[Patent Document]

[0008]

[Patent Document 1] Japanese Patent Application Laid-Open No. 2008-143993 (Claims)

[Patent Document 2] Japanese Patent No. 4830224 (Claims)

[Summary of the Invention]

[Problems to Be Solved by the Invention]

[0009]

However, in the conventional active energy beam-curable offset printing inks disclosed in Patent Documents 1 and 2, sufficient curing was not accomplished at the printing speed actually used in the UV printer or by the amount of exposure in the case of power-saving UV, and the cured film suffered from insufficient water resistance. In addition, addition of a thixotropic agent was occasionally necessary to provide the ink with suitable printing adaptability (Patent Document 2). Furthermore, since the ink cures immediately after coating the ink on the substrate by an active energy beam, surface irregularities due to the insufficient ink levelling inviting decrease of the gloss value of the printed material compared to normal printed material occurred even if the curing was sufficient. In other words, ink viscosity had been increased by increasing the resin concentration in the lithographic ink to thereby improve the resistance to surface staining during the printing. However, increase of the viscosity of the lithographic ink results in the loss of the fluidity, and accordingly, the ink cures before the levelling of the ink in the active energy beam-curable printing wherein the ink instantaneously cures by the irradiation of an active energy beam. This resulted in the likeliness of surface irregularities on the film surface of the lithographic ink, and the printed material suffered from inferior gloss compared to the oil-based lithographic ink.

[0010]

In view of such situation, an object of the present invention is to obviate the problems of the prior art as described above and provide a lithographic ink which has a highly sensitive curability for active energy beam simultaneously with a high washability with water, and which also has excellent resistance to surface staining in the printing, high water resistance when cured into a cured film, and high gloss. Another object of the present invention is to provide a varnish constituting such lithographic ink and a method for producing printed materials by using such ink.

[Means for Solving the Problems]

[0011]

Accordingly, in an aspect, the present invention provides a lithographic ink of tip that comprises (a) a pigment and (b) a resin having an ethylenically unsaturated group and a hydrophilic group.

[0011a]

In another aspect, the present invention provides a varnish for a lithographic ink constituting the lithographic ink as described herein, wherein varnish comprises the polyfunctional (meth)acrylate having hydroxyl group and a resin having a hydrophilic group.

[0011b]

In another aspect, the present invention provides a method for producing a printed material using the lithographic ink as described herein.

[0011c]

In another aspect, the present invention provides a method for producing a printed material comprising the steps of coating the lithographic ink as described herein on a substrate and conducing irradiation with an active energy beam.

[0011d]

In another aspect, the present invention provides a method for producing a printed material comprising the step of printing the lithographic ink as described herein on a substrate by using a waterless lithography plate.

[0011e]

In yet another aspect, the present invention provides a method for producing a printed material comprising the step of printing the lithographic ink as described herein on a substrate by using a water lithography plate.

[Merits of the Invention]

[0012]

The present invention provides a lithographic ink which has a highly sensitive curability for active energy beam simultaneously with a high washability with water, and which also has excellent resistance to surface staining in the printing and high water resistance of the cured film. A printed material having excellent