

ExxonMobil | Oppera™ modifiers

Fresh thinking, fresh possibilities.

Introducing a
new solution

Thermoformed
sheet

CPP film

PE film

BOPP film

Oppera™ modifiers: Introducing a new solution

Simple, sustainable, high-performance packaging solutions



Mono-material

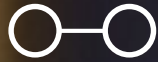
=



Recyclable

Oppera™ modifiers: cPP film

Barrier enhancement with 10% Oppera in cPP core



40% ↗

Oxygen
barrier



30% ↗

Water vapor
barrier

N—N

40% ↗

Nitrogen
barrier

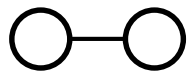
Aroma permeation
decreased by up to

60%



Oppera™ modifiers: BOPP film

Improved barrier properties



65% ↑

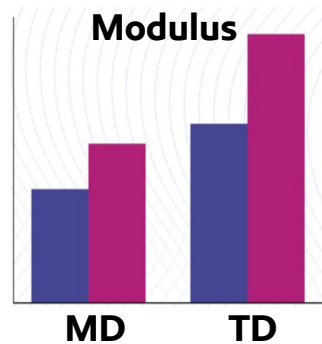
Oxygen
barrier



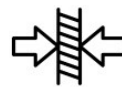
35% ↑

Water vapor
barrier

Improved mechanical properties



40% ↑
Stiffness



20%+
Downgauging

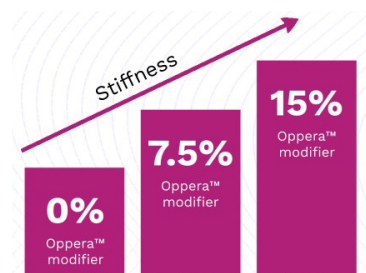


Resin density effect on WVTR barrier



Oppera modifiers
still provide **+33%**
water barrier
improvement with
medium density PE

Oppera™ modifiers: Thermoformed sheet



**Increase stiffness by
up to 20%**



**Increase
barrier by
up to 65%**

Oppera™ modifiers: Fresh thinking, fresh possibilities



High
performance



Lightweight



Outstanding
aesthetics



Recyclable



Energy
efficiency



Low
waste



©2019 ExxonMobil. ExxonMobil, the ExxonMobil logo, the interlocking "X" device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms "we," "our," "ExxonMobil Chemical" and "ExxonMobil" are each used for convenience, and may include any one or more of ExxonMobil Chemical Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.