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PROCESS FOR DYEING POLYPROPYLENE AND POLYFORMALDEHYDE FIBERS CONTAINING ZINC COMPOUNDS WITH METALLISABLE DYE-STUFFS

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This invention relates to an improved dyeing process and more particularly to an improved process for dyeing polyolefine and polyacetal fibres which contain metal compounds.

It is known that polyolefine and polyacetal fibres containing metal compounds may be dyed with metallisable dyestuffs, and that by this means the dyestuff becomes firmly anchored within the fibre.

United States application Serial No. 174,255, filed February 19, 1962, describes a process for the production of coloured shaped articles of poly- α -olefines, in particular coloured fibres of stereoregular polypropylene, wherein there is incorporated a basic or anionic exchange substance which contains a metal, characterised in that the article is dyed with an acid dyestuff which forms a chelate compound.

United States application Serial No. 212,705, filed July 26, 1962, describes a process for the production of coloured shaped articles containing or consisting of polyacetals, wherein there is incorporated a basic or anionic exchange substance which contains a metal, characterised in that the article is dyed with an acid dyestuff which forms a chelate compound.

We have found that when poly- α -olefine or polyacetal fibres containing metal compounds are dyed with metallisable dyestuffs the resulting dyeings have poor fastness to rubbing. Frequently also we have found that the dye baths do not exhaust satisfactorily and the resulting dyeings have poor fastness to solvents. It appears that although much of the dyestuff becomes firmly anchored within the fibre, some metal complex formation takes place on the surface of the fibre yielding a loosely bound dyestuff metal complex which is easily removed by rubbing and in some cases by solvents. The present invention provides an improved process for dyeing the aforesaid fibres with metallisable dyestuffs and avoids the defects of the known process.

According to the invention we provide a process for the production of coloured polyolefine and polyacetal fibres containing compounds of polyvalent metals which comprises dyeing said fibres with a metallisable dyestuff which is devoid of sulphonic acid groups and treating said fibre with an aqueous solution of a sequestering agent.

As examples of polyolefin and polyacetal fibres we mention polymers and co-polymers of ethylene and propylene, particularly stereoregular polypropylene, and polyformaldehyde.

Examples of polyvalent metals which may be contained in the polyolefine or polyacetal fibres used in the process of the invention include zinc, copper, nickel, chromium, cobalt, magnesium, aluminium, calcium, titanium, zirconium, and rare-earth metals such as praseodymium, cerium and lanthanum. The preferred metals are, however, nickel and especially zinc.

The metallisable dyestuffs which may be used in the process of our invention may be of any desired series, for example of the anthraquinone, azo, formazan, aza-

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methine or heterocyclic series. The dyestuffs may be devoid of substituents imparting water-solubility, that is to say they may be of the water-insoluble disperse type, in which case they may be applied to the fibre by known techniques for the application of disperse dyes to fibres. Alternatively the dyestuffs may carry substituents imparting water-solubility (for example carboxylic acid groups or salts thereof, but not sulphonic acid groups) provided that a water-insoluble complex is formed between the dyestuff and the metal contained in the fibre, and in this case the dyestuffs are applied to the fibre from aqueous solution.

Metallisable azo dyestuffs which may be used in the process of the invention include dyestuffs containing hydroxy, alkoxy, carboxy, carbalkoxy or amino groups in ortho position to the azo linkage and dyestuffs in which a heterocyclic nitrogen atom adjacent to the azo linkage takes part in chelation. As specific examples of such dyestuffs we may mention o-hydroxyazo dyes such as: 2 - hydroxy - 5 - cyclohexylazobenzene, 2 - hydroxy - 4' - dodecyl - 5 - methylazobenzene, 2 - hydroxy - 4' - nitro - 5 - methylazobenzene, 2':4' - dichloro - 2 - hydroxy - 5 - methylbenzene, 1 - (4' - methylphenylazo)-2-naphthol.

