hexagonal, cylindrical homogeneous phase, this order can be defined by a given amount of coordination number defects or, in a quasi-equivalent manner, a given "grain size" (the "grain" being a quasiperfect monocrystal in which the units exhibit similar periodic or quasiperiodic positional and translational order). In the case where the self-organized phase exhibits a mixture of orientations of its structures, the order may be defined according to amounts of orientation defects and a grain size; it is also considered that this mixed phase is a transient state tending towards a homogeneous phase.

The term "structuring time" refers to the time required for the structuring to reach a defined order state (for example a given amount of defects, or a given grain size), following a self-organization process defined by given conditions (for example thermal annealing performed at a given temperature, for a predetermined period of time).

In addition to the advantages described above, the process of the disclosure also makes it possible to advantageously reduce interface roughness defects. Indeed, for example but non-exhaustively, in the case of lamellar morphology, a rough interface (denoted LER for "line edge roughness") can be observed when the structuring is not absolutely completed (which would require, for example, exceeding the time assigned for an industrial process, using annealing for a longer time) for the compositions not included in the disclosure. This roughness can also be observed if the desired film thicknesses are too large for given compositions, or else for example in the case of thermal annealing if the temperature required to establish the structuring is too high with respect to the heat stability of the composition. The disclosure makes it possible to overcome this problem

given that the compositions described by the disclosure very rapidly complete their structuring, for large film thicknesses, with few or no defects, and for annealing temperatures that are lower than those required for block copolymers of equivalent dimensions not described by the disclosure.

Summary:

The disclosure relates to a process which makes it possible to improve the critical dimension uniformity of structured films of a composition comprising at least one block copolymer on a surface, and which comprises the following steps:

- mixing a composition comprising a block copolymer in a solvent, this composition exhibiting a product $\chi_{effective}*N$ of between 10.5 and 40 at the structuring temperature;
- depositing this mixture on a surface, which is optionally pre-modified, whether it is organic or inorganic;
- curing the mixture deposited on the surface at a temperature between the highest Tg (glass transition temperature) of the block copolymer(s) and their decomposition temperature such that the composition can structure itself after evaporation of the solvent without degrading.

In an aspect, there is provided a process which makes it possible to improve the critical dimension uniformity of ordered films of a composition comprising a di-block copolymer on a surface, comprising the following steps:

- mixing a composition comprising a di-block copolymer in a solvent, in which the diblock copolymer has a structure A-b-(B-*co*-C) wherein the block A consists of a single monomer A, the block B-*co*-C itself consisting of two monomers B and

C, C possibly being A, this composition exhibiting a product χeffective*N of between 10.5 and 40 at the structuring temperature once the solvent has been evaporated off,

- depositing this mixture on a surface,

- curing the mixture deposited on the surface at a temperature between the highest Tg of the block copolymer(s) and their decomposition temperature such that the composition can structure itself after evaporation of the solvent.

In another aspect, there is provided an ordered film obtained according to the process as defined above, which can be used in particular as masks in the lithography field.

In another aspect, there is provided a mask obtained from an ordered film as defined above.

Detailed description:

As regards the composition used in the process in accordance with the invention, any block copolymer, or blend of block copolymers, may be used in the context of the invention, provided that the product χeffective*N of the composition comprising a block copolymer is between 10.5 and 40,preferably between 15 and 30, and even more preferably