Claims:

1. A process for producing an ester mixture, the process comprising:

reacting $A(COOH)_{x+1}$ or derivatives thereof, which contain no ester group COOR having a radical R whose alcohol ROH has a higher boiling point at a defined pressure than an alcohol R^1OH at the defined pressure, with the alcohol R^1OH and an alcohol R^2OH in a reaction mixture comprising a catalyst, said reaction mixture being heated at boiling, to obtain a product mixture;

removing from the product mixture a portion of a residual amount of added alcohol R^1OH that does not react with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof; and then

destroying the catalyst to obtain an ester mixture comprising $A(COOR^1)(COOR^1)_x$, $A(COOR^1)(COOR^2)_x$, $A(COOR^2)(COOR^1)_x$ and $A(COOR^2)(COOR^2)_x$,

wherein:

a molar equivalent amount ($m_1 + s_1$) of the alcohol R^1OH is added to the reaction mixture, and a molar equivalent amount (m_2) of the alcohol R^2OH is added to the reaction mixture;

(m_1) represents a theoretical molar equivalent of the alcohol R^1OH that reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof, on assumption that all of the alcohol R^2OH reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof and is incorporated into the ester mixture;

(s_1) is greater than zero, and represents a theoretical molar equivalent of the residual amount of the alcohol R^1OH that does not react with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof, on assumption that all of the alcohol R^2OH reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof and is incorporated into the ester mixture;

A is an aromatic, alicyclic or aliphatic radical;

x is 1 or 2;

R^1 and R^2 independently of one another are substituted or unsubstituted aryl radicals or linear or branched, substituted or unsubstituted alkyl radicals having 3 to 20 carbon atoms, the alcohol R^1OH having a lower boiling point at a defined pressure than the alcohol R^2OH at the same pressure;

the removing of the portion of the alcohol R^1OH from the product mixture lowers an amount of the alcohol R^1OH in the product mixture to less than 20 mol %

of the residual amount (s_1) of the alcohol R^1OH, before the catalyst is destroyed; and

for x = 1, a molar fraction of the esters $A(COOR^1)(COOR^1)_x$, $A(COOR^1)(COOR^2)_x$, $A(COOR^2)(COOR^1)_x$ and $A(COOR^2)(COOR^2)_x$ in the ester mixture deviates by less than 10 points from a statistically determined expectation value which arises when assuming that the entire molar equivalent (m_2) of the alcohol R^2OH reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof, said 10 points corresponding to a sum total of all amounts of differences between statistical expectation value and actual molar fraction of each individual ester in the ester mixture when a sum total of molar fractions of esters in the ester mixture adds up to 100, or

for x = 2, a molar fraction of the esters $A(COOR^1)(COOR^1)_x$, $A(COOR^1)(COOR^2)_x$, $A(COOR^2)(COOR^1)_x$ and $A(COOR^2)(COOR^2)_x$ in the ester mixture deviates by less than 25 points from a statistically determined expectation value which arises when assuming that the entire molar equivalent (m_2) of the alcohol R^2OH reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof, said 25 points corresponding to a sum total of all amounts of differences between statistical expectation value and actual molar fraction of each individual ester in the ester mixture when a sum total of molar fractions of esters in the ester mixture adds up to 100.

2. The process according to Claim 1, wherein the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof is at least one selected from the group consisting of phthalic acid, terephthalic acid, isophthalic acid, 1,2-, 1,3- or 1,4-cyclohexanedicarboxylic acid, adipic acid, sebacic acid, maleic acid, succinic acid, furandicarboxylic acid and citric acid.

3. The process according to Claim 1, wherein R^1 and R^2 independently of one another are alkyl radicals which contain 3 to 20 carbon atoms.

4. The process according to Claim 1, wherein R^1 and R^2 independently of one another are alkyl radicals which contain 3 to 20 carbon atoms, said alkyl radicals having no other functional group.

