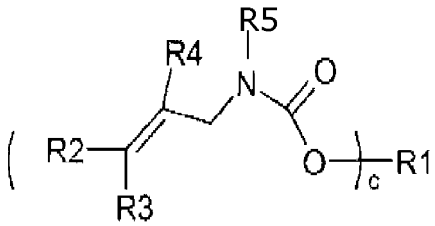
Claims:

1. *N*-allyl carbamate compound according to general formula A



Formula A

wherein the radical R1 is selected from straight-chain, branched, or cyclic substituted aliphatic hydrocarbon radicals and heterocyclic radicals, wherein the radical R1 includes at least one ethylenically unsaturated bond, wherein R2, R3, and R4 are selected from hydrogen and hydrocarbon radicals, wherein R5 represents hydrogen or an allyl group, and wherein c is an integer of 1 or greater.

2. Compound according to Claim 1, characterized in that the at least one ethylenically unsaturated bond of the radical R1 is represented by a function which is selected from *N*-allyl, *N*-allyl carbamate, *N*-vinyl, (meth)acrylate, and/or (meth)acrylamide.

3. Compound according to Claim 1 or 2, characterized in that the radical R1 includes a polyol-based radical which is selected in particular from diols, triols, oligomeric or polymeric vinyl alcohol compounds, mono- and disaccharides, and derivatives of the above-mentioned polyols.

4. Compound according to Claim 3, characterized in that the mono- or disaccharide is a sugar alcohol.

5. Compound according to Claim 3 or 4, characterized in that the polyol has a molar mass of approximately 3000 g/mol or less, in particular approximately 800 g/mol or less, more preferably approximately 500 g/mol or less.

6. Compound according to one of Claims 1 to 5, characterized in that the radical R1 includes an acrylate functionality.

7. Compound according to one of Claims 1 to 6, characterized in that the radical R1 is a heterocyclic radical, in particular a 1,3,5-triazine-based radical.

8. Compound according to one of Claims 1 to 7, characterized in that the radical R1 is a monomeric radical.

9. Compound according to Claim 7 or 8, characterized in that in addition to an acrylate functionality, the radical R1 includes a heterocyclic group, in particular a 1,3,5-triazine group.

10. Compound according to one of Claims 6 to 9, characterized in that the ratio of the *N*-allyl carbamate functionalities to the acrylate functionalities in the radical R1 is ≥ 1.

11. Composition for use in radiation-curing coatings, including one or more compounds according to one of Claims 1 to 10, and/or a component selected from monomeric, oligomeric, and polymeric *N*-vinyl-, *N*-allyl-, *O*-vinyl-, and/or *O*-allyl-functional 1,3,5-triazine compounds, in particular 1,3,5-triallyl-1,3,5-triazine-2,4,6 (1*H*,3*H*,5*H*)trione or 2,4,6-triallyloxy-1,3,5-triazine, optionally in tautomeric form.

12. Composition according to Claim 11, characterized in that the composition is composed substantially of compounds having a molar mass of approximately 5000 g/mol or less, preferably approximately 1000 g/mol or less.

13. Composition according to Claim 11 or 12, characterized in that the composition is substantially solvent-free, and optionally includes a reactive diluent, in particular selected from hexamethylene diol diacrylate (HDDA), hexamethylene diol dimethacrylate (HDDMA), isobornyl acrylate (IBOA), tripropylene glycol diacrylate (TPGDA), and trimethylolpropane triacrylate (TMPTA).

14. Coating composition including a compound according to one of Claims 1 to 10 or a composition according to one of Claims 11 to 13.

15. Coating composition according to Claim 14, characterized in that the coating composition is substantially solvent-free.

16. Coating composition according to Claim 14 or 15, characterized in that the coating composition includes a polymer- or oligomer-based binder.

17. Coating composition according to Claim 16, characterized in that the binder includes an acrylate-, urethane-, or polyester-functional binder component.

18. Coating composition according to one of Claims 14 to 17, characterized in that the coating composition is formulated as paint, in particular as clear coat, more preferably as UV-curable clear coat.

19. Coating composition according to one of Claims 14 to 18, characterized in that the coating composition is UV radical-curable.