o:o'-Dihydroxyazo dyes such as: 2:2'-dihydroxy-5-chloro - 5' - dodecylazobenzene, 2:2' - dihydroxy - 3' - chloro - 5 - methylazobenzene, 2:2' - dihydroxy - 4 - (N - ethyl - N-dodecylamino)-5'-nitroazobenzene, 1-(5'-chloro - 2' - hydroxyphenylazo)-2-naphthol, 1-(3'-nitro-2' - hydroxyphenylazo) - 2 - naphthol, 2 - (5' - chloro - 2' - hydroxyphenylazo) - 1 - naphthol, 1 - (4' - dodecylphenyl) - 3 - methyl - 4 - (2'' - hydroxy - 4'' - nitrophenylazo) - 5 - pyrazolone, 1 - phenyl - 3 - methyl - 4 - (2' - hydroxyphenylazo) - 5 - pyrazolone, 1 - phenyl - 3 - dodecyloxycarbonyl - 4 - (2' - hydroxy - 5' - chlorophenylazo) - 5 - pyrazolone, 3:3' - dihydroxy-4:4'-bis-(5'' - hydroxy - 1'' - phenyl - 3'' - methylpyrazol - 4'' - ylazo)-1:1-diphenyl.

o - Hydroxy - o' - carboxyazo dyes such as: 2 - hydroxy - 2' - carboxy - 5 - cyclohexylazobenzene, 2 - hydroxy - 2' - carboxy - 4' - nitro - 5 - methylazobenzene, 1 - (2' - carboxyphenylazo) - 2 - naphthol, 1 - phenyl - 3 - methyl - 4 - (2' - carboxy - 4' - nitrophenylazo) - 5-pyrazolone.

o-Hydroxy-o'-alkoxyazo dyes such as: 2 - hydro - 2' - methoxy - 4' - (N:N - dibutylamino) - 5 - methylsulphonylazobenzene, 2' - methoxy - 5:5' - dimethyl - 2 - hydroxyazobenzene, 2 - hydroxy - 2' - methoxy - 5' - methyl - 5 - dodecyl - 4' - phenylazo-azobenzene, 2 - hydroxy - 2' - methoxy - 5:5' - dimethyl - 4' - (2'':5'' - dimethylphenylazo)azobenzene, 1 - (2' - methoxy - 5' - methylphenylazo)-2-naphthol.

o-Hydroxy-o'-aminoazo dyes such as: 1 - (2' - hydroxy-4' - nitrophenylazo) - 2 - naphthylamino, 4 - (2' - hydroxy - 5' - sulphamylphenylazo) - 5 - amino - 1 - phenyl - 3 - methylpyrazole, 8 - (2' - hydroxynaphthylazo) - quinoline, 8 - (2' - hydroxy - 5' - methylphenylazo)-quinoline, 1 - (benzthiazol - 2' - ylazo) - 2 - naphthol, 1 - (thiazol - 2' - ylazo) - 2:4 - dihydroxy benzene, 1 - (indazol - 7' - ylazo) - 2 - naphthol, 1 - (1':2':3':4' - tetrazol-5'-ylazo)-2-naphthol.

o-Hydroxy-o'-acetylazo dyes such as: 2-hydroxy-5-methyl-2'-acetylazobenzene.

In other azo dyes which may be used in the process of the invention the azo group does not form part of the metallisable system. As examples of such dyestuffs we may mention azo dyes from 8-hydroxy quinoline, such as: 5 - (4' - dodecylphenylazo) - 8 - hydroxyquinoline, 5 - (4' - methylphenylazo) - 8 - hydroxyquinoline, 5 - (2' - cyanophenylazo) - 8 - hydroxyquinoline, 5 - (4' - cyclohexyloxycarbonylphenylazo) -

8 - hydroxyquinoline, 5 - (2':4' - dichlorophenylazo) - 8 - hydroxyquinoline, 5 - (4' - nitrophenylazo) - 8 - hydroxyquinoline, 5 - (2' - chloro - 4' - nitrophenylazo) - 8 - hydroxyquinoline, 5 - (2':4' - dimethylphenylazo) - 8 - hydroxyquinoline, 5 - (4' - cyano - 2' - trifluoromethylphenylazo) - 8 - hydroxyquinoline, 4 - dodecyl - 4' - (8'' - hydroxy - 1''-quinol-5''-ylazo)azobenzene, 4-(8''-hydroxy-1''-quinol-5''-ylazo)azobenzene.

