

第18回知的財産翻訳検定<第10回和文英訳>

1級 化学 標準解答

問1

Question 1 [Claim 1]

A manufacturing method of an extruded styrene-based resin foam body produced by extrusion foaming using a styrene-based resin and a blowing agent, characterized in that the foam body contains 1-6 parts by weight of;

(A) a mixed brominated flame retardant consisting of tetrabromobisphenol-A-bis(2,3-dibromo-2-methylpropyl ether) and tetrabromobisphenol A-bis(2,3-dibromopropyl ether), or

(B) a mixed brominated flame retardant consisting of tetrabromobisphenol A-bis(2,3-dibromo-2-methylpropyl ether) and tris(2,3-dibromopropyl) isocyanurate, as a flame retardant with respect to 100 parts by weight of the styrene-based resin, wherein the content of tetrabromobisphenol A-bis(2,3-dibromo-2-methylpropyl ether) in the mixed brominated flame retardant is from 25 wt. % to 75 wt. % to 100 wt. % of the whole mixed brominated flame retardant, and wherein air bubbles forming the foam body are constituted of air bubbles having a bubble diameter of 0.2 mm or less and of air bubbles having a bubble diameter of more than 0.2 mm and 1 mm or less.

[Claim 2]

The manufacturing method of the extruded styrene-based resin foam body according to claim 1, comprising

a step of preparing a molten composition which is heated after preliminarily mixing the mixed brominated flame retardant, a phosphorus-based stabilizer and other additive agents with the styrene-based resin, and

a subsequent step of supplying the composition into an extrusion machine and heating and melting the composition again.

問2

Question 2 [Background of the invention]

In recent years, the number of users of soft contact lenses (SCLs) has increased.

However, in general, when soft contact lenses are worn, oxygen supply from the atmosphere is reduced, which may lead to inhibition of corneal epithelial cell division and/or corneal thickening. Therefore, soft contact lenses with higher oxygen permeability have been developed.

Under these circumstances, silicone hydrogel contact lenses have recently been developed as soft contact lenses having high oxygen permeability. Silicone hydrogel contact lenses having oxygen permeability many times higher than that of hydrogel contact lenses of the conventional art have been achieved by blending a silicone with a hydrogel. These soft contact lenses are different from each other in ionicity, water content, and the like, depending on their material. Thus, it is essential that eye drops applied to the eyes of a person wearing soft contact lenses should be formulated according to the characteristics of the soft contact lenses on the eyes to which the drops are applied.

問 3

[Detailed description of the invention]

The barrier layer is made of one or more silicon compounds. Examples of the silicon compounds include silicon oxide, silicon nitride, silicon carbide, silicon oxynitride, and the like. In particular, silicon nitride is preferably used in the present invention. The use of silicon nitride provides a dense barrier layer and thus allows formation of a thinner barrier layer showing desired gas barrier properties.

The thicker a silicon nitride film is, the darker in color and therefore the less transparent it is. According to the present invention, the barrier layer is used in combination with a sealing film and an adhesive layer, as described later. This allows use of a thinner and therefore more transparent barrier layer than a barrier layer used alone in the conventional art. Such a barrier layer is suitable for a top-emission type organic EL device.

The barrier layer may have any thickness that is sufficient to protect an organic EL layer from oxygen, water vapor, etc. passing through the adhesive layer.

問 4

[Examples]

(1) Preparation of Graft Copolymer

To a reaction vessel equipped with a thermometer, a stirrer, a nitrogen inlet tube, and a condenser, 25 parts by weight of polyvinyl butyral (degree of polymerization: 1,700, butyral content: 68.0 mol%, hydroxyl content: 30.8 mol%, acetyl content: 1.2 mol%), 25 parts by weight of isobutyl methacrylate, and 100 parts by weight of ethyl acetate were added, and the polyvinyl butyral was dissolved with stirring. After the reaction vessel was purged with nitrogen gas for 30 minutes, the solution was heated to 75 degrees Celsius with stirring. After 30 minutes, a polymerization initiator solution

prepared by diluting 0.5 part by weight of t-hexyl peroxyvalate, serving as a polymerization initiator, with 16 parts by weight of ethyl acetate was added dropwise to the reaction vessel over 5 hours. The solution was further reacted at 75 degrees Celsius for 3 hours. The reaction solution was cooled to obtain a graft copolymer solution with a solid content of 30% by weight.