What is claimed is:

1. A process of cleaning ~~an~~ distillation apparatus utilized in the oxidative ozonolysis of unsaturated compounds, comprising:

i) maintaining a temperature of the apparatus between 250°F (120°C) to ~~about~~ 500°F (260°C);

ii) contacting a quantity of a ~~mixture~~ first cleaning composition comprising a mixture of C6 to C18 monocarboxylic acids with at least a portion of an internal surface of the apparatus having a catalyst-derived deposit thereon and derived from at least one oxidation catalyst;

iii) maintaining the mixture comprising C6 to C18 monocarboxylic acids in the apparatus for a time sufficient to thereby affect separation of at least a portion of the catalyst-derived deposit from the internal surface of the apparatus to form a material comprising the mixture comprising C6 to C 18 monocarboxylic acids and the at least a portion of the catalyst-derived deposit;

iv) removing the material comprising the mixture comprising C6 to C18 monocarboxylic acids and the at least a portion of the catalyst-derived deposit from the apparatus; ~~and~~

v) contacting a quantity of a ~~mixture~~ second cleaning composition comprising a mixture of C2 to C12 monocarboxylic acids with at least a portion of the internal surface of the apparatus~~.~~;

vi) removing the material comprising the mixture comprising C2 to C12 monocarboxylic acids, and

wherein the catalyst-derived deposit includes: catalyst by products; manganese salts; polymers of the organic molecules being distilled in the apparatus.

2. The process of claim 1, wherein the mixture comprising C6 to C18 monocarboxylic acids and the mixture comprising C2 to C12 monocarboxylic acids are derived from a method comprising:

a) ozonizing a mixture comprising an ethylenically unsaturated compound having between 6 to 24 carbons with an ozone-containing gas to form a plurality of ozonization products;

b) cleaving the plurality of ozonization products under oxidative conditions in the presence of at least one oxidation catalyst to form mixed oxidation products;

c) isolating the mixture comprising C6 to C18 monocarboxylic acids that are derived from the mixed oxidation products; and

d) isolating the mixture comprising C2 to C12 monocarboxylic acids that are derived from the mixed oxidation products.

3. The process according to claim 2, wherein the ethylenically unsaturated compound is derived from plant or animal sources.

4. The process according to any of the claims 2 to 3, wherein the ethylenically unsaturated compound is an unsaturated fatty acid.

5. The process according to any of the claims 2 to 4, wherein the ethylenically unsaturated acid is derived from palm oil or tallow.

6. The process according to any of the claims 2 to 5, wherein the ethylenically unsaturated acid is oleic acid.

7. The process according to any of the claims 1 to 6, wherein the isolating the mixture comprising C2 to C12 monocarboxylic acids comprises:

1) performing a first distillation, wherein the mixed oxidation products are distilled under a first set of distillation conditions to provide a first distillate and a first residue of the mixed oxidation products; and

2) performing a second distillation, wherein the first distillate is distilled under a second set of distillation conditions to provide the mixture comprising C2 to C12 monocarboxylic acids.

8. The process according to any of the claims 1 to 6, wherein the isolating the mixture comprising C6 to C18 monocarboxylic acids comprises:

1) performing a first distillation, wherein the mixed oxidation products

are distilled under a first set of distillation conditions to provide a first distillate and a first residue of the mixed oxidation products;

2) performing a third distillation, wherein the first residue of the mixed oxidation products is distilled under a third set of distillation conditions to provide the mixture comprising C6 to C18 monocarboxylic acids.

~~9. A process for producing a carboxylic acid mixture comprising a saturated mono carboxylic acid and a saturated dicarboxylic acid, comprising the steps of~~

~~a) generating an ozone gas in an ozone generator;~~

~~b) contacting the ozone gas with an unsaturated carboxylic acid feed comprising an unsaturated carboxylic acid in an absorber to obtain an ozonide;~~

~~c) contacting the ozonide with an oxygen gas and at least one catalyst in a reactor to obtain the carboxylic acid mixture; and~~

~~d) purifying the carboxylic acid mixture by distilling at least a portion of the carboxylic acid mixture in a distillation unit,~~

~~wherein the reactor or the distillation unit has been cleaned by the a process according to any of the claims 1 to 8.~~

~~10. The process of claim 9, wherein the saturated monocarboxylic acid is pelargonic acid, or wherein the saturated dicarboxylic acid is a azelic acid.~~

~~11. A chemical derivative of a carboxylic acid obtained from the carboxylic acid produced by a process according to any of the claims 9 to 10.~~

9. The process according to any of the preceding claims wherein the apparatus is a distillation unit having a top section and a reboiler and wherein the rate of the addition of the first cleaning composition to the distillation unit is controlled.

10. The process according to any of the preceding claims wherein the temperature of the apparatus is less than 300°F and under vacuum of 20 torr during the addition of the first cleaning composition.

11. The process according to any of the preceding claims wherein the first cleaning composition comprises greater than 50 wt% of C6 to C18 monocarboxylic acids, based on the total weight of the composition and wherein the first composition may comprise about 14 wt% to about 18 wt% C9 monobasic acid; about 1 wt% to about 2 wt% C12 monobasic acid; about 15 wt% to about 20 wt% C14 monobasic acid; about 28 wt% to about 36 wt% C16 monobasic acid; and about 5 wt% to about 7 wt% C18 monobasic acid, and wherein the first cleaning composition may optionally include about 3 wt% to about 5 wt% C9 dibasic acid; about 5 wt% to about 7 wt% C11 dibasic acid; and about 3 wt% to about 4 wt% C12 dibasic acid.

12. The process according to any of the preceding claims wherein the mixture of the first cleaning composition and catalyst-derived deposit is kept moving out of the apparatus until the residual contents of the apparatus have been displaced.

13. The process according to any of the preceding claims wherein the apparatus is a distillation unit having a top section and a reboiler and wherein a sufficient quantity of the second cleaning composition is added to the distillation unit to fit the reboiler.

14. The process according to claim 1 wherein the second cleaning composition includes C5 to C9 moncarboxylic acids, based on the total weight of the second cleaning composition, and where the second composition may include: about 2 wt% to about 4wt% C5 monocarboxylic acid; about 24 wt% to about 28 wt% C6 monocarboxylic acid; about 28 wt% to about 32 wt% C7 monocarboxylic acid; about 11 wt% to about 13 wt% C8 monocarboxylic acid; and about 26 wt% to about 29 wt% C9 monocarboxylic acid, wherein the wt% is based on a total weight of the second cleaning composition.