Azo dyes from 4-hydroxybenzthiazole, such as: 7 - (2':4' - dichlorophenylazo) - 4 - hydroxybenzthiazole, 7-(2'-nitrophenylazo)-4-hydroxybenzthiazole, 7-(4'-dodecylphenylazo)-4-hydroxybenzthiazole, 7-(4'-dodecylcarbonylphenylazo) - 4 - hydroxybenzthiazole, 2:2':5'-trimethyl-5-methoxy-4 - (4''-hydroxybenzthiazol-7''-ylazo)-azobenzene.

Azo dyes from 4-hydroxyacridine, such as: 1-(2':4'-dichlorophenylazo)-4-hydroxyacridine.

Azo dyes from 4-hydroxybenzoxazolone, such as: 7-(4'-cyclohexyloxycarbonylphenylazo)-4-hydroxybenzoxazole.

Azo dyes from 7-hydroxyindazole, such as: 4-(4'-nitrophenylazo)-7-hydroxyindazole.

Azo dyes from salicylaldoxime, such as: 2-octyloxy-carbonyl-3'-oximinomethyl-4-nitro-4'-hydroxyazobenzene, 3 - oximinomethyl - 4 - hydroxy - 4 - cyclohexyloxycarbonylazobenzene, 3-oximinomethyl-4-hydroxy-4-dodecylazobenzene, 3-oximinomethyl - 4 - hydroxy-2':4'-dichloroazobenzene, 3 - oximinomethyl - 4 - hydroxy - 4' - nitro-2'-cyanoazobenzene.

Azo dyes from o-hydroxyacetophenone oxime, such as: 3 - α - oximinoethyl - 4 - hydroxy - 4' - dodecylazobenzene, 4-nitro-3'- α -oximinoethyl-4'-hydroxyazobenzene.

Azo dyes from salicylic acid and its esters, such as: 3 - carboxy - 4 - hydroxy - 4' - cyclohexyloxycarbonylazobenzene, 3-carboxy-4-hydroxy-4'-nitroazobenzene, 3-methoxycarbonyl-4-hydroxy-2'-cyanoazobenzene, 3-n-butyl-oxycarbonyl-4-hydroxy-2':4'-dichloroazobenzene, 3-carboxy - 4 - hydroxy - 2' - methoxy - 5' - methyl - 4' - (2'':5''-dimethylphenylazo)-azobenzene.

Azo dyes from 2-hydroxy-3-naphthoic acid and its esters, such as: 1-(4'-dodecylphenylazo)-2-hydroxy-3-naphthoic acid, 1-(4'-nitro - 2' - chlorophenylazo) - 2-hydroxy-3-naphthoic acid, 1-(4'-nitrophenylazo)-3-ethoxycarbonyl-2-naphthol, 1-(4' - methyl - 2' - nitrophenylazo)-3-octyloxycarbonyl-2-naphthol.

Azo dyes from 2-amino-3-naphthoic acid, such as: 1-(4'-dodecylphenylazo)-2-amino-3-naphthoic acid.

Azo dyes from o-dihydroxy compounds, such as: 3:4 - dihydroxy - 4' - ethoxyazobenzene, 3:4 - dihydroxy-4'-dodecylazobenzene.

