PERFORMANCE PLASTICS

Product Information

PLAINTIFF'S EXHIBIT

UC-5301

BAKELITE® Powdered And Liquid Phenolic Resins For Friction Elements

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UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS
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BAKELITE® POWDERED PHENOLIC RESINS FOR FRICTION ELEMENTS

Key: X = Applicable, L = Low, M = Medium, H = High	2-Step Unmodified						2-Step Modified								1-Step Unmodified	
	BRPB-5099	BRPA-5977	BRP-5417	BRP-5380	BRPB-5356	BXRP-6185	BRP-4260	BRPB-5536	BRPB-8046	BXRP-6256	BRPA-8152	BXRN-6109	BXRP-5642	BXRP-6177	BRPA-4543(*)	BXRN-5365
A. Resin Properties																
Oil Modification (L~5%, M~10%, H ~20%)							H	M	L	L						
Thermoplastic Mod.											X	X				
Subst. Phenol Mod.													X			X
Plate Flow:																
L (<30 mm.)			L	L	L	L					L					
M (30-80 mm.)		M	M			H	M	M	M	M		M	M	M	M	
H (>80 mm.)	H															H
Hexa Content:																
L (6-9%)	L				L	L	L	L	L	L		L	L	L		
H (9-13%)		H	H	H							H	H				
B. Processing Properties																
Good Melt Flow	X	X	X				X	X	X	X		X	X	X		X
Min. Molding Press	X	X	X				X	X	X	X			X	X		X
Min. Prest. Cure		X	X	X	X	X				X				X		
Good Cure Speed		X	X	X	X	X					X	X		X		
Min. Volatiles		X	X	X	X	X										
Post Formability	L						H	M	M	L	L	L	M			L
C. Performance Properties																
High Cold Friction	X					X	X	X	X	X	X	X	X	X	X	X
High Hot Friction		X	X	X	X	X				X	X	X		X	X	X
Good Fade Resistance		X	X	X	X	X				X	X	X		X		X
Good Strength/Wear		X	X	X	X	X					X	X		X		X
D. Recommended Application																
Lt. Duty Auto/Truck	X	X					X	X	X	X			X	X	X	X
H. Duty Truck Blocks		X	X	X	X	X				X				X		X
Disc Pads		X	X	X	X	X			X	X	X	X		X		X
Semi metallic		X	X	X	X	X					X	X		X		X
Clutch Facings	X	X	X	X						X	X	X		X	X	X

(*) Water dispersible resin

BAKELITE® LIQUID PHENOLIC RESINS FOR FRICTION ELEMENTS

Key: X = Applicable, L = Low, M = Medium, H = High	1-Step Unmodified									2-Step Oil Modified	1-Step Cresol Based
	Standard								Exp.	Standard	
	BRL-1100(*)	BRL-2760	BRL-2741	BRL-2534	BLS-2117	BLSD-2851	BLSB-3536	BKUA-2260	BXRU-6005	CRS-2660	CLS-3112
A. Resin properties											
Water Base	X	X	X	X							
Solvent Base					X	X	X			X	X
Water Dispersion								X	X		
Solids Content:											
L (<60%)					L	L	L	L	L		L
M (60-80%)	M	M		M			M			M	
H (>80%)		H	H								
Viscosity:											
L (<1500 cps.)	L			L	L	L	L	L	L		L
M (1500-10,000 cps.)		M									
H (>10,000 cps.)			H							H	
B. Processing Properties											
Good Wetting				X	X	X	X	X	X		X
Good Green Strength		X	X							X	
Fast Drying					X	X	X				X
Good Post Formability								X		X	
C. Performance Properties											
Good Heat Resistance		X	X				X	X	X		
High Fade Resistance		X	X				X	X	X		
Good Strength/Wear		X	X				X	X	X		
D. Recommended Application											
Extrusion/Rolling		X	X					X	X	X	
Impregnation					X	X	X	X	X		X
Auto Linings		X	X					X	X	X	X
Disc Pads		X	X				X	X	X		
Transmission Elements					X	X		X	X		X
Clutch Facings								X	X		X
Adhesive Base			X		X	X		X	X		X

(*) Recommended for viscosity adjustment of BRL-water based resins



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