 2330 Series will settle during storage. Failure to thoroughly reincorporate these ingredients will compromise the flame-retardant properties of the end product.

FIREBLOCK™ 2330 Series are un-promoted. Promoter must be added for the product to cure properly.
WARNING - Never mix a cobalt solution and peroxide catalyst together as this will result in an explosive situation. Cobalt should always be well mixed into resin prior to adding any peroxide catalyst, like Luperox® DDM-9.

	Gel Time[1]
Formula Ingredient	12 minutes
POLYCOR® 970C903[2]	0.09%
Luperox® DDM-9	1.8%

[1] Gel time data is for 100 g mass samples at 77°F.
[2] Cobalt solutions having concentrations of 6% or 12% may be substituted for POLYCOR® 970C903. When using a 6% cobalt solution, you must double the recommended level of POLYCOR® 970C903.

Once the promoter has been added, the mix should be used within the same day. After 24 hours, the mix may have extended gel times and may not cure correctly. This could compromise the flame-retardant properties.

To avoid pre-release Polynt recommends that manufacturers use paste-wax mold release and apply the backup laminate as soon as possible after the FIREBLOCK™ 2330 Series gel coats become tack-free.

The preferred method of patching FIREBLOCK™ 2330 Series gel coats is to use the FIREBLOCK™ 2330 product no diluents or additives other than MEKP peroxide initiator. This yields the best results for both initial patch appearance and FR performance. Use of FC PATCHAID® 970C961 as an overspray is recommended to seal the open side of spray patches for improved patch cure and sand ability. If circumstances require the gel coat to be thinned for spray patch application, mix 2-5% of FC PATCHAID® 970C961 into the gel coat prior to spray.

Refer to Polynt's Composites Applications Guide ("Cookbook") for equipment, application and repair recommendations. Each user must determine the suitability of this product to his/her particular mode of operation and intended end-use application. A Polynt representative will be available to assist in the proper selection of all Polynt-Reichhold products available for commercial use.

SHELF LIFE & STORAGE

The shelf life of FIREBLOCK™ 2330 Series is 120 days from the date of manufacture from Polynt. To maximize usage life and maintain optimum properties, resins and gel coats should be stored in the original closed container at temperatures below 23°C/73°F and away from ignition sources and sunlight. Keep containers sealed to prevent moisture pick-up and monomer loss.

RELATED PRODUCTS

POLYCOR® 970C903 Promoter Solution

NORSODYNE™ FIREBLOCK™ H 81269 TF– Nonhalogenated Fire-Retardant Laminating Resin

NORSODYNE™ FIREBLOCK™ I 81268 F – Nonhalogenated Fire-Retardant RTM Resin

RELATED LITERATURE

MB-349 FIREBLOCK™ 2330PAWK745 Certified Laboratory Results for Electrical Applications

MB-350 FIREBLOCK™ 2330PAWK745 Certified Laboratory Results for Transportation Applications

MB-351 FIREBLOCK™ 2330PAWK745 Certified Laboratory Results for Building/Architecture/Construction Applications

MB-357 FIREBLOCK™ 2330PAWK745 Weathering Performance

FC PATCHAID® 970C961 SPRAYCURE™ TDS

NORSODYNE™ FIREBLOCK™ H 81269 TF TDS

SAFETY & WARRANTY

To receive a copy of our safety and warranty information, please email safetyandwarranty@polynt.com.