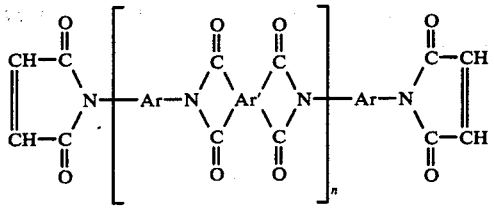
TABLE I-continued

R_1 - Position (2)	(3)	(4)	(5)	Y	B.P. ° C.
H	C_3H_7	H	H	O	
H	H	H	C_3H_7	O	
C_4H_9	H	H	H	O	
H	H	H	C_4H_9	O	
CH_3	H	C_3H_7	H	O	
CH_3	CH_3	CH_3	CH_3	O	
H	CH_3	H	H	S	
H	C_3H_7	H	H	S	
H	H	H	C_3H_7	S	
C_4H_9	H	H	H	S	
H	H	H	C_4H_9	S	
CH_3	H	C_3H_7	H	S	
CH_3	CH_3	CH_3	CH_3	S	
H	H	H	H	S	84

Bis-maleimides are prepared, as is known in the art, by the reaction of maleic anhydride and a diamine. The bis-maleimides used in the present process can be prepared as known in the art or by the azeotroping process described in my copending application Ser. No. 363,800 filed May 25, 1973. The bis-maleimides useful in the present invention have the structural formula



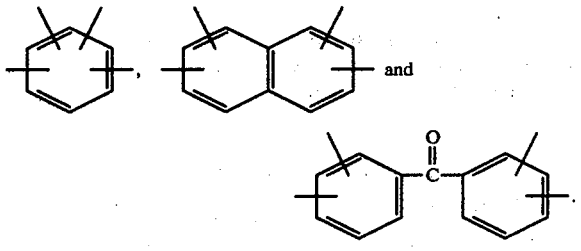
wherein

Ar is a divalent aromatic organic radical,

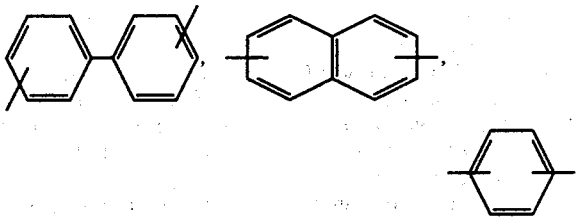
Ar' is a tetravalent aromatic organic radical, the four carbonyl groups being attached directly to separate carbon atoms and each pair of carbonyl groups being attached to adjacent carbon atoms in the Ar' radical, and

n is 0 or a positive integer of 1 to 20.

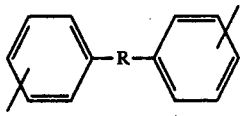
The divalent aromatic radical Ar and the tetravalent aromatic radical Ar' can be any of the radicals described in polyimide patents known in the art that are derived from an aromatic diamine and an aromatic dianhydride respectively. Ar' preferably contains at least one ring of six carbon atoms characterized by benzenoid unsaturation. Any of the aromatic tetracarboxylic acid dianhydrides known in the prior art can be used to provide Ar'. Among the useful dianhydrides are 3,3',4,4'-benzophenonetetracarboxylic acid dianhydride, pyromellitic dianhydride, 2,3,6,7-naphthalene tetracarboxylic acid dianhydride, 3,3',4,4'-diphenyl tetracarboxylic acid dianhydride, 1,2,5,6-naphthalene tetracarboxylic acid dianhydride, 2,2',3,3'-diphenyl tetracarboxylic acid dianhydride, 2,2-bis-(3,4-dicarboxyphenyl)propane dianhydride, 3,4,9,10-perylene tetracarboxylic acid dianhydride, bis(3,4-dicarboxyphenyl)ether dianhydride, naphthalene-1,2,4,5-tetracarboxylic acid dianhydride, naphthalene-1,4,5,8-tetracarboxylic acid dianhydride, decahydronaphthalene-1,4,5,8-tetracarboxylic acid dianhydride, 4,8-dimethyl-1,2,3,5,6,7-hexahydronaphthalene-1,2,5,6-tetracarboxylic acid dianhydride, 2,6-dichloronaphthalene-1,4,5,8-tetracarboxylic acid dianhydride, 2,7-dichloronaphthalene-1,4,5,8tetracarboxylic acid dianhydride, 2,3,6,7-tetrachloronaphthalene-1,4,5,8-tetracarboxylic acid dianhydride, phenanthrene-1,8,9,10-tetracarboxylic acid dianhydride, cyclopentane-1,2,3,4-tetracarboxylic acid dianhydride, pyrrolidine-2,3,4,5-tetracarboxylic acid dianhydride, pyrazine-2,3,5,6-tetracarboxylic acid dianhydride, 2,2-bis(2,3-dicarboxyphenyl)propane dianhydride, 1,1-bis(2,3-dicarboxyphenyl)ethane dianhydride, 1,1-bis-(3,4-dicarboxyphenyl)ethane dianhydride, bis(2,3-dicarboxyphenyl)methane dianhydride, bis(3,4-dicarboxyphenyl)methane dianhydride, bis(3,4-dicarboxyphenyl)sulfone dianhydride, benzene-1,2,3,4-tetracarboxylic acid dianhydride and thiophene-2,3,4,5-tetracarboxylic acid dianhydride. Preferred Ar' radicals are



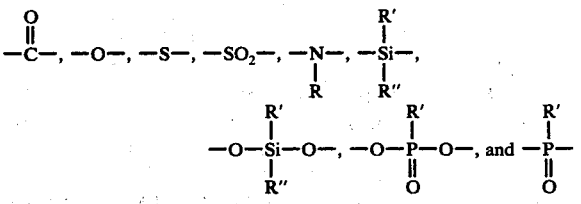
Ar is a divalent benzenoid radical selected from the group consisting of



and multiples thereof connected to each other by R, for example,



wherein R is an alkylene chain of 1-3 carbon atoms, —CH=CH—,



wherein R' and R'' are each selected from the group consisting of alkyl and aryl of 1 to 6 carbon atoms. Ar is preferably