Metallisable azamethine dyestuffs which may be used in the process of the invention include: 2-hydroxy-3:5-dichlorophenylmethylene - 2' - hydroxyphenylimine, 2-hydroxy - 4 - nitrophenylmethylene - 2' - hydroxy - 5' - nitrophenylimine, 2 - hydroxy - 4 - nitrophenylmethylene - 2' - hydroxyphenylimine, 2 - hydroxyphenylmethylene - 2' - hydroxyphenylimine.

Metallisable formazan dyestuffs which may be used in the process of the invention include: 3-cyano-1:5-di(o-hydroxyphenyl)formazan, 1:3-diphenyl-5-(o-carboxyphenyl) - formazan, 3 - methyl-1:5-di-(o-hydroxyphenyl) formazan, 3-hexyl-1:5-di - (o - hydroxyphenyl) formazan, 3-ethoxycarbonyl-1:5-di-(o-hydroxyphenyl)-formazan.

Metallisable anthraquinone and heterocyclic dyestuffs which may be used in the process of the invention include: hydroxy compounds such as alizarin, anthrarufin, chrysozin, quinizarin, 1-hydroxyanthraquinone, 2-hydroxyanthraquinone, beta-nitro-alizarin, 5:6-dihydroxy-7:12-dioxonaphtho-[2:3-h] - quinoline, 5:8 - di(p-hydroxy-anilino)1:2-dihydroxyanthraquinone, 1:4 - di(beta-hydroxyethylamino)-5:8 - dihydroxyanthraquinone, 2:7-dibromo-1:5 - diamino - 4:8 - dihydroxyanthraquinone, and 3:6-dibromo-1:8-diamino-4:5-dihydroxyanthraquinone.

Sequestering agents which may be used in the process of the invention include sorbitol, water-soluble poly-

phosphates such as pyrophosphates and triphosphates, oxalates, citrates, tartrates, gluconates and thiocyclolates, also aminotriacetic acid, hydroxyethylalkylenediaminetriacetic acid, diethylenetriaminopentaacetic acid, and especially ethylenediamine tetraacetic acid, and their water-soluble salts.

In the process of the invention, treatment of the polyolefine or polyacetal fibre with an aqueous solution of a sequestering agent may be carried out before, during or after the treatment with a metallisable dyestuff.

If desired, the treatment with a sequestering agent may be carried out by incorporating a sequestering agent in a scouring bath such as is commonly used for scouring polyolefine or polyacetal fibres prior to dyeing. Dyeing of the fibre may then be carried out in known manner. Alternatively the dyeing may be carried out from a dyebath which contains a sequestering agent. Excellent results are obtained by including a sequestering agent both in a preliminary scouring bath and also in the dyebath and this is the preferred mode of embodiment of the process of our invention. After-treatment of the dyed fibre with a sequestering agent is also of value, and if desired such an after-treatment may be employed when a sequestering agent is included in either the scouring bath or the dyebath, or both these baths.

The weight of sequestering agent used in any individual bath may be, for example from about 1% to about 10% of the weight of the fibre, and the temperature at which the treatment with the sequestering agent is carried out may be for example between 50° and 150° C.

After carrying out the process of the invention the fibre may be rinsed and dried in normal manner. The dyeings obtained have improved fastness to rubbing and to solvents when compared with similar dyeings obtained without the use of a sequestering agent.

The invention is illustrated but not limited by the following examples in which the parts are by weight.

Example 1

This example illustrates the treatment of a metal-containing polypropylene textile material with a sequestering agent before dyeing.

A scouring bath is prepared by adding 4 parts of sodium oleyl p-anisidine sulphonate and 8 parts of ethylenediaminetetraacetic acid disodium salt to 4000 parts of water. 100 parts of polypropylene textile material containing 95% isotactic polypropylene and 5% zinc stearate are placed in this bath and heated to 85° C. for 30 minutes. The scoured material is rinsed thoroughly in water and dyed at 100° C. for 60 minutes in a bath containing 2 parts of alizarin dispersed in 4000 parts of water. The dyed polypropylene textile material is then rinsed in water, immersed for 15 minutes in a warm aqueous solution of a synthetic detergent, again rinsed in water and dried. The polypropylene is dyed a bordeaux shade of very good rubbing fastness. The rubbing fastness of material scoured and dyed in a similar manner in the absence of ethylenediaminetetraacetic acid is much inferior. In this example sodium oleyl p-anisidine sulphonate may be replaced by a nonylphenolethylene oxide condensate. The rubbing fastness of the dyed material is again very good.

