invention is prepared by the copolmerization of repeating units from at least one fluorinated methacrylic monomer and at leat one non-fluorinated acrylate. It is unexpectedly discovered that the non-fluorinated acrylate is prefered, and non-fluorinated methacrylate is particularly excluded in this invention in order to render the solvent based fluorinated methacrylic polymer desired oil and water repellency, and stain resistance properties to the treated substrates including leather, and hard surface substrates.

SUMMARY OF THE INVENTION

A solvent-based fluorinated methacrylate polymer composition comprises repeating units in any sequence from (1) at least one fluorinated methacrylate, and (2) at least one non-fluorinated alkyl acrylate and (3) at least one non-fluorinated hydroxyalkyl methacrylate,

provided that

a) the repeating unit of fluorinated methacrylate is present in a range of about 40%-80% by weight of total monomers added,

b) the repeating unit of non-fluorinated alkyl acrylate is present in a range of about 10%-35% by weight of total monomers added, and

c) the repeating unit of non-fluorinated hydroxyalkyl methacrylate is present in a range of about 5%-25% by weight of total monomers added, and

d) the total of all repeating units is 100% by weight.

In one aspect, there is provided a solvent-based non-aqueous fluorinated methacrylate polymer comprising repeating units in any sequence from (1) at least one fluorinated methacrylate, and (2) at least one non-fluorinated alkyl acrylate and (3) at least one non-fluorinated hydroxyalkyl methacrylate,

provided that

a) the repeating unit of fluorinated methacrylate is present in a range of from 40% to 80% by weight of total monomers added,

b) the repeating unit of non-fluorinated alkyl acrylate is present in a range of from 10% to 35% by weight of total monomers added, and

c) the repeating unit of non-fluorinated hydroxyalkyl methacrylate is present in a range of from 5% to 25% by weight of total monomers added, and

d) the total of all repeating units is 100% by weight;

wherein the polymer excludes any repeating units derived from vinylidene chloride.

In another aspect, there is provided a method for treating a leather substrate comprising contacting the leather substrate with a solvent-based fluorinated methacrylate polymer as defined above to provide water and oil repellency.

In another aspect, there is provided a leather substrate treated with the method as defined above which is hides that are natural products, pretreated hides, hides that have been cured or tanned.

In another aspect, there is provided a method for treating a hard surface substrate comprises contacting the hard surface substrate with a solvent-based fluorinated methacrylate polymer as defined above to provide water repellency, oil repellency, and stain resistance.

In another aspect, there is provided a substrate treated with the method as defined above which is unglazed concrete, brick, tile, stone, granite, limestone, grout, mortar, composite materials, terrazzo, gypsum board, marble, statuary, monuments, or wood.

DETAILED DESCRIPTION

Herein trademarks are shown in upper case.

The present invent relates to a solvent-based fluorinated methacrylate polymer composition comprises repeating units in any sequence from (1) at least one fluorinated methacrylate, and (2) at least one non-fluorinated alkyl acrylate and (3) at least one non-fluorinated hydroxyalkyl methacrylate,