20. UV radical-curable coating composition, in particular according to one of Claims 14 to 17, characterized in that the coating composition includes an *N*-allyl carbamate-functional compound according to one of Claims 1 to 10 as aliphatic reactive diluent component, the radical R1 being derived from a C_2–C_5 hydrocarbon unit, and/or the coating composition includes a triallyl triazine compound, optionally in tautomeric form.

21. Coating composition according to one of Claims 14 to 20, characterized in that the *N*-allyl carbamate-functional compound is tri- or tetrafunctional.

22. Coating composition according to one of Claims 14 to 17 or 21, characterized in that the coating composition is formulated as ink.

23. Coating composition, in particular for producing coatings having a layer thickness of approximately 0.5 µm to approximately 600 µm, according to one of Claims 14 to 22, characterized in that the proportion of the compound according to one of Claims 1 to 10 is approximately 80% by weight or less, in particular approximately 5 to 60% by weight, more preferably approximately 8 to 30% by weight, or that the proportion of the composition according to one of Claims 11 to 13 is approximately 80% by weight or less, in particular approximately 5 to 60% by weight, more preferably approximately 25 to 60% by weight, most preferably approximately 30 to 60% by weight.

The invention claimed is:

1. A composition for use in radiation-curing coatings comprising a 1,3,5-triazine compound selected from 1,3,5-triallyl-1,3,5-triazine-2,4,6(1H,3H,5H)trione and the tautomeric form thereof and a reactive diluent selected from hexamethylene diol diacrylate (HDDA), hexamethylene diol dimethacrylate (HDDMA), isobornyl acrylate (IBOA), tripropylene glycol diacrylate (TPGDA), and trimethylolpropane triacrylate (TMPTA).

2. The composition according to claim 1, wherein the composition is composed substantially of compounds having a molar mass of approximately 1000 g/mol or less.

3. The composition according to claim 1, wherein the composition is substantially solvent-free.

4. The composition according to claim 1, wherein the composition includes a polymer- or oligomer-based binder.

5. The composition according to claim 4, wherein the binder includes an acrylate-, urethane-, or polyester-functional binder component.

6. The composition according to claim 1, wherein the proportion of the compound in the composition is approximately 80% by weight or less.

7. The composition according to claim 6, wherein the proportion of the compound in the composition is approximately 5 to 60% by weight.

8. The composition according to claim 7, wherein the proportion of the compound in the composition is approximately 8 to 30% by weight.

9. The composition according to claim 1, wherein the composition is free from organic sulfur compounds.

10. The composition according to claim 1, wherein the composition formulated as paint.

11. The composition of claim 10, wherein the paint is a clear coat.

12. UV radical-curable coating composition comprising a 1,3,5-triazine compound selected from 1,3,5-triallyl-1,3,5-triazine-2,4,6 (1H,3H,5H)trione and the tautomeric form thereof and a reactive diluent selected from hexamethylene diol diacrylate (HDDA), hexamethylene diol dimethacrylate (HDDMA), isobornyl acrylate (IBOA), tripropylene glycol diacrylate (TPGDA), and trimethylolpropane triacrylate (TMPTA).

13. The composition according to claim 12, wherein the composition is composed substantially of compounds having a molar mass of approximately 5000 g/mol or less.

14. The composition according to claim 13, wherein the composition is composed substantially of compounds having a molar mass of approximately 1000 g/mol or less.

15. The composition according to claim 12, wherein the coating composition is substantially solvent-free.

16. The composition according to claim 12, wherein the coating composition includes a polymer- or oligomer-based binder.

17. The composition according to claim 16, wherein the binder includes an acrylate-, urethane-, or polyester-functional binder component.

18. The composition according to claim 12, wherein the proportion of the compound in the coating composition is approximately 80% by weight or less.

19. The composition according to claim 18, wherein the proportion of the compound in the coating composition is approximately 5 to 60% by weight.

20. The composition according to claim 19, wherein the proportion of the compound in the coating composition is approximately 8 to 30% by weight.

21. The composition according to claim 12, wherein the coating composition is free from organic sulfur compounds.

22. The composition according to claim 12, wherein the coating composition is formulated as paint.

23. The composition of claim 22, wherein the paint is a clear coat.