In place of alizarin in this example there may be used 3 - aminoalzarine (brown), 5:8 - di(4' - methylphenyl-amino)-alzarine (blue), 5-(4'-chloro-2'-nitrophenylazo)-8-hydroxyquinoline (deep brown), 4-nitro-3'-carboxy-4'-hydroxyazobenzene (yellow orange) or any of the dyestuffs previously named in this specification. In all cases dyeings of good rubbing fastness are obtained.

The polypropylene textile material containing 5% zinc stearate may be replaced by

(a) A polypropylene textile material containing 92% isotactic polypropylene and 8% of aluminium stearate. A red shade is obtained from alizarine, a brown from 1:2:3-trihydroxyanthraquinone, an orange from 3-nitroalzarine, a red-violet from 5:8-dihydroxyalzarine, a yellow-

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low from 4-nitro-3'-carboxy-4'-hydroxyazobenzene, a red from 1-(5'-chloro-2'-hydroxyphenylazo)-2-naphthol, an orange from 5-(4'-chloro-2'-methylphenylazo)-8-hydroxyquinoline and an orange from 5-(2':4'-dichlorophenylazo)-8-hydroxyquinoline. All the dyeings have good rubbing fastness.

(b) A polypropylene textile material containing 97% isotactic polypropylene and 3% of nickel stearate. A maroon shade is obtained from alizarin, an orange from 5-(2':4'-dimethylphenylazo)-8-hydroxyquinoline, a red from 5-(4'-cyano-2'-trifluoromethylphenylazo)-8-hydroxyquinoline, a red from 5-(2':4'-dimethylphenylazo)-8-hydroxyquinoline, a brown from 5-(quinol-8-ylazo)-8-hydroxyquinoline, a blue from 5:8-di-(n-butylamino)alizarine, a reddish brown from 1:2:3-trihydroxyanthraquinone, and an orange from 3-nitroalizarine. All the dyeings have good rubbing fastness.

(c) A polypropylene textile material containing 97% isotactic polypropylene and 3% chromium oleate. An orange shade is obtained from 5-(2':4'-dichlorophenylazo)-8-hydroxyquinoline, a red from 5-(4'-nitrophenylazo)-8-hydroxyquinoline, a blue from 5:8-di-(n-butylamino)alizarine and a violet from 1:2:5:8-tetrahydroxyanthraquinone. All the dyeings have good rubbing fastness.

(d) A polypropylene textile material containing 95% of isotactic polypropylene and 5% calcium oxide. A maroon shade is obtained from alizarin and a brown from 5-(4'-nitrophenylazo)-8-hydroxyquinoline. The dyeings have good rubbing fastness.

(e) A polypropylene textile material containing 95% of isotactic polypropylene and 5% of magnesium stearate. A maroon shade is obtained from alizarin and an orange from 5-(2':4'-dimethylphenylazo)-8-hydroxyquinoline. The dyeings have good rubbing fastness.

Example 2

This example illustrates the use of a sequestering agent during the dyeing of a metal-containing polypropylene textile material.

The zinc-containing polypropylene textile material used in Example 1 is scoured at 85° C. for 30 minutes in a 0.1% solution of sodium oleyl p-anisidine sulphonate, rinsed and then dyed at 100° C. for 60 minutes in a bath containing 2 parts of alizarin dispersed in a solution of 2 parts of ethylenediaminetetraacetic acid disodium salt in 4000 parts of water. The rubbing fastness of the dyed material is very good.

Dyeings of very good rubbing fastness are also obtained in this way using any of the metal-containing polypropylene textile materials or dyestuffs mentioned in Example 1.

