

[SPDMS]

[0054] [Comparative Example 2] Production of reactive polysiloxane 4 (PStPh)

A 50 mL reaction flask equipped with a condenser was charged with 0.50 g (1.18 mmol) of TEAH and 3 g of THF, and the air in the flask was purged with nitrogen using a nitrogen balloon. A mixture of 8.0 g (29.6 mmol) of SPDMS produced according to Comparative Example 1 and 6 g of THF was added dropwise thereto at room temperature (approximately 23°C) over 10 minutes, and the mixture was stirred at 40°C for 16 hours. This mixture was cooled to room temperature (approximately 23°C). Subsequently, to this reaction mixture, 1.6 g of a cation-exchange resin [Amberlyst(R) 15JWET manufactured by The Dow Chemical Company] washed in advance with THF, and 0.32 g of a filter aid [KC Flock W-100GK manufactured by Nippon Paper Industries Co., Ltd.] were added, and the reaction was terminated by stirring for 1 hour. Then, the cation-exchange resin and the filter aid were filtered through a membrane filter having a pore size of 0.5 μm and further washed off with 8 g of ethyl acetate. This filtrate and the washes were mixed and concentrated to obtain 5.9 g of reactive polysiloxane 4 (hereinafter, also abbreviated to PStPh) of interest.

The obtained compound had a weight-average molecular weight Mw of 1,800 and a degree of distribution: Mw/Mn of 1.4 measured on the basis of polystyrene by GPC.

[0055] [Evaluation of optical properties of reactive polysiloxane]

Three parts by mass of each reactive polysiloxane produced in Examples 2 to 4 and Comparative Example 2, 0.03 parts by mass of I184, and 7 parts by mass of PGMEA were mixed. This solution was filtered through a PTFE syringe filter having a pore size of 0.2 μm to obtain varnish having a solid concentration of 30% by mass.

A quartz substrate was spin-coated (1,500 rpm × 30 sec) with each varnish, which was then dried by heating on a hot plate of 100°C for 1 minute. This coating was