



APPERTA®

Apperta® 1833 and Apperta® 1832

Internal White Coating for Easy Open Ends



GRACE



Habanero, Jalapeño, Poblano, Ancho, Thai, Piquillo, Guindilla, Chipotle, Pasilla? No matter what chili pepper you pack, **Apperta®** coating system has the toughest white internal can coating available in the market to match your customers' food content aggressiveness.

White-pigmented enamels are one of the preferred interior coatings used for food metal packaging, as it generates a unique perception of cleanness and sanitization among end users. Unfortunately, white-pigmented coatings can be hard to handle as they are prone to generate high porosity values when used on top of metals that must withstand significant levels of deformation, such as easy open ends.

The inherent sensitivity of white coatings requires the need to apply high film weights, which may need up to three passes on the coating line. Additionally, until today, white-pigmented coatings were not first coating choice when expected to be in contact with aggressive food contents.

Apperta® Coating System Designed with the Challenge in Mind

Chili peppers, in spite of being alkali in nature, are generally packed in acidic vinegar and salt based solutions, which in interaction with the capsaicin released by the peppers is known for its intense corrosive attack against the lacquered lining of metal cans.

Customers attempting to pack chilies in white-lined cans must usually apply high film weights via three coating layers. In spite of this extreme protection, often the coating fails.

Apperta® 1833 and **Apperta® 1832** epoxy-based, solvent-based coatings are designed with this particular challenge in mind. The base coat and top coat system work to provide the most robust white-pigmented protection in the market. The two layer combination provides extreme flexibility and formability, good opacity, color coverage and most importantly, proven protection against the chemical attack of chilies and other aggressive food contents, including chicken broth and tomato-based products.

The system is intended for roller coating application on top of tinfoil and TFS. Refer to the Product Information sheet for further technical information.

Coating System Components – Overview

Product Name	Functionality	Chemistry	Color	Total Solids (%)	Viscosity Cup Ford #4 @ 25°C
Apperta® 1833	Base Coat	Epoxy Modified	White	38 ± 2	110 ± 10 s.
Apperta® 1832	Top Coat	Epoxy Modified	White	40 ± 2	140 ± 20 s.

Two Passes Instead of Three

This system is designed to perform optimally with a dry film weight of 17 grams/m²; equivalent to 11 mg/in². This dry film weight can be easily achieved in two passes, avoiding the need for a third protective layer. This means less oven time and faster throughput. We invite you to talk to your Grace representative to calculate the potential operational and applied cost savings of using **Apperta® 1833 and Apperta® 1832** Internal White Coating for Easy Open Ends.

Longer Shelf Life = Differentiation

Our accelerated pack tests show the excellent pack resistance of the **Apperta® 1833 and Apperta® 1832** system. Our methodology allows us to estimate an average shelf life of 3 years, which is higher than the shelf life of control samples when in direct contact with the same highly aggressive food contents.

Striking the Right Balance Between Formability and Flexibility

The superb performance of **Apperta® 1833 and Apperta® 1832** coating system is achieved by balancing extreme coating flexibility with good formability. The system has been designed to achieve 98% wedge bend flexibility whilst achieving excellent Erichsen cup performance both, before and after processing.

Picture 1 shows some of the lab work results with the **Apperta®** system Erichsen cups against earlier prototypes. Picture 2 shows the results of wedge and flexibility test after sterilization in saline solution, with the **Apperta®** system on top vs. different prototypes below.



Picture 1



Picture 2

The Key to Low Enamel Rating Values is a Thorough Protection of the Critical Areas

The pictures below show a detail of the rivet area of a lid coated with **Apperta®** system. On any FAEOE, the rivet area is considered the most critical and prone to failure due to the level of metal deformation. Our system, time over time has shown superior robustness in this area.

Usually high film weights generate significant feathering issues. Our system, due to its relatively low film weight required to achieve optimum performance and its high flexibility allows a clean cut around the score area, and lower rates of feathering occurrences.



Good Opacity, Brightness, True White and Long Shelf Life

The system has shown excellent pack test performance both in accelerated conditions as well as with commercial food contents. When compared against control coatings used in the industry, on average, the **Apperta®** system has outperformed commercial control systems containing chili peppers.

Additionally, the system performs smoothly during application, with good coverage, opacity and providing a glossy, bright white coverage, only comparable to polyester based systems.



Storage, Handling, Cautions & Limitations

- Refer to the individual product Material Safety Data Sheets for specific details regarding the storage and handling of solvent-based materials. The materials should be treated and handled using standard manufacturing practices.
- Store in cool and dry conditions, between 5°C (40°F) and 30°C (86°F) for a period no longer than six months.
- Pack conditions and formulae of food packs varies greatly. We recommend a full process test to be carried out confirming the suitability of the coating system for specific foods and end uses before commercialization.
- Not recommended for use in direct contact with highly sulfurous food contents.



World Headquarters

W. R. Grace & Co.-Conn.
7500 Grace Drive
Columbia, Maryland 21044/USA
Tel.: +1 410 531 4000
NA Toll Free: +1 800 638 6014
Fax: +1 410 531 4273

North America

W. R. Grace & Co.-Conn.
62 Whittemore Ave.
Cambridge, MA 02140/USA
Tel.: +1 617 498 4987
Fax: +1 617 498 4433
www.gracedarex.com

Latin America

Grace Mexico
Avenida Isidro Favela S/N
Parque Industrial
Santiago Tianguistenco/Mexico
Tel.: +52 722 276 1300
Fax: +52 722 276 1310

Europe

Grace GmbH & Co. KG
In der Hollerhecke 1
67545 Worms/Germany
Tel.: +49 6241 403 00
Fax: +49 6241 403 1211

Asia/Pacific

Grace China Ltd.
19th Floor, K Wah Centre
1010 Huai Hai Zhong Road
Shanghai, 200031/ China
Tel.: +86 21 5467 4678
Fax: +86 21 5405 1500

The information contained herein is based on our testing and experience and is offered for the user's consideration, investigation and verification. WARRANTIES EXPRESSED OR IMPLIED, regarding results obtained from the use of our products, MUST BE DISCLAIMED since customer operating and use conditions vary and are beyond our control. Test methods are available on request.

GRACE®, GRACE DAVISON® and APPERTA® are trademarks, registered in the United States and/or other countries, of W. R. Grace & Co.-Conn.

This trademark list has been compiled using available published information as of the publication date of this brochure and may not accurately reflect current trademark ownership.

© 2009 W. R. Grace & Co.-Conn. All rights reserved. Printed in Germany / March '09 / Ref: apperta_white_br_ltr_E / esh

GRACE