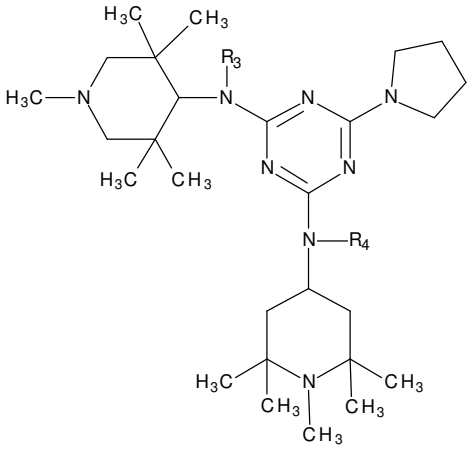
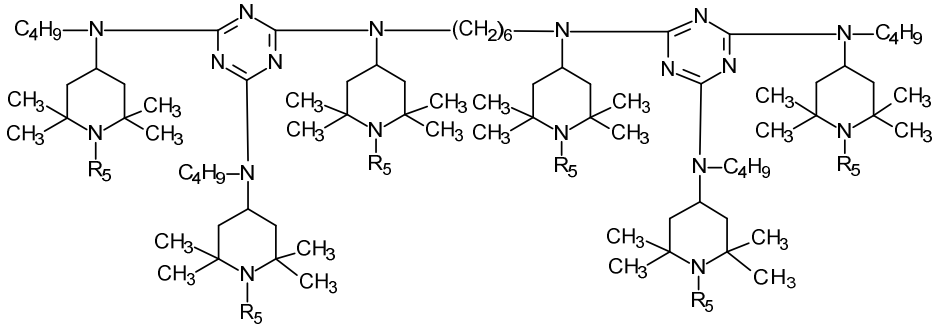


(A-III-1),

wherein R_3 and R_4 are C_1–C_{22}alkyl,



(A-IV-1),

wherein

R_5 independently of each other are hydrogen or propoxy,

component B) is a natural or synthetic hydrotalcite,

component C) is a phenolic antioxidant selected from the group consisting of 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene, ethylene bis[3,3-bis(3-tert-butyl-4-hydroxyphenyl)butyrate], 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-isocyanurate and 6-[3-(3-tert-butyl-4-hydroxy-5-methylphenyl)propoxy]-2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2]dioxaphosphepin,and

a component D) which is at least one compound selected from the group consisting of phosphites, phosphonites, hydroxylamines, vitamin E and vitamin E acetates, and

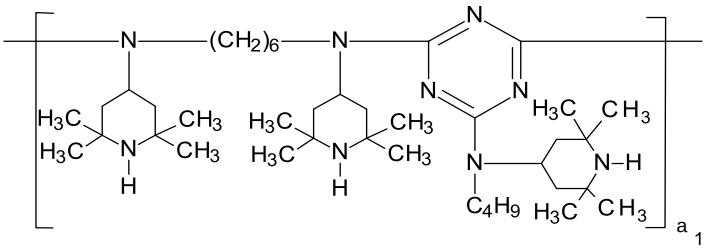
and wherein the weight ratio of component A) to component B) is 1:10 to 10:1.

In another aspect, there is provided the use of a mixture comprising components A) and B) in a weight ratio of 1:10 to 10:1, component C), and component D), each as defined above, for stabilizing a polypropylene pipe.

Component A) is preferably a compound of formula (A-I-1), (A-I-3), (A-III-1) or (A-IV-1), especially a compound of formula (A-I-1), (A-I-3) or (A-IV-1) and more preferably a

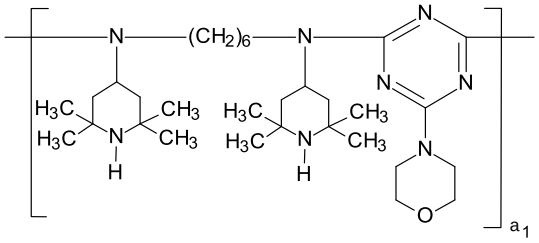
Claims:

1. A polypropylene composition comprising components A), B), C) and D), wherein component A) is a hindered amine light stabilizer selected from the group consisting of the compounds of formulae (A-I-1), (A-I-2), (A-I-3), (A-III-1) and (A-IV-1)



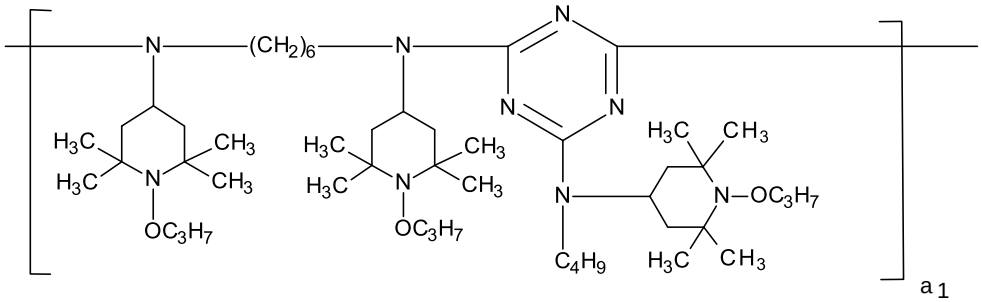
(A-I-1)

