CASE HISTORY

Consumer Packaging

RECORDED BENEFITS

- FDA food contact compliant solution
- Food tray articles able to resist hot water and warm oil penetration for at least 30 minutes
- Final molded fiber articles can be certified as compostable, demonstrating good physical decomposition and biodegradability

Solenis Helps Major Brand Owner Meet Water and Oil Penetration Resistance in Thermoformed Molded Fiber Trays

Contour℠ Oil and Grease Resistant Technology for Molded Pulp Food Service Applications

Customer Challenge

A North American brand owner was challenged to develop a solution for QSR (Quick Serve Restaurant) food trays that met their barrier requirements i.e. could achieve BPI composability certification and be compliant with FDA food contact requirements. Minimum barrier requirements included prevention of hot water (95℃) and warm oil (45℃) penetration through the article for at least 30 minutes. This was previously achieved using an internal application of AKD and PFAS.

Recommended Solution

Solenis' Contour program, comprising TopScreen™ oil and grease resistant barrier coatings (MF100, MF200, and MF300) were selected as a total solution program to provide required water and oil resistance while meeting compostability requirements and FDA food contact compliance.

The program design for the primarily bagasse and bamboo fiber furnish included MF100 at 3-6%, MF200 at 3%, and MF300 at 6-9% all on as "as-received product" basis. The MF300 emulsion is added first at a point of good mixing with the stock followed by the MF200 emulsion and MF100. No make-down is required. System pH is controlled in the range of 5.5-6.0 for best efficiency. In this case no additional retention program was required.

Results Achieved

- Final food tray articles met hot water and warm oil penetration requirement of 30 minutes or more utilizing TopScreen MF300.
- Further work utilizing TopScreen MF300-AP, a V1.5 technology, was able to meet the hot water requirements while increasing the warm oil penetration performance to 55℃ for 30 minutes.
- Minimal additional equipment investment was required, as existing chemical metering equipment systems could be utilized.
- Finished articles have "non-detectable" or "zero" levels of fluorine and have achieved BPI compostability certification.
- Final cost of the compostable, FDA compliant solution achieved at less than 10% premium.