AGS TECHNOLOGY CASE STUDY: IT'S ~~NOT~~ EASY BEING GREEN

PRODUCT PROFILE

Industry: Automotive (Interior)
Application: Ford Explorer Substrate-OHC
Material Description: Impact Modified PC to Meet Ford WSS-M4D926-A2
Requirements: • Heat Resistance • Impact Strength • Dimensional Stability
•Recycled Content

CUSTOMER ISSUE

A major Tier 1 supplier for interior headliner components was challenged by Ford Engineering to increase recycled content for their Ford Explorer headliner without increasing cost or sacrificing Ford performance requirements.

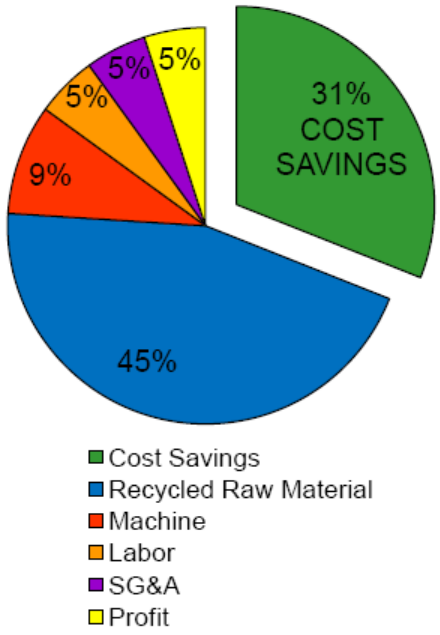
AGS INJECTION MOLDING SOLUTION

AGS Technology replaced virgin impact modified PC with Injectoblend™ FPC120 and utilizing the AGS injection molding process resulted in a 31% piece part cost savings. The Injectoblend™ material contains a minimum 90% recycled content, is approved to Ford WSS-M4D926-A2, complies with FMVSS302, and passed all corresponding Ford component validation testing requirements.

FORD SUBSTRATE-OHC COST SAVING EXAMPLE

Piece Part Cost Savings = $0.92
Annual Volume = 150,000
Annual Cost Savings = $138,000
Percent Cost Savings = 31%

Ford Explorer Substrate-OHC Piece Part Price
AGS Injectoblend™ FPC120



AGS Technology Inc.

To find out more about how you can take advantage of AGS Technology's unique injection molding capability using Injectoblend™ materials call (847) 534-6600.

Typical Properties of AGS Thermoplastics

INJECTOBLEND™ FPC120

Impact Modified Grade Polycarbonate

FPC120 is available with internal and external lubricants, UV stabilized and other modifications.
Further information and details are available upon request

Properties	Test Method	English (U.S.	Units System)	Metric (S.I.	Units System)
PHYSICAL					
Specific Gravity, solid	D 792	-	1.19	-	1.19
Mold Shrinkage, 0.125" (3.2mm)	D 955	%	0.5-0.8	%	0.5-0.8
Water Absorption. 73F (23C), 24 hrs	D 570	%	0.15	%	0.15
Melt Flow Rate @ 300C / 1.2kg, nominal	D 1238	g/10min	20	g/10min	20
MECHANICAL					
Tensile Strength @ Yield. 73°F (23°C)	D 638	psi	8,400	MPa	58
Tensile Elongation @ Break. 73°F (23°C)	D 638	%	50	%	50
Flexural Strength. 73°F (23°C)	D 790	psi	12,500	MPa	86
Flexural Modulus. 73°F (23°C)	D 790	psi	330,000	MPa	2,277
Shear Modulus. 73°F (23°C)	D 4065	psi	125,500	MPa	866
Izod Impact, notched. 73°F (23°C), 0.125" (3.2mm)	D256	ft-lb/in	13.0	J/m	694
Izod Impact, notched. -22°F (-30°C), 0.125" (3.2mm)	D256	ft-lb/in	7.0	J/m	374
Izod Impact, notched. 73°F (23°C), 4 mm	ISO 180	-	-	kJ/m²	52
Charpy Impact, notched. 73°F (23°C), 4 mm	ISO 179	-	-	kJ/m²	30
Instrumented Impact Total Energy. 73°F (23°C), 0.125" (3.2mm)	D 3763	ft-lb	42	J	57
Instrumented Impact Total Energy. -22°F (-30°C), 0.125" (3.2mm),	D 3763	ft-lb	46	J	63
THERMAL					
Deflection Temperature, unannealed	D 648				
264 psi (1.82 MPa), Load		°F	259	°C	126
66 psi (0.45 MPa), Load		°F	275	°C	135
CLTE. -40 °C - +80 °C (-40 °F - +176 °F)	D 696	in/in/°F	4.31 E-5	m/m/°C	7.76 E-5
Vicat Softening Temperature, 50N	ISO 306	°F	288	°C	142
FLAMMABILITY					
UL 94 Flame Class. 0.058" (1.47mm)	UL 94	-	HB	-	HB