- curing the mixture deposited on the surface at a temperature between the highest Tg of the block copolymer and the TODT of the mixture.

In an aspect, there is provided a process which makes it possible to improve the critical dimension uniformity of an ordered film comprising a block copolymer, said ordered film comprising a mixture of at least one block copolymer having an order-disorder transition temperature (TODT) and at least one glass transition temperature (Tg) with at least one block copolymer not having a TODT, this mixture having a TODT below the TODT of the block copolymer alone, the process comprising the following steps:

- mixing at least one block copolymer having a TODT and at least one block copolymer not having a TODT, in a solvent,
- depositing this mixture on a surface,
- curing the mixture deposited on the surface at a temperature between the highest Tg of the block copolymer not having a TODT and the TODT of the mixture,

in which the block copolymer not having a TODT is a diblock copolymer.

In another aspect, there is provided the use of the process as defined above, for generating lithography masks or ordered films.

Detailed description:

As regards the block copolymer(s) having an order-disorder transition temperature, any block copolymer, regardless of its associated morphology, may be used in the context of the invention, whether it is a diblock, linear or star triblock or linear, comb or star multiblock copolymer. Preferably, diblock or triblock copolymers and more preferably diblock copolymers are involved.

The order-disorder transition temperature TODT, which corresponds to a phase separation of the constituent blocks of the block copolymer, can be measured in various ways, such as DSC (differential scanning calorimetry), SAXS (small angle X-ray scattering), static birefringence, dynamic mechanical analysis, DMA, or any other method which makes it possible to visualize the temperature at which phase separation occurs (corresponding to the order-disorder transition). A combination of these techniques may also be used.

Mention may be made, in a non-limiting manner, of the following references referring to TODT measurement:

-N.P. Balsara et al, Macromolecules 1992, 25, 3896-3901.

-N. Sakamoto et al, Macromolecules 1997, 30, 5321-5330 and Macromolecule 1997, 30, 1621-1632

-J.K. Kim et al, Macromolecules 1998, 31, 4045-4048.

The preferred method used in the present invention is DMA.

comprises a styrene monomer and the other block comprises a methacrylic monomer.

4 Process according to Claim 3, according to which one of the blocks of the diblock copolymer comprises styrene and the other block comprises methyl methacrylate.

5 Process according to any one of claims 1 to 4, according to which one of the blocks of the diblock copolymer comprises a styrene monomer and the other block comprises a methacrylic monomer.

6 Process according to Claim 5, according to which one of the blocks of the diblock copolymer comprises styrene and the other block comprises methyl methacrylate.

7 Process according to Claim 1, in which the surface is free.

8 Process according to Claim 1, in which the surface is guided.

9 Use of the process according to any one of preceding Claims 1 to 8, for generating lithography masks or ordered films.