formula (1) is one or more selected from the group consisting of:

α,ω-bis(3-aminopropyl)polydimethylsiloxane,

α,ω-bis(3-aminopropyl)polydiethylsiloxane,

α,ω-bis(3-aminopropyl)polydipropylsiloxane,

α,ω-bis(3-aminopropyl)polydibutylsiloxane,

α,ω-bis(3-aminopropyl)polydiphenoxysiloxane,

α,ω-bis(2-aminoethyl)polydimethylsiloxane,

α,ω-bis(2-aminoethyl)polydiphenoxysiloxane,

α,ω-bis(4-aminobutyl)polydimethylsiloxane,

α,ω-bis(4-aminobutyl)polydiphenoxysiloxane,

α,ω-bis(5-aminopentyl)polydimethylsiloxane,

α,ω-bis(5-aminopentyl)polydiphenoxysiloxane,

α,ω-bis(4-aminophenyl)polydimethylsiloxane, and

α,ω-bis(4-aminophenyl)polydiphenoxysiloxane.

2. The polyimide resin according to claim 1~~ or 2~~, wherein a residue of an aromatic di-amine is further contained as the