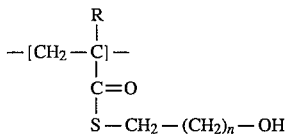
ing agent to prepare an oxy-blocked-ω-mercaptoalkanol;

(b) contacting the oxy-blocked-ω-mercaptoalkanol with a suitable metallic substance to prepare a metallic mercaptide-salt of the oxy-blocked-ω-mercaptoalkanol;

(c) contacting the metallic mercaptide-salt of the oxy-blocked-ω-mercaptoalkanol with an acryloyl or methacryloyl halide or pseudo halide to prepare an oxy-blocked-S-(ω-hydroxyalkyl) ester of a thioacrylic or thiomethacrylic type acid; and

(d) contacting the oxy-blocked-S-(ω-hydroxyalkyl) ester of a thioacrylic or thiomethacrylic type acid with a suitable deprotecting agent to prepare the S-(ω-hydroxyalkyl) ester of a thioacrylic or thiomethacrylic type acid.

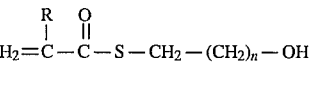
The invention is also directed to homopolymers and copolymers which comprise a polymer containing a residue of a compound of the foregoing formula I and/or which have a repeating unit of the following general formula:



wherein R and n are as defined above.

In another aspect, the invention is directed to compounds of the general formulas II and III:

$$M[SCH_2(CH_2)_nOY]_m \qquad \text{II}$$



III

wherein:

R and n are as defined above;

M is a metal residue having a valence of m;

m is generally from 1 to 4;

Y is an oxy-blocking agent residue; and

y is the valence of Y, often equal to m, e.g., 1 or 2. The compounds of formulas II and III are useful intermediates in the preparation of compounds of formula I.

DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

The invention is directed, in part, to S-(ω-hydroxyalkyl) esters of thioacrylic and thiomethacrylic acids of the general formula I:

wherein:

R is hydrogen or methyl; and

n is 1, 2 or 3.

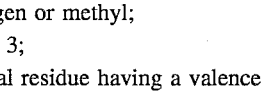
Preferred compounds of formula I are those in which R is methyl or hydrogen and n is 1 or 2. More preferred are compounds in which R is methyl or hydrogen and n is 1.

Compounds encompassed within formula I include S-(2hydroxyethyl) thiomethacrylate, S-(2-hydroxyethyl) thioacrylate, S-(3-hydroxy-n-propyl) thiomethacrylate, S-(3-hydroxy-n-propyl) thioacrylate, S-(4-hydroxy-n-butyl) thiomethacrylate, and S-(4-hydroxy-n-butyl) thioacrylate. Particularly preferred are S-(2hydroxyethyl) thiomethacrylate and S-(2-hydroxyethyl) thioacrylate.

Unless specifically indicated to the contrary, to the extent the compounds of the invention may exist as optical or geometric isomers, all isomers and racemic mixtures are understood to be included in the invention. In addition, all possible isomeric forms of the compounds of the invention are within the ambit of this invention.

The invention is also directed to compounds of the general formulas II and III:

$$M[SCH_2(CH_2)_nOY]_m \qquad \text{II}$$



III

wherein:

R is hydrogen or methyl;

n is 1, 2 or 3;

M is a metal residue having a valence of m;

m is generally from 1 to 4;

Y is an oxy-blocking agent residue; and

y is the valence of Y, often equal to m, e.g., 1 or 2.

Compounds of formulas II and III are useful intermediates in the preparation of the compounds of formula I. The metal residue in these intermediate compounds may be from any suitable metal. For instance, it may be of lithium or lead. Preferably, the metal residue is Pb(II). The metal may be introduced, for example, into an oxy-blocked mercaptoalkanol precursor, by employing a suitable substance (e.g., in general, MX, preferably $M(X)_y$ where M and y are as defined above and X is a suitable counterion, both present in suitable valence-balanced form). Preferred counterions are acetates.

The oxy-blocking agent (which may be represented by the formula YR', where Y is as defined above and R' comprises a group or part to complete the agent) is a substance which derivatives the required hydroxyl moiety of the S-(ω-hydroxyalkyl) thioacrylate and thiomethacrylate compound of the general formula I. This agent replaces the active hydrogen of the noted hydroxyl moiety and generally can be removed later on as by substitution of another hydro moiety for the oxy-blocking agent. Preferably, the oxy-blocking agent is a silicon-containing blocking agent, which may include so-called silane blocking, or silylating, agents. Some of the more prominent silylating agents include trimethylchlorosilane, hexamethyldisilazane, trimethylsilylamides, trimethylsilylureas, trimethylsilylamines, trimethylsilyl sulfates, t-butyldimethyl chlorosilane, t-butyldiphenylchlorosilane, and triisopropyl chlorosilane. General use of these particular agents is known in the art. Of the foregoing, hexamethyldisilazane and trimethylchlorosilane, the latter typically employed with a proton acceptor such as pyridine or triethylamine, are preferred.

Removal of the silicon-containing blocking agent can be carried out by employment of a suitable deprotecting agent (HR", wherein R" comprises a group or part to complete the agent which contains a donarable hydro moiety (H)). The deprotecting agent is a substance which can remove the residue of the silicon-containing blocking agent and substitute a hydrogen back onto the protected oxy (—O—) moiety, for example, by acidic or basic hydrolysis employing a suitable alcohol such as, for example, methanol, ethanol,