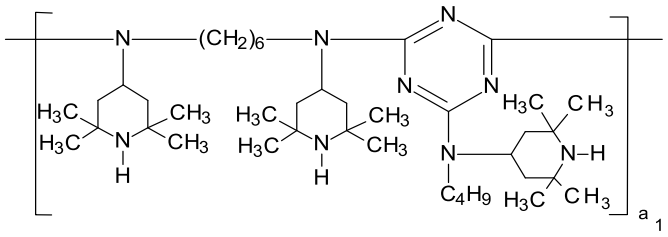
A polypropylene composition

Description

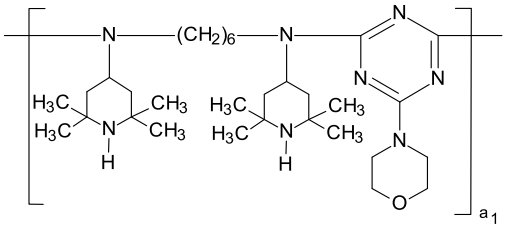
The present disclosure relates to a polypropylene composition comprising specific hindered amine light stabilizers, natural or synthetic hydrotalcites and specific antioxidants.

More specifically, the present disclosure relates to a polypropylene composition comprising components A), B) and C), 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)



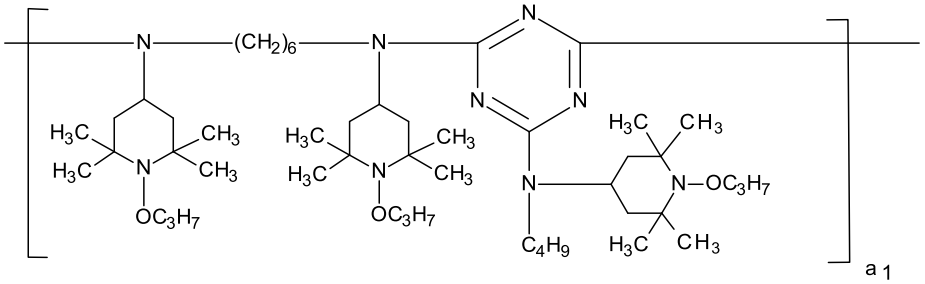
(A-I-1)

with a_1 being 2 to 10,



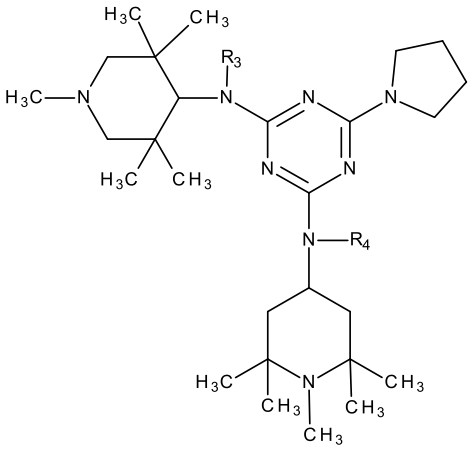
(A-I-2)

with a_1 being 2 to 10,



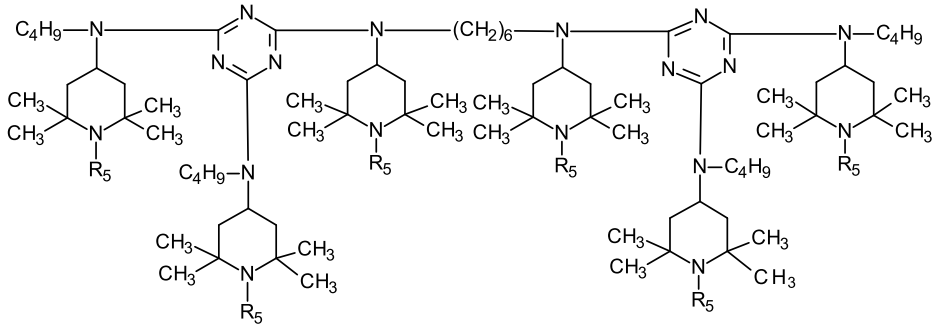
(A-I-3)

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,

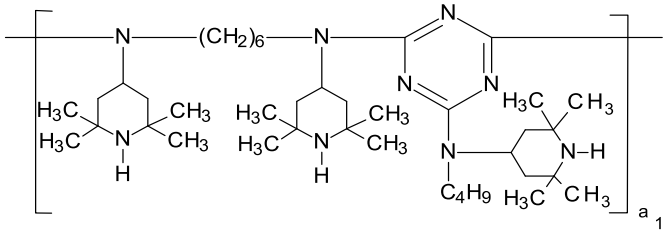
component B) is a natural or synthetic hydrotalcite,

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 wherein the weight ratio of component A) to component B) is 1:10 to 10:1, preferably 1:5 to 5:1.