Example 3

This example illustrates the use of a sequestering agent for after-treating a dyed metal-containing polypropylene textile material.

100 parts of a polypropylene textile material containing 95% isotactic polypropylene and 5% zinc stearate is scoured at 85° C. for 30 minutes in a 1% aqueous solution of sodium oleyl p-anisidine sulphonate. The scoured material is rinsed and dyed at 100° for 60 minutes in a dispersion containing 2 parts of alizarin in 400 parts of water. The dyed material is then rinsed and immersed for 15 minutes at 85° C. in a 0.2% aqueous solution of ethylenediaminetetraacetic acid containing a synthetic detergent. The final treatment removes some loose zinc complex of the dyestuff from the surface of the fibre and the resultant dyeing has better fastness to rubbing than a dyeing obtained similarly, but with omission of the ethylenediaminetetraacetic acid from the after-treating liquor.

In place of alizarin in this example there may be used 1:2:5:8-tetrahydroxyanthraquinone or 3-nitroalizarine. Dyeings of good rubbing fastness are obtained.

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Example 4

This example illustrates the use of a sequestering agent before and during the dyeing of a metal-containing polypropylene textile material. The zinc-containing polypropylene textile material used in Example 1 is scoured as in Example 1 and then dyed at 100° C. for 60 minutes in a bath containing 2 parts of alizarin dispersed in a solution of 2 parts of ethylenediaminetetraacetic acid disodium salt in 4000 parts of water. The rubbing fastness of the dyed material is excellent.

In a similar way the other metal-containing polypropylene textile materials described in Example 1 may be dyed with alizarin, 2':4'-dichloro-2-hydroxy-5-methylazobenzene (yellow), 1-(3'-chloro-2'-hydroxyphenylazo)-2-naphthol (red), 1-(5'-chloro-2'-hydroxyphenylazo)-2-naphthol (red) or any of the dyestuffs of Example 1. The rubbing fastness of the dyeings is better than that of the dyeings obtained by the procedures described in Examples 1 and 2.

Example 5

This example illustrates the use of a sequestering agent before and after the dyeing of a metal-containing polypropylene textile material.

The same polypropylene textile material as used in Example 1 is scoured and dyed as in Example 1 using 1-phenyl-3-ethoxycarbonyl-4-(2'-hydroxyphenylazo)-5-pyrazolone in place of alizarin. The modified polypropylene material is then rinsed in water, immersed for 15 minutes at 85° C. in a solution of 4 parts of sodium oleyl p-anisidine sulphonate and 8 parts of ethylene diamine tetraacetic and disodium salt in 4000 parts of water, again rinsed with water and dried. The polypropylene is dyed a yellow shade of good rubbing fastness. In this example sodium oleyl p-anisidine sulphonate may be replaced by a nonylphenolethyleneoxide condensate. The rubbing fastness is again very good.

In place of 1-phenyl-3-ethoxycarbonyl-4-(2'-hydroxyphenylazo)-5-pyrazolone there may be used 1-(2'-carboxyphenylazo)-2-naphthol (red), 1-phenyl-3-methyl-4-(2'-carboxyphenylazo)-5-pyrazolone (red), 8-(2'-hydroxynaphthylazo)-quinoline (red), or 1-(2'-methoxyphenylazo)-2-naphthol (pink). The dyeings obtained as described in this example are of better rubbing fastness than dyeings obtained by the procedure of Example 1 but not quite so good as those obtained by the procedure of Example 4.

