Patented May 5, 1953

2,637,095

UNITED STATES PATENT OFFICE

2,637,095

BACKSIZED CARPET

Emory P. Mersereau, Thornwood, N. Y., assignor to Alexander Smith, Incorporated, White Plains, N. Y., a corporation of New York

No Drawing. Application April 6, 1950, Serial No. 154,444

1 Claim. (Cl. 28—80)

1

The present invention relates to a backsizing composition for carpets to improve hand and tuft bind and to carpets back-coated by said composition.

Axminister carpets have been back-coated with starch, water-soluble gums and glue compositions to increase stiffness, improve hand and bind the various backing and pile yarns together. In the case of velvet carpets, these physical properties have usually been obtained by the character of the weave and the sizing of the backing threads in the yarn form with the exception of certain types of velvet carpets, which have been backsized with a plasticized cellulose nitrate lacquer.

One object of the present invention is to provide a new and improved backsizing composition, which will give the same properties to the fabric backing of a carpet as are obtained by the use of special backing yarns and weave construction, thereby allowing for greater flexibility of fabric design, which improves the dimensional stability and retention of hand on commercial shampooing, which improves resistance to fraying of a cut edge, which produces a higher tuft bind and which produces a fabric having the desired physical properties, but at a lower cost or produces a fabric having a higher quality and at a cost not higher than that of the prior art.

Another object is to provide a new and improved carpet having a backing fabric coated with a sizing composition of the general character described.

In accordance with certain features of the present invention, the sizing composition contains an elastomeric resin and desirably a styrene-copolymer in latex form. The resin found most desirable comprises a blend of different styrene-butadiene copolymers and a thickening agent.

The desirable formulation for the backsizing

2

composition comprises by weight, 27% to 98% of a styrene-butadiene copolymer latex having approximately 70 parts of styrene and 30 parts of butadiene, 0 to 68% of styrene-butadiene copolymer latex having approximately 80 parts of styrene and 20 parts of butadiene and 2% to 10% of a thickening agent. The solid contents of the backsizing composition desirably amounts to 10% to 35%.

A desirable thickening agent for the purpose of the present invention must have high viscosity and low solid contents. Suitable thickening agents are sodium polyacrylate, methyl cellulose, carboxymethyl cellulose, sodium alginate, hydroxyethyl cellulose, karaya gum, swollen starch, tapioca and other types of commercially available gums. Sodium polyacrylate has been found especially suitable for the purpose.

A backsizing composition as described, will yield a film which has a modulus high enough to impart the desired stiffness to the fabric and which at the same time is extensible enough to prevent cracking when the fabric is rolled, folded or creased. The film possesses good adhesion to the yarn components of the fabric (cotton, rayon, jute, wool and/or nylon) has no appreciable odor or color, is stable to light and oxidative aging and is resistant to the action of water, soap or water. Moreover, the film is incapable of softening floor varnish on direct contact therewith under pressure.

More specifically a backsizing composition containing about 46.4% of 70 styrene–30 butadiene copolymer latex, 46.4% of 80 styrene-20 butadiene copolymer latex, 7.2% sodium polyacrylate, and a solids content of 18.5% has been found highly suitable. However, the proportions of these ingredients may vary as indicated in the following examples, illustrating certain ways in which the principle of the invention may be applied.

EXAMPLES

Percentages on a dry solids basis

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
70 Styrene-30 Butadiene Copolymer Latex (Darex Copolymer 3L, Dow Latex 513K, Butarene SD.)	46.4	46.4	46.4	46.4	67.0	48.4	43.8	93.0	46.5	28.0
85 Styrene-15 Butadiene Copolymer Latex (Darex Copolymer Latex 34L or Dow Latex X737K)	46.4	46.4	46.4	46.4	28.7	48.4	43.8		46.5	65.0
Sodium Polyacrylate (Acrysol GS)	7.2				8.3	3.2	13.4	7.0	7.0	7.0
Methyl Cellulose		7.2								
Sodium Alginate			7.2							
Sodium Carboxymethyl Cellulose				7.2						
Percent Solids	18.5	18.5	18.5	18.5	21.3	25.0	14.8	19.2	18.5	20.0

The backsizing composition may be applied to the carpet fabric by means of a roller dipping into a bath of the sizing composition described and having surface contact with said fabric, while the carpet is moving in one direction. The roller may be rotated for peripheral movement in the opposite direction where it contacts the carpet fabric.

What is claimed is:

A carpet comprising tufts secured in a textile fabric backing, said backing being coated with a composition consisting essentially by weight on a dry solids basis of 28% to 67% of 70 styrene–30 butadiene copolymer and 28.7% to 65% of 35 styrene–15 butadiene copolymer, said composition improving the tuft bind to said backing.

EMORY P. MERSEREAU.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,976,679	Fikentscher et al.	Oct. 9, 1934
2,115,581	Johnson	Apr. 26, 1938
2,517,389	Dow et al.	Aug. 1, 1950
2,541,748	Daly	Feb. 13, 1951

OTHER REFERENCES

Dow Lates 512—pp. 2, 3, 5, 7–12, 14, 15, 18 and 19, publ. 1946 by Dow Chem. Co., Midland, Mich.

Technical Bulletin C–3, pp. 1 and 12, publ. Nov. 1948 by Dewey and Almy Chem. Co.

U. S. Rubber Co. *v.* Marzall, 86 USPQ 441, July 1950.