Masterbatches and/or Compounds which contain hydrophilic additives and are used for producing hydrophilic compositions or articles have to satisfy demanding requirements: the compositions should have a high loading, i.e. a high concentration of the hydrophilic additives, and it should be possible to set the desired contact angle between the polymer surface and water in the final article. Further requirements are good miscibility and compatibility with the polymer of the final application or the final article. Additionally, a high absorption of water or meat juice in foamed polystyrene food trays is wanted. A measurable variable for the absorptive properties of a polystyrene surface for aqueous liquids is the surface angle (static contact angle) of the polystyrene surface to water. The lower the surface angle, the higher is the absorptive property.

EP 2 289 994 A2 discloses an absorbent masterbatch chip composition for a polystyrene foam tray, wherein the masterbatch chips comprise an organic anionic sulphonate, calcium carbonate and talc.

The known compositions, however, do not satisfy all present-day requirements of industry, especially their absorptive properties are not sufficient. There is a need for masterbatches and Compounds containing hydrophilic additives which provide for a low static contact angle and are still compatible with the polymeric material with respect to formability and mechanical stability, e.g. density, stiffness and tear strength.

It was found that the following composition Z comprising a polystyrene and a particular mixture of hydrophilic additives surprisingly displays improved properties as to the before described demands.

~~Subject of the invention~~Accordingly, one aspect provides ~~is~~ the use of a composition Z comprising a component A, a component B and a component P for enhancing the hydrophilicity of solid non-foamed or foamed polystyrene, wherein

the component A is an alkyl sulfonate, alkylbenzene sulfonate and/or olefin sulfonate,

the component B is a polyethylene glycol,

and the component P is a polystyrene and/or an alloy thereof.

According to the present ~~invention~~disclosure, enhancing the hydrophilicity of polystyrene means to provide for a polystyrene material which is modified by particular additives as per the invention in order to obtain a lower static contact angle between the polymer surface and water, and also providing for a higher water absorbing capacity of the additivated polystyrene material compared to the genuine polystyrene material.

Another ~~subject~~ embodiment of the ~~invention~~ disclosure relates to ~~is~~ the use of a composition Z, as described before, for manufacturing an absorbent article of solid non-foamed or foamed polystyrene, wherein the absorbed material is an aqueous liquid.

The composition Z is preferably a masterbatch MB or a Compound as defined before.

The absorbent article is preferably a film, a sheet or a container, e.g. a food tray, which is preferably in contact with water-containing food, e.g. meat, fish, vegetables or fruits. The absorbed material is preferably water, blood or juice.

A further ~~subject aspect of the invention is~~relates to a solid foamed or non-foamed polystyrene article comprising a composition Z as defined above, which article is in contact with water-containing food, e.g. meat, fish, vegetables or fruits, and which article is preferably a film, a sheet or a container, e.g. a food tray.

For the purposes of the ~~invention~~disclosure, a hydrophilic solid non-foamed or foamed polystyrene is characterized by a static contact angle of from 5° to 84°, preferably of from 30° to 83° in particular of from 40° to 82°, most preferably from 50 to 81°.

A further ~~subject~~ embodiment of the ~~invention~~ disclosure is a process for enhancing the hydrophilicity of solid non-foamed or foamed polystyrene by extruding, kneading, pressing or injection-molding a mixture of components A, B and P, as defined before.

Preferably, component A comprises 1, 2, 3, or 4, more preferably 1 or 2, even more preferably 1, alkyl sulfonates, alkylbenzene sulfonates or olefin sulfonates.