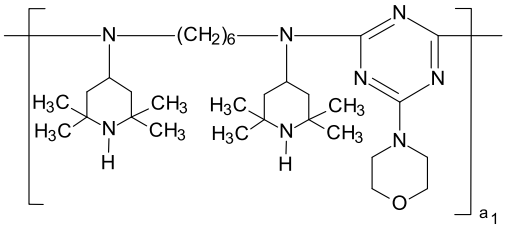
In an aspect, there is provided a polypropylene composition comprising components A), B) and C), wherein component A) is a hindered amine light stabilizer selected from

the group consisting of the compounds of formulae (A-I-1), (A-I-2), (A-I-3), (A-III-1) and (A-IV-1)



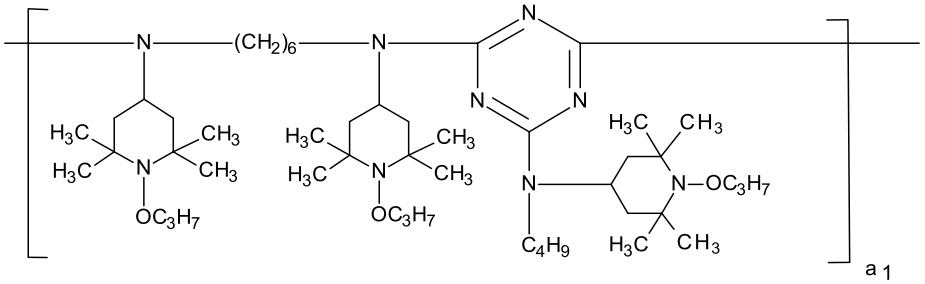
(A-I-1)

with a_1 being 2 to 10,



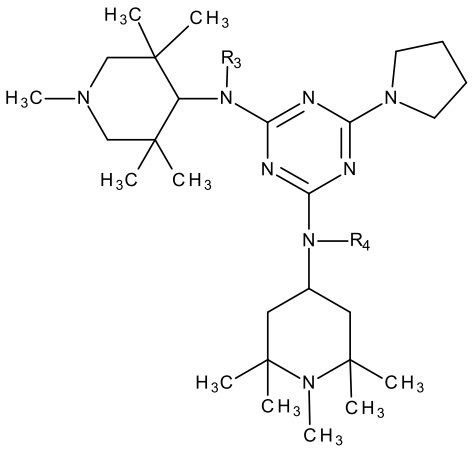
(A-I-2)

with a_1 being 2 to 10,



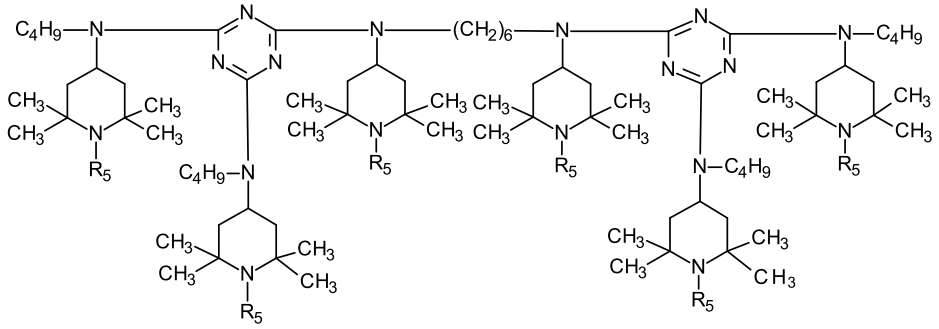
(A-I-3)

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 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 and component C), 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