



Sustainable Solutions

HOLDOUT

Product Information

HOLDOUT is a water-based formulation containing zein that is used to impart oil and grease resistance to paper and paperboard. *HOLDOUT* is utilized as a replacement for fluorinated compounds and other oil based products utilized for oil and grease resistance.

HOLDOUT is designed to be applied in surface applications such as size presses and coaters.

HOLDOUT can be added as received, diluted with water, or mixed with solutions of surface sizing or coating additives such as starches, pigment, acrylic or styrene latexes, polyvinyl alcohol, and common rheology modifiers such as carboxymethyl cellulose or xanthan gum.

Optimal oil and grease resistance is obtained when the application is directed at maintaining surface orientation. In effect, maintaining the highest possible combination of solids and viscosity will produce the highest functional performance.

HOLDOUT has a shelf life of 6 months when stored in a closed container at room temperature.

HOLDOUT is freeze thaw stable.

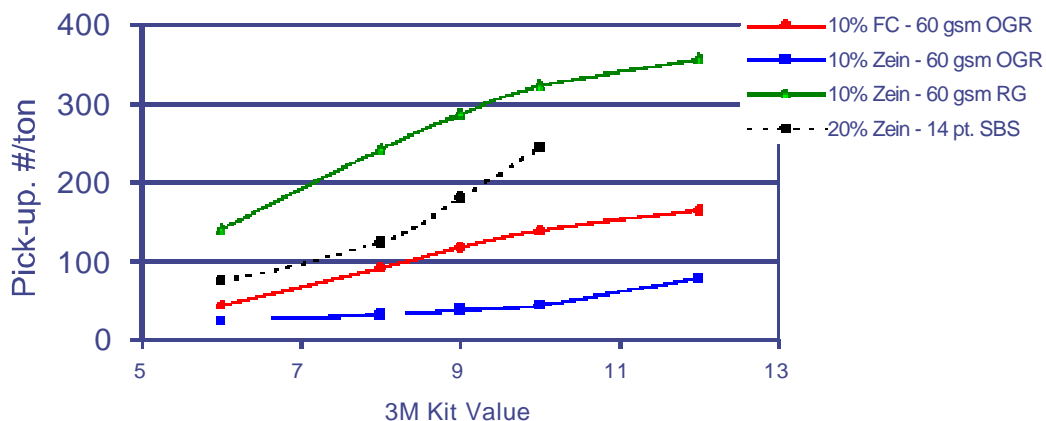
Suggested uses *for HOLDOUT* are fast food wrappers, deli paper, freezer paper, microwave popcorn bags, pet food bags, fast food containers, donut boxes, pizza boxes and liners and other applications where oil and grease resistance is required.

HOLDOUT is non-toxic, biodegradable, repulpable, and is based upon a renewable resource.

Typical Properties

Appearance	Amber/Yellow Viscous Solution
Active Ingredients	35-40%
Density (20°C)	1.1 g/ml
PH	6-7
Flash Point	None

HOLDOUT Performance



The above chart demonstrates the relative performance of the Company's zein product compared to the industry standard fluorocarbon product on three different base papers. OGR – oil and grease resistance – 60 grams per square meter basis weight – used for pet food bags, fried chicken bags and other aggressive grades. Recycled grades used for non-food contact papers like silicone release base. 14 pt board used for French fry containers, donut boxes, pastry boxes, etc.

Regulatory Status

A. FEDERAL REGULATIONS

TSCA Components are either listed or exempt from TSCA inventory requirements. None of the components are listed on any of the following: Health and Safety Reporting List; Section 12b of the Chemical Test Rules; SARA Title III Section 302, 304, 313; Title VI, Title III, Sections 112(r), Section 112(b) Clean Air Act; FWPCA, Hazardous Substances, Priority Pollutants, Toxic Pollutants.

OSHA	This product is not a "Hazardous Chemical" as defined in 29 CFR 1910.1200 or listed in Subpart Z.
FDA	The components of this product are either listed as G.R.A.S. (Generally Regarded As Safe) as direct food additives or approved for food contact in 176.170, 176.180.

B. STATE

None of the components of this product appear on any of the state lists from CA, PA, MN, MA, FL, or NJ. None of the components are listed in California Prop 65.

.C. INTERNATIONAL

CANADA None of the components of this product are on the Canadian DSL/NDSL list.
Not a "Controlled Product" under WHMIS

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability from the use or reliance upon said information. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no way shall Cerealus Holdings LLC or its subsidiaries be liable for any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Cerealus Holdings LLC or its subsidiaries has been advised of the possibility of such damages.



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