



Thetaproof™ PF-7000

Grease and Water Repellent for Food Contact paper

Overview

- Short-Chain Fluorochemical Technology (meets the goal of the US EPA 2010/2015 PFOA Stewardship Program)
- Imparts exceptional oil and grease repellency to paper and paperboard
- Can be applied by the size press, gravure or roll coating methods, or as internal sizing
- Imparts oil and water resistance through standard drying conditions
- Colorless and non-yellowing, does not affect texture, color, lubricity, air permeability or strength of the treated paper
- Compatible with starch and size components
- Imparts a sizing effect with water resistance
- Water-based, meeting all VOC Regulations with low VOC (less than 100g/L, as delivered) content
- FDA Compliant: 21§CFR 176.170 and 176.180 for All Foods; B-H, including microwave susceptor

Applications

- Paper and paperboard (including whiteboard)
- Classified for oven-heated and microwaveable packaging such as popcorn bags (including those with microwave susceptor) and fast food wrappers
- Recycled and bleached paperboard
- Light weight and business papers
- Molded pulp products, such as paper plates

Technical Information

Thetaproof PF-7000 is a partially fluorinated oil and grease resistant finishing treatment designed for paper and paperboard, and approved for Food Contact use with oven-heated and microwaveable packaging approvals.

Thetaproof PF-7000 has been specifically designed for low foaming ease of use, for application by either size press or coating external sizing, or wet end internal sizing methods.

Thetaproof PF-7000 is compatible with a wide range of nonionic, cationic and amphoteric sizing ingredients and paper modifying resins.

Environmentally responsible, Thetaproof PF-7000 is nonflammable and meets all current VOC regulations.

Formulary

Thetaproof PF-7000 can be used by either size press or coating external sizing, or wet-end internal sizing methods.

Use rates for Thetaproof PF-7000 per FDA guidelines limit application rates to result in not more than 1.2% of solids by weight of dry paper or paperboard.

For non-food contact uses, typical use levels are 1-5% as received for size press application and 0.5-1.5% solids based on dry pulp weight for wet-end processing.

The use of chelants such as EDTA should be avoided, as they adversely impact performance.

Typical Properties

PROPERTY	VALUE
Appearance	Clear to hazy, pale yellow to light brown liquid
Odor	Mild
Ionic character	Weakly cationic
Activity, %	20
Water solubility	Dispersible
pH (as is)	4.5±1.5
Density@25°C	1.10±0.02
Flash point	None (aqueous)
Storage	Protect from freezing*
Shelf life	12 months

Packaging and Handling

**Note: Product separates when thawed after freezing; thaw/mix thoroughly before use*

Thetaproof PF-7000 is available in:
275 gallon totes (Net Wt. 2205 lbs)
55 gallon plastic drums (Net Wt. 441 lbs)
5 gallon pails (Net Wt. 40 lbs)

Refer to Material Safety Data Sheet (MSDS) for information on the safe use, handling, and disposal of this product.

DOT Classification: Non-Regulated

Whether you're looking for a replacement product or an ingredient for a specific attribute, give us a call. We can provide assistance based upon your particular formulation requirements and composition; please feel free to contact us.

Please refer to back page for important information

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Regulatory

FDA Compliance:

Thetaproof PF-7000 is compliant under FDA Food Contact Applications 21§CFR 176.170 and 21§CFR 176.180 for treated paper or paperboard with all food types under conditions of use B through H, as well as in microwave susceptor applications.

Use and performance summary

Paper treated with Thetaproof PF-7000 has shown excellent oil resistance against general fats and oils, including heated oil.

In evaluations incorporating an ethylated starch following TAPPI T-454 (Turpentine test), Thetaproof PF-7000 treated paper samples consistently delivered results in excess of the 30 minute holdout required. At 2% Thetaproof PF-7000 (by weight as received) treatment, half of the treated samples achieved turpentine holdout for 24 hours when the coating was applied at 5 mils thickness.

External sizing method:

Typical use levels are 1-5% as received for size press application, and 0.5-1.5 g/m² for coating application, mixed with appropriate wetting and sizing agents. Standard drying conditions of 100-130°C are recommended.

Size press application	Wt. % as received			
	2.0	3.0	2.0	3.0
Thetaproof PF-7000	2.0	3.0	2.0	3.0
Oxidized starch (10%)	20.0	20.0		
Polyvinyl alcohol (10%)			10.0	10.0
Total	100	100	100	100
Wet pick-up, %	47	47	53	57
TAPPI kit	6	10	9	10
Cobb 60 (g/m ²)	24	15	15	15

Internal sizing method (wet end):

Typical use levels are 0.2-1.0 solids % based on dry pulp weight, added to the pulp slurry, appropriately diluted with water and mixed with desired starches and resins. Standard drying conditions of 100-130°C are recommended.

Wet-end application	Solids % based on dry pulp weight			
	0.5	0.75	0.5	0.75
Thetaproof PF-7000	0.5	0.75	0.5	0.75
Polyaminoamide-epichlorohydrin (PAE) resin			0.3	0.3
TAPPI kit	3	5	5	7
Cobb 60 (g/m ²)	32	26	32	16

General recommendations:

Determine compatibility of Thetaproof PF-7000 with co-treatment ingredients such as sizing and strengthening agents. Properly dilute ingredients with thorough mixing and apply directly. Apply sufficient heat with adequate ventilation for thorough dry/cure.

This information relates only to the specific material referred to herein and not to its use in combination with any other material or in any process, unless explicitly stated herein. Such information is, to the best of our knowledge and belief, accurate and reliable as of the date compiled; however, no warranty, guarantee or other representation is made as to its accuracy, reliability, or completeness, or regarding any liabilities arising from others' intellectual property rights. ID# 20131122