of synthesizing a (co)polymer having a molecular weight identical to that of one of the blocks corresponding to the block copolymer, which widens the composition window within a given morphology. In addition, when the process is made use of continuously or semicontinuously, a drift in the process resulting in a drift in the molecular weights can easily be corrected by a modification to the (co)polymer/block copolymer ratio. In the end, during the establishment of the morphology of the blend on a surface, a morphology is always obtained, the characteristic period of which is identical. In addition, by using the process of the ~~invention~~disclosure, it is possible to access ranges of periods characterizing the morphology extending from a few nm up to more than 60 nm. Other advantages are that this approach makes possible very good stabilization of the morphology by decrease in the tensions on the polymer chains within a self-assembly structure and it increases the possibilities of assembling by plasticizing action of the (co)polymer in combination with the block copolymer. A decrease in the number of defects for large film thicknesses in templates different from a hexagonal symmetry, such as a square symmetry, for example, is also observed. Finally, the chosen approach makes it possible to obtain a blend, the (co)polymer of which has the same molecular weight as that of one of the blocks of the block copolymer, for this reason preventing a macroscopic phase separation with a (co)polymer of excessively high weight or a decrease in the period characterizing the morphology with a (co)polymer of excessively low weight. In the process which is a subject-matter of the ~~invention~~disclosure, the (co)polymer will never be either too small or too large for the block copolymer. In the process which is a subject-matter of the ~~invention~~disclosure, the ratio of the respective weights of the (co)polymer and of

the block copolymer being constant, whatever the targeted molecular weight of the block copolymer, the change in the period characterizing the morphology remains equivalent.

Summary ~~of the invention~~:

~~The invention relates to~~In an aspect, there is provided a process for controlling the period characterizing the morphology obtained starting from a blend of block copolymers and of (co)polymers of one of the blocks in thin films comprising the following stages:

- synthesis of the block copolymer so that the product of the synthesis comprises the said block copolymer and a (co)polymer of one of the blocks,

- deposition of a solution of the blend of the block copolymer and of the (co)polymer on a surface,

- evaporation of the solvent,

- annealing.

In another aspect, there is provided the use of the process as defined above to generate lithography masks.

In another aspect, there is provided a lithography mask obtained according to the use as defined above.

Detailed description:

Further to control the period, the present invention allows film fabrication with a minimum of orientation,

coordination number or distance defect and with large monocrystalline surfaces.

The nanostructuring of a block copolymer of a surface treated by the process of the invention can take the forms such as cylindrical (hexagonal symmetry (*primitive hexagonal* lattice symmetry "*6 mm*") according to the