formed. Vapors of co-solvents may be harmful from a health, safety & environmental (HSE) point of view. For example, these vapors may be toxic and/or flammable.

It is therefore an object to provide an ink composition that requires less energy when drying. It is a further object of the invention to provide an ink composition that forms no or only little harmful vapors. It is a further object of the invention to provide an ink composition which is stable in the print head. It is a further object of the invention to provide an ink composition which allows fast drying of the ink after printing. It is a further object of the invention to provide an ink composition which provides robust images.

Summary

The objects of the present disclosure are at least mitigated in an ink composition comprising a water-dispersed resin; a water dispersible colorant; a cyclodextrin compound; water and a co-solvent, wherein the water-dispersed resin is present in an amount of 3.5 wt% or more, based on the total weight of the ink composition, and wherein the co-solvent is selected from the group consisting of: saccharides and co-solvents comprising a ring structure, wherein the ring structure comprises a 5-membered, a 6-membered or a 7-membered ring.

In one aspect of the present disclosure, there is provided an ink composition comprising

- a water-dispersed resin;
- a water dispersible colorant;
- a cyclodextrin compound;
- water;
- a co-solvent;

wherein the water-dispersed resin is present in an amount of 3.5 wt% or more, based on the total weight of the ink composition, wherein the water-dispersed resin is present in an amount of 80wt% or more based on the amount of the cyclodextrin component, and wherein the co-solvent is selected from the group consisting of: saccharides and co-solvents comprising a ring structure, wherein the ring structure comprises a 5-membered, a 6-membered or a 7-membered ring.

In another aspect of the present disclosure, there is provided a method for preparing an ink composition disclosed herein, the method comprising the steps of:

- providing water;
- adding a co-solvent upon stirring, wherein the co-solvent is selected from the group consisting of saccharides and co-solvents comprising a ring structure, wherein the ring structure comprises a 5-membered, a 6-membered or a 7-membered ring;
- adding a cyclodextrin compound upon stirring;
- adding an aqueous dispersion of the water dispersed resin and an aqueous dispersion of the water dispersible colorant, wherein the water-dispersed resin is present in an amount of 80wt% or more based on the amount of the cyclodextrin component.

In a further aspect of the present disclosure, there is provided a method for applying an image onto a receiving medium by applying droplets of an ink composition disclosed herein onto the receiving medium, the method comprising the step of:

- applying droplets of the ink composition onto the receiving medium in a predefined pattern.

Description

Water-dispersed resin (Latex resin)

The inkjet ink according to the present invention contains a water-dispersed resin in view of the fixability of the colorant to recording media. As the water-dispersed-resin, a water-dispersed resin capable of film formation (image formation) and having high water repellency, high waterfastness, and high weatherability is useful in recording images having high waterfastness and high image density (high color developing ability).

Examples of the water-dispersed resin include synthetic resins and natural polymer compounds.

Examples of the synthetic resins include polyester resins, polyurethane resins, polyepoxy resins, polyamide resins, polyether resins, poly(meth)acrylic resins, acryl-silicone resins, fluorine-based resins, polyolefin resins, polystyrene-based resins, polybutadiene-based resins, polyvinyl acetate-based resins, polyvinyl alcohol-based resins, polyvinyl ester-based resins, polyvinyl chloride-based resins, polyacrylic acid-based resins, unsaturated carboxylic acid-based resins and copolymers such as styrene - acrylate copolymer resins, styrene-butadiene copolymer resins, and combinations of

CLAIMS

1. An ink composition comprising
    - a water-dispersed resin;
    - a water dispersible colorant;
    - a cyclodextrin compound;
    - water;
    - a co-solvent;

    wherein the water-dispersed resin is present in an amount of 3.5 wt% or more, based on the total weight of the ink composition, wherein the water-dispersed resin is present in an amount of 80wt% or more based on the amount of the cyclodextrin component, and wherein the co-solvent is selected from the group consisting of: saccharides and co-solvents comprising a ring structure, wherein the ring structure comprises a 5-membered, a 6-membered or a 7-membered ring.
2. Ink composition according to claim 1, wherein the cyclodextrin compound is a β-cyclodextrin compound.
3. Ink composition according to claim 1 wherein the co-solvent and the cyclodextrine are present in a molar ratio of from 1: 20 to 20:1.
4. Ink composition according to any of the claims 2-3, wherein the water dispersed-resin is compatible with the co-solvent and the cyclodextrine compound.
5. Ink composition according to claim 1, wherein the co-solvent is a saccharide.
6. Ink composition according to claim 5, wherein the saccharide is selected from the group consisting of a mono-saccharide, a disaccharide and a trisaccharide.
7. Ink composition according to claim 4, wherein the co-solvent is isosorbide.
8. Ink composition according to claim 1, wherein the co-solvent is 2-pyrrolidone.
9. Method for preparing an ink composition according to claim 1, the method comprising the steps of:
    - providing water;
    - adding a co-solvent upon stirring, wherein the co-solvent is selected from the group consisting of saccharides and co-solvents comprising a ring structure, wherein the ring structure comprises a 5-membered, a 6-membered or a 7-membered ring;
    - adding a cyclodextrin compound upon stirring;
    - adding an aqueous dispersion of the water dispersed resin and an aqueous dispersion of the water dispersible colorant, wherein the water-dispersed resin

is present in an amount of 80wt% or more based on the amount of the cyclodextrin component.

10. Method for applying an image onto a receiving medium by applying droplets of an ink composition according to any of the claims 1 - 8 onto the receiving medium, the method comprising the step of:

- applying droplets of the ink composition onto the receiving medium in a predefined pattern.