A22H-003

CAPA® 6500/SURLYN BLENDS HAVING IMPROVED PROCESSING CHARACTERISTICS

Information presented in this document clearly shows that Capa®/Surlyn blends can often be used for applications where Surlyn is now specified.

The following processing advantages have been identified for Capa®/Surlyn blends when compared with Surlyn.

1. Greatly reduced moulding temperatures leading to less thermal degradation during processing.

2. Increased flow at fixed temperature allowing easier mould filling so that high intricate moulding can be produced with lower reject rates.

APPLICATIONS

Table 1 compares the characteristics of Surlyn with Capa®/Surlyn blends in each major application. In each case, it can be seen that the use of a Capa®/Surlyn blend results in greatly improved processing without loss of physical properties.

Table 1 – Comparison of Surlyn with Capa®/Surlyn Blends

Application	Surlyn	Capa®/Surlyn
Heat Seal Packaging	Strong heat seals. Good flex resistance. Moderate heat seal temperature.	No substantial loss in seal strength or flex resistance. Lower heat seal temperature.
Golf Ball Covers	Excellent cut resistance. Good resilience over wide temperature range.	Similar cut resistance. Resilience unchanged. Greatly improved moulding conditions.
Moulding (Automotive parts, heel tips, ski boots)	Good abrasion resistance. Good impact properties.	Abrasion resistance not significantly changed. Impact properties improved. Greatly improved moulding conditions.

PRODUCTION OF CAPA®/SURLYN BLENDS

These blends are easily prepared using a heated two roll mill as follows:

a) Mill Surlyn using a roll temperature of 150°C, until a homogeneous melt is obtained.

b) Add the Capa® 6500 slowly and continue milling until a homogeneous blend is obtained.

c) Remove blend from the mill and allow to cool.

d) If desired Capa®/Surlyn blend can then be granulated using standard equipment.

MOULDING CAPA® 6500/SURLYN BLENDS

Table 2 details the moulding characteristics of Capa®/Surlyn blends and compares them with Surlyn. It can readily be seen that the melt flow of Capa®/Surlyn blends are higher than for Surlyn at comparable temperatures.

This means that the moulding temperature can be reduced. Alternatively, the improved flow allows highly complex mouldings to be produced with lower reject rates.

PHYSICAL PROPERTIES OF CAPA® 6500/SURLYN BLENDS

Table 3 compares typical physical properties of Surlyn with those for Capa®/Surlyn blends.

Up to 25% Capa® 6500, the physical properties of blends are comparable with those obtained for Surlyn.

Table 2 – Moulding Properties of Capa® 6500/Surlyn Blends

	Composition (% Capa® 6500 by Weight)				
	0	1	5	10	25
Softening Point (°C)	90	90	90	90	90
MFI (gm/10 mins)					
140°C	0.55		0.6	0.65	0.9
150°C	0.8		0.85	0.9	1.2
160°C	1.1		1.2	1.3	1.9
170°C	1.6		1.8	2.0	2.9
180°C	2.2		2.5	2.8	4.0
190°C	3.2		3.7	4.3	6.0
200°C	4.5		5.4	6.2	9.0

Table 3 – Physical Properties of Capa® 6500/Surlyn Blends

		Composition (% Capa® 6500 by Weight)				
		0	1	5	10	25
Hardness	(Shore A)	98	98	98	98	98
	(Shore D)	60	60	60	60	57
Tensile Properties						
100% Modulus	(kg/cm^2)	155	152	155	141	128
300% Modulus	(kg/cm^2)	192	215	218	201	205
UTS	(kg/cm^2)	270	289	286	284	270
Elongation	(%)	405	380	385	390	380

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