5. The process according to Claim 3, wherein R^1 and R^2 independently of one another are selected from the group consisting of propyl, butyl, *tert*-butyl, *iso*butyl, 2-methylbutyl, 3-methylbutyl, *n*-pentyl, *iso*pentyl, hexyl, heptyl, *iso*heptyl, octyl, *iso*octyl, 2-ethylhexyl, nonyl, *n*-nonyl, *iso*nonyl, decyl, *iso*decyl, 2-propylheptyl, undecyl and tridecyl radicals.

6. The process according to Claim 1, wherein boiling points of the alcohols R^1OH and R^2OH differ by at least 10°C.

7. The process according to Claim 1, wherein the amount (s_1) is less than an amount ($m_1 + m_2$), is greater than an amount $0.05 \cdot (m_1 + m_2)$, or both.

8. The process according to Claim 1, wherein the removing of the portion of the alcohol R^1OH from the product mixture lowers the amount of the alcohol R^1OH in the product mixture to less than 15 mol% of the amount (s_1), before the catalyst is destroyed.

9. The process according to Claim 1, wherein the molar fraction of the esters $A(COOR^1)(COOR^1)_x$, $A(COOR^1)(COOR^2)_x$, $A(COOR^2)(COOR^1)_x$ and $A(COOR^2)(COOR^2)_x$ in the ester mixture, for x = 1, deviates by less than 10 points from the statistically determined expectation value which arises when assuming that the entire molar equivalent (m_2) of the alcohol R^2OH reacts with the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof, said 10 points corresponding to the sum total of all amounts of differences between statistical expectation value and actual molar fraction of each individual ester in the ester mixture when the sum total of molar fractions of esters in the ester mixture adds up to 100.

10. The process according to Claim 1, wherein the molar fraction of the esters $A(COOR^1)(COOR^1)_x$, $A(COOR^1)(COOR^2)_x$, $A(COOR^2)(COOR^1)_x$ and $A(COOR^2)(COOR^2)_x$ in the ester mixture, for x = 2, deviates by less than 15 points from the statistically determined expectation value which arises when assuming that the entire molar equivalent (m_2) of the alcohol R^2OH reacts with the compound

of formula: $A(COOH)_{x+1}$ or derivatives thereof, said 15 points corresponding to the sum total of all amounts of differences between statistical expectation value and actual molar fraction of each individual ester in the ester mixture when the sum total of molar fractions of esters in the ester mixture adds up to 100.

11. The process according to Claim 1, wherein: the compound of formula: $A(COOH)_{x+1}$ or derivatives thereof is phthalic acid, terephthalic acid or isophthalic acid; and after an optional work-up the ester mixture is subsequently hydrogenated.

12. An ester mixture produced by the process according to Claim 1.

13. The process according to Claim 1, further comprising: controlling a quantitative distribution of esters in the ester mixture.

14. A polymer plasticizer, comprising the ester mixture according to claim 12.

15. The polymer plasticizer according to claim 14, which is adapted to function as a plasticizer for a PVC.

16. An article, comprising the polymer plasticizer of Claim 14, wherein said article is selected from the group consisting of a synthetic leather, a floorcovering, a roofing membrane, an underbody protection, a fabric coating, a cable, a wire insulation, a hose, an extruded article, a film, an automotive interior article, a wallcovering, a liquid ink, a toy, a contact sheet, a food packaging and a medical article.

17. A composition, comprising:
the ester mixture according to Claim 12, and at least one selected from the group consisting of a polyvinyl chloride, a copolymer of vinyl chloride with vinyl acetate, a copolymer of vinyl chloride with butyl acrylate, a polyalkyl methacrylate (PAMA), a polyvinyl butyral (PVB), a polyurethane, a polysulfide, a polylactic acid (PLA), a polyhydroxybutyral (PHB) and a nitrocellulose.

18. A composition, comprising the polymer plasticizer of claim 14, wherein said composition is selected from the group consisting of an adhesive, a sealant, a coating material, a paint, an ink, a plastisol, and a foam.

19. A composition, comprising the ester mixture of claim 12 and a polymer.

20. The process according to claim 1, comprising reacting a derivative of $A(COOH)_{x+1}$ with the alcohol R^1OH and an alcohol R^2OH.