Example 6

This illustrates the use of a sequestering agent, before during and after the dyeing of a metal-containing polypropylene textile material. The same polypropylene textile material as used in Example 1 is scoured as in Example 1 and then dyed at 100° C. for 60 minutes in a bath containing 2 parts of 5-(4'-nitrophenylazo)-8-hydroxyquinoline dispersed in a solution of 2 parts of ethylenediaminetetraacetic acid disodium salt in 4000 parts of water. The dyed polypropylene textile material is then rinsed in water, immersed for 15 minutes at 85° C. in a solution of 4 parts of sodium oleyl-o-anisidine sulphonate and 8 parts of ethylenediaminetetraacetic acid disodium salt in 4000 parts of water, again rinsed with water and dried. The polypropylene is dyed a brown shade of excellent rubbing fastness. In this example sodium oleyl-p-anisidine may be replaced by a nonylphenol ethylene oxide condensate. The rubbing fastness is again excellent.

In place of 5-(4'-nitrophenylazo)-8-hydroxyquinoline in this example there may be used 5-(2'-chloro-4'-nitrophenylazo)-8-hydroxyquinoline (brown), 5-(2':4'-dimethylphenylazo)-8-hydroxyquinoline (orange), 5-(4'-cyano-2'-trifluoromethylphenylazo)-8-hydroxyquinoline (orange), 5-(quinol-8'-ylazo)-8-hydroxyquinoline (brown), 7-(2':4'-dichlorophenylazo)-2-acetylamino-4-hydroxybenzothiazole (yellow), 7-(4'-nitrophenylazo)-4-

hydroxybenzthiazole (orange) or 1-(4'-diethylaminophenylazo)-4-hydroxyacridine (brown).

The dyeings all have excellent fastness to rubbing.

Example 7

Example 1 is repeated using sodium pyrophosphate in place of ethylenediamine tetraacetic acid as the sequestering agent. The polypropylene is dyed a bordeaux shade of very good rubbing fastness.

Example 8

Example 1 is repeated using as the textile material, in place of the zinc modified polypropylene, 100 parts of a polyacetal textile material containing 95% of polyformaldehyde copolymer and 5% of zinc nonanoate. The modified polyacetal is dyed a bordeaux shade of excellent rubbing fastness.

In all the above examples ethylenediaminetetraacetic acid may be replaced by sodium pyrophosphate, sodium hexametaphosphate, or aminotriacetic acid. Dyeings of very good rubbing fastness are obtained, though the results are a little inferior to those obtained with ethylenediaminetetraacetic acid.

We claim:

1. A process for the production of coloured textile fibres selected from the class consisting of stereoregular polypropylene and polyformaldehyde fibres containing a zinc compound which comprises dyeing said fibre with a metallisable dyestuff which is devoid of sulphonic acid groups while yielding a water-insoluble zinc complex and treating said fibre with an aqueous solution of a sequestering agent selected from the class consisting of water-soluble pyrophosphates, hexametaphosphates, aminotriacetates and ethylenediaminetetraacetates.

2. A process for the production of coloured stereoregular polypropylene fibre containing a zinc compound which comprises dyeing said fibre with a metallisable dye-

stuff which is devoid of sulphonic acid groups while yielding a water-insoluble zinc complex and treating said fibre with an aqueous solution of a water-soluble ethylenediaminetetraacetate.

3. A process according to claim 1 wherein the fibres comprise stereoregular polypropylene, the zinc compound is zinc stearate, the dyestuff is selected from the group consisting of anthraquinone, azo, formazan, azamethine and heterocyclic metallizable dyestuffs yielding a water-insoluble zinc complex and the sequestering agent is the sodium salt of ethylenediamine tetraacetic acid.

4. A process according to claim 1 wherein said metal compound is zinc stearate and said sequestering agent is a water-soluble ethylenediamine tetraacetate.

5. A process according to claim 3 wherein the weight of sequestering agent utilized is from about 1 to about 10% of the weight of fibres and the temperature of said treatment is between 50° C. and 150° C.

6. A process according to claim 1 wherein the treatment with sequestering agent is carried out before dyeing.

7. A process according to claim 1 wherein the treatment with sequestering agent is carried out during dyeing.

8. A process according to claim 1 wherein the treatment with sequestering agent is carried out after dyeing.

9. The product obtained by the process of claim 1.

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