the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group and wherein the ester compound is present in an amount of 0.3 wt% - 3.0 wt% based on the total weight of the radiation-curable inkjet ink composition;

wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane;

the compound B is a compound according to formula **I**;

formula **I**: R-C(O)OH;

wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms; and

the ester compound is a gelling agent.

The radiation-curable component and the ester compound may be provided. Optionally, additional components may be provided, for example an additional solvent. The radiation-curable component and the ester compound may be provided neat or they may be provided in a solution or dispersion. Optionally, a colorant may be provided. In case the colorant is a pigment, the pigment is preferably provided as a dispersion, such

as an aqueous pigment dispersion. The components may be provided at once, or the components may be added subsequently. The components may be added in any suitable order. In case a dispersible component is added (pigment and/or latex particles), such dispersible component may be preferably added after the other components of the ink composition are provided. Mixing of the components may be carried out at any suitable temperature, for example room temperature.

The present disclosure also provides a method for applying an image onto a recording medium is provided, the method comprising the steps of:

a. jetting droplets of a radiation-curable inkjet ink composition according to the present disclosureonto the recording medium;

b. curing the radiation-curable inkjet ink composition by irradiating the ink composition using UV radiation.

In an aspect of the present disclosure, there is provided a method for preparing a radiation-curable inkjet ink composition according to the present disclosure, the method comprising the steps of:

- providing a radiation curable component;
- providing an ester compound, the ester compound consisting essentially of a condensation product of a first reactant and a second reactant, wherein the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group; and
- mixing the radiation curable component and the ester compound;

wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane;

the compound B is a compound according to formula **I**;

formula **I**: R-C(O)OH;

wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms; and

the ester compound is a gelling agent.

In another aspect of the present disclosure, there is provided a method for applying an image onto a recording medium, the method comprising the steps of :

a. jetting droplets of a radiation-curable inkjet ink composition according to claim 1 onto the recording medium;

b. curing the radiation-curable inkjet ink composition by irradiating the ink composition using UV radiation.

In the method, an image is applied onto a recording medium. In the method, in step a), an image is applied to the recording medium. The image may be applied using an ink composition according to the present disclosure. The ink composition may be applied onto the recording medium in a predetermined fashion, e.g. in accordance with image files stored on suitable storing means. The image may be applied for example by jetting droplets of the radiation-curable inkjet ink composition using an inkjet print head. The recording medium may be a sheet-like medium, such as a sheet of paper or a sheet of vinyl. Alternatively, the recording medium may be a web, for example an endless belt. The web may be made of a suitable material. Optionally, the image may be dried after it has been applied onto the intermediate transfer member.

In the method, in step b), the radiation-curable inkjet ink composition is cured by irradiating the ink composition using UV radiation. The inkjet ink composition may be irradiated using a suitable source of radiation, such as a halogen lamp, a mercury lamp and/or a LED lamp. Optionally, a plurality of sources of radiation may be used to irradiate the inkjet ink composition.

In a further aspect of the present disclosure, there is provided a use of an ester compound in a radiation-curable inkjet ink composition for obtaining a glossy image, wherein the ester compound consists essentially of a condensation product of a first reactant and a second reactant, wherein the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least

one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group, wherein the ester compound is present in an amount of 0.3 wt% - 3.0 wt% based on the total weight of the radiation-curable inkjet ink composition, wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane, wherein the compound B is a compound according to formula I;

formula I: R-C(O)OH;

wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms,

and wherein the ester compound is a gelling agent.

In another aspect of the present disclosure, there is provided a use of pentaerythritoltetrastearate in a radiation-curable inkjet ink composition for obtaining a glossy image.

Brief description of the drawings

These and further features and advantages of the present invention are explained hereinafter with reference to the accompanying drawings showing non-limiting embodiments and wherein:

CLAIMS

1. Radiation-curable inkjet ink composition comprising a radiation curable component, the radiation-curable inkjet ink composition further comprising an ester compound, the ester compound consisting essentially of a condensation product of a first reactant and a second reactant, wherein the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group and wherein the ester compound is present in an amount of 0.3 wt% - 3.0 wt% based on the total weight of the radiation-curable inkjet ink composition; wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane; the compound B is a compound according to formula **I**;

   formula **I**: R-C(O)OH;

   wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms; and

   the ester compound is a gelling agent.

2. Radiation-curable inkjet ink composition according to claim 1, wherein the compound B is a fatty acid.

3. Radiation-curable inkjet ink composition according to claim 1 or 2, wherein the ester compound is a fatty acid ester of pentaerythritol.

4. Radiation-curable inkjet ink composition according to claim 3, wherein the ester compound is pentaerythritoltetrastearate.

5. Radiation-curable inkjet ink composition according to any of the preceding claims, wherein the radiation curable component is an acrylate having two or more acrylate functional groups.

6. Radiation-curable inkjet ink composition according to claim 5, wherein the ink composition further comprises a monofunctional acrylate.

7. Method for preparing a radiation-curable inkjet ink composition according to claim 1-6, the method comprising the steps of:

- providing a radiation curable component;
- providing an ester compound, the ester compound consisting essentially of a condensation product of a first reactant and a second reactant, wherein the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group; and
- mixing the radiation curable component and the ester compound;

wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane;

the compound B is a compound according to formula **I**;

formula **I**: R-C(O)OH;

wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms; and

the ester compound is a gelling agent.

8. Method for applying an image onto a recording medium, the method comprising the steps of :

a. jetting droplets of a radiation-curable inkjet ink composition according to any of claims 1-6 onto the recording medium;

b. curing the radiation-curable inkjet ink composition by irradiating the ink composition using UV radiation.

9. Use of an ester compound in a radiation-curable inkjet ink composition for obtaining a glossy image, wherein the ester compound consists essentially of a condensation product of a first reactant and a second reactant, wherein the first reactant is a compound A comprising at least 3 first functional groups, and wherein the second reactant comprises at least one compound B, wherein the at least one compound B comprises a second functional group, wherein the first functional group is a first group selected from a hydroxyl functional group and a carboxylic acid functional group and the second functional group is a second group selected from a hydroxyl functional group and a carboxylic acid functional group, wherein the first functional group is different from the second functional group, wherein the ester compound is present in an amount of 0.3 wt% - 3.0 wt% based on the total weight of the radiation-curable inkjet ink composition, wherein the compound A is selected from the group consisting of pentaerythritol, cyclodextrine, glycerol, dipentaerythritol, 2-(hydroxymethyl)-2-methylpropane-1,3-diol, 2-ethyl-2-(hydroxymethyl)propane-1,3-diol, 2-(hydroxymethyl)propane-1,3-diol, trimethylolethane, trimethylolpropane, trimethylolbutane and trimethylolpentane, wherein the compound B is a compound according to formula **I**;

formula **I**: R-C(O)OH;

wherein R is an alkyl group, an aryl group or an alkylarylgroup, wherein R is a group having 5-30 carbon atoms,

and wherein the ester compound is a gelling agent.