the case where it is sought to obtain thick ordered films for BCPs having ordered morphologies with a high period and low defectivity, mixtures comprising at least one BCP having an order-disorder temperature (TODT), combined with at least one compound not having a TODT, are a solution when the order-disorder transition temperature (TODT) of the mixture is lower than the TODT of the BCP alone.

Summary:

The disclosure relates to a process for obtaining an ordered film having a thickness greater than 20 nm and a period greater than 10 nm, said ordered film comprising a mixture of at least one block copolymer having an order-disorder transition temperature (TODT) and at least one Tg with at least one compound 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 compound 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 and the TODT of the mixture.

In an aspect, there is provided a process for obtaining an ordered film having a thickness greater than 20 nm and a period greater than 10 nm, 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 compound not having a TODT, said compound

being chosen within block-copolymers, this mixture of at least one block copolymer having an order-disorder transition temperature (TODT) and at least one Tg with at least one compound not having a TODT , having a TODT below to 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 compound 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 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 a composition comprising at least one block copolymer having a TODT and one compound being chosen within block-copolymers not having a TODT.

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

In another aspect, there is provided a lithography mask or ordered film obtained according to the process as defined above.

Detailed description:

As regards the block copolymer(s) having an order-disorder transition temperature, any block copolymer, regardless of

Claims

1 Process for obtaining an ordered film having a thickness greater than 20 nm and a period greater than 10 nm, 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 compound not having a TODT, said compound being chosen within block-copolymers, this mixture of at least one block copolymer having an order-disorder transition temperature (TODT) and at least one Tg with at least one compound not having a TODT , having a TODT below to 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 compound 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 and the TODT of the mixture,

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

2 Process according to Claim 1, in which the block copolymer having a TODT is a diblock copolymer.

3 Process according to Claim 2, according to which one of the blocks of the diblock copolymer 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 compound is a homopolymer not having a TODT.

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

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

10 Composition comprising at least one block copolymer having a TODT and one compound being chosen within block-copolymers not having a TODT.

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

12 Lithography mask or ordered film obtained according to the process of Claims 1 to 9.