with a_1 being 2 to 10,



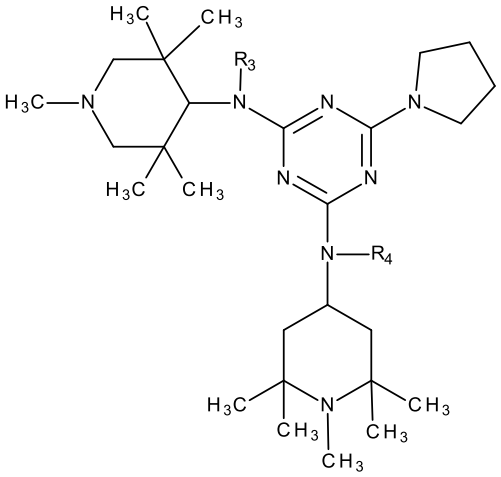
(A-I-2)

with a_1 being 2 to 10,



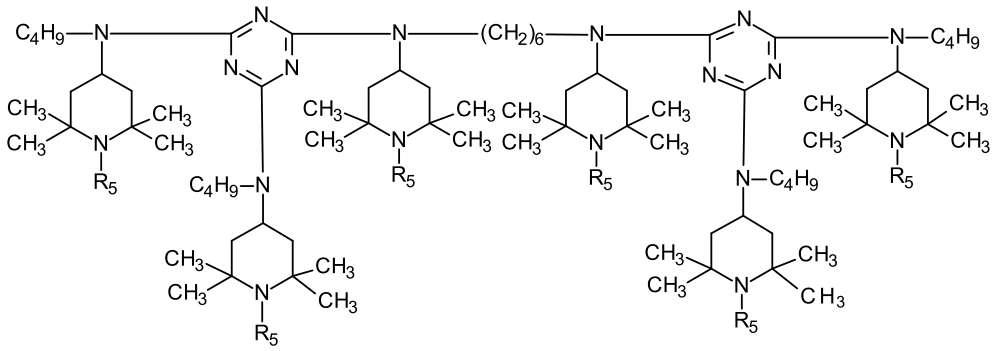
(A-I-3)

with a_1 being 2 to 10,



(A-III-1),

wherein R_3 and R_4 are C_1–C_{22}alkyl,



(A-IV-1),

wherein

R_5 independently of each other are hydrogen or propoxy,

component B) is a natural or synthetic hydrotalcite,

component C) is a phenolic antioxidant selected from the group consisting of 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene, ethylene bis[3,3-bis(3-tert-butyl-4-hydroxyphenyl)butyrate], 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-isocyanurate and 6-[3-(3-tert-butyl-4-hydroxy-5-methylphenyl)propoxy]-2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2]dioxaphosphepin, and

a component D) which is at least one compound selected from the group consisting of phosphites, phosphonites, hydroxylamines, vitamin E and vitamin E acetates, and

and wherein the weight ratio of component A) to component B) is 1:10 to 10:1.

2. The polypropylene composition according to claim 1, wherein component A) is a compound of formula (A-I-1), (A-I-3), (A-III-1) or (A-IV-1).

3. The polypropylene composition according to claim 1, wherein component A) is a compound of formula (A-I-1) or (A-IV-1), preferably a compound of formula (A-I-1).

4. The polypropylene composition according to any of claims 1 to 3, wherein component B) is at least one magnesium aluminum hydroxide carbonate hydrate or zinc aluminum hydroxide carbonate hydrate.

5. The polypropylene composition according to claims 1 to 4, wherein component D) is a phosphite, preferably tris(2,4-di-tert-butylphenyl) phosphite, [3,3',5,5'-tetra-tert. butyl-1,1'biphenyl-2,2'-diyl]-[3-(3-methyl-4-hydroxy-5-tert.butyl-phenyl)-propyl]-phosphite, [2,2'-ethylene-bis-(4,6-di-tert. butyl-phenyl)-1,1'-diyl]-[2,6-dimethyl-4-(5,7-di-tert. butyl)-3H-1-benzofuran-2-one)-phenyl]-phosphite, [2,2'-ethylene-bis-(4,6-di-tert. butyl-phenyl)-1,1'-diyl]-[1-methyl-6-tert. butyl-4-(5,7-di-tert. butyl)-3H-1-benzofuran-2-one)-phenyl]-phosphite, 6-[3-(3-tert-butyl-4-hydroxy-5-methylphenyl)propoxy]-2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2]dioxaphosphepin, bis(2,4-dicumylphenyl)pentaerythritol-diphosphite or 2,2'2"-nitrilo[triethyl-tris[3,3',5,5'-tetra-tert-butyl-1,1'-biphenyl-2,2'-diyl]] phosphite.

6. The polypropylene composition according to any of claims 1 to 5, comprising the components (A), (B), (C) and (D), wherein
component (A) is a compound of formula (A-I-1),
component (B) is a natural or synthetic hydrotalcite,
component (C) is 1,3,5-tris(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene, and
component (D) is tris[2,4-di-tert-butylphenyl]phosphite.

7. The polypropylene composition according to any of claims 1 to 6 which is an article in the form of a pipe, cable or geomembrane.

8. The polypropylene composition according to any of claims 1 to 7 which is an article in the form of a pipe or geomembrane.

9. The polypropylene composition according to any of claims 1 to 8 which is an article in the form of a pipe or geomembrane which are in contact with oxidizing media.

10. The polypropylene composition according to any of claims 1 to 9 which is an article in the form of a pipe.

11. The polypropylene composition according to any of claims 1 to 10 which is an article in the form of a pipe which is in contact with chlorinated water.

12. The use of a mixture comprising components A) and B) in a weight ratio of 1:10 to 10:1, component C) and component D), each as defined in claim 1, for stabilizing a polypropylene pipe.