



## STYRON™ 414

Americas Styrenics LLC - High Impact Polystyrene

Tuesday, November 5, 2019

### General Information

#### General

Material Status	• Commercial: Active
Availability	• North America
Features	• Food Contact Acceptable • High Impact Resistance • Good Flow • Ultra High Toughness
Uses	• Masterbatch
Agency Ratings	• FDA 21 CFR 177.1640
UL File Number	• E326906
Processing Method	• Injection Molding

### ASTM & ISO Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	1.04		ASTM D792
Melt Mass-Flow Rate (200°C/5.0 kg)	13	g/10 min	ASTM D1238
Molding Shrinkage - Flow	4.0E-3 to 8.0E-3	in/in	ASTM D955
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (Injection Molded)	218000	psi	ASTM D638
Tensile Strength (Yield, Injection Molded)	2760	psi	ASTM D638
Tensile Strength (Break, Injection Molded)	2320	psi	ASTM D638
Tensile Elongation (Break, Injection Molded)	70	%	ASTM D638
Flexural Modulus (Injection Molded)	206000	psi	ASTM D790
Flexural Strength (Injection Molded)	3480	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact			ASTM D256
73°F, Compression Molded	1.8	ft-lb/in	
73°F, Injection Molded	2.2	ft-lb/in	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	89		ASTM D785
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	181	°F	ASTM D648
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed	158	°F	
Vicat Softening Temperature	205	°F	ASTM D1525
CLTE - Flow	5.0E-5	in/in/°F	ASTM D696
Flammability	Nominal Value	Unit	Test Method
Flame Rating	HB		UL 94

### Processing Information

Injection	Nominal Value	Unit
Rear Temperature	424 to 480	°F
Middle Temperature	424 to 480	°F
Front Temperature	390 to 415	°F
Nozzle Temperature	415 to 469	°F

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Injection	Nominal Value	Unit
Mold Temperature	60 to 150	°F
Injection Rate	Fast	
Back Pressure	29.0 to 174	psi
Cushion	0.250	in
Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	351 to 379	°F
Cylinder Zone 2 Temp.	360 to 399	°F
Cylinder Zone 3 Temp.	370 to 410	°F
Cylinder Zone 4 Temp.	390 to 421	°F
Cylinder Zone 5 Temp.	399 to 430	°F
Adapter Temperature	379 to 450	°F
Melt Temperature	379 to 450	°F
Die Temperature	390 to 450	°F

### Extrusion Notes

Zone 6 Temperature: 204 to 221°C  
Melt Pump, Pipes, Screen Changer Temperature: 193 to 232°C  
Polish Rolls Temperature: 66 to 104°C  
Head Pressure: 10 to 21 MPa

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.