

ULTRA-THIN POLYMER FILM AND POROUS ULTRA-THIN POLYMER FILM

ABSTRACT

5 The objective of the present invention is to provide a porous ultra-thin polymer film, and a method for producing said porous ultra-thin polymer film. The present invention provides a porous ultra-thin polymer film with a film thickness of 10 nm-1000 nm. In addition, the present invention provides a method for producing a porous ultra-thin polymer film, comprising the steps of: dissolving two types of mutually-immiscible
10 polymers in a first solvent in an arbitrary proportion to obtain a solution; applying the solution onto a substrate and then removing the first solvent from the solution applied onto the substrate to obtain a phase-separated ultra-thin polymer film that has been phase-separated into a sea-island structure; and immersing the ultra-thin polymer film in a second solvent which is a good solvent for the polymer of the island parts but a poor solvent for a
15 polymer other than the island parts to remove the island parts, thereby obtaining a porous ultra-thin polymer film.

Fig. 1