CLAIMS

1. A free polyunsaturated fatty acid-containing composition, comprising at least one free polyunsaturated fatty acid having 20 or more carbons in an amount that a content thereof is 80.0% or greater of fatty acids in the composition and a total content of metal being 0.1 ppm or less, and wherein a content of the conjugated unsaturated fatty acid is from 0.001% to 1.2% of the fatty acids in the composition.

2. The free polyunsaturated fatty acid-containing composition according to claim 1, wherein a peroxide value is 5.0 meq/kg or less.

3. The free polyunsaturated fatty acid-containing composition according to claim 1 or 2, wherein an anisidine value is 5.0 or less.

4. The free polyunsaturated fatty acid-containing composition according to any one of claims 1 to 3, wherein the polyunsaturated fatty acid is at least one selected from the group consisting of eicosadienoic acid, dihomo-γ-linolenic acid, Mead acid, eicosatetraenoic acid, arachidonic acid, eicosapentaenoic acid, docosatetraenoic acid, docosapentaenoic acid, and docosahexaenoic acid.

5. The free polyunsaturated fatty acid-containing composition according to any one of claims 1 to 4, wherein, in a case where membrane evaluation test described below is performed by using the free polyunsaturated fatty acid-containing composition, a time passed until a membrane formed by using a test solution prepared from the free polyunsaturated fatty acid-containing composition is broken is 1.4 or greater when a time (second) passed until a membrane formed by using a reference solution is broken is expressed as 1;

Membrane evaluation test:

a circular frame for test, the circular frame having a plurality of inner frames, is immersed in a fatty acid test solution (a reference solution or a test solution) in a condition at a temperature of 25°C, 1 atmosphere, and a relative humidity of 55%, then membranes are formed in sections formed by the plurality of inner frames by bringing the circular frame above a liquid surface, and a time (second) required for at least one formed membrane to be broken is measured;

Preparation of test solution:

Reference solution:

an aqueous solution of iron (II) sulfate heptahydrate is added to the free polyunsaturated fatty acid composition such that an iron concentration is 100 ppm, ethanol

is added and homogenized, and then a solvent is removed by using vacuum to prepare a free polyunsaturated fatty acid composition containing 100 ppm of iron in the composition; and 0.5 g of the free polyunsaturated fatty acid-containing composition containing 100 ppm of iron, 0.15 g of 48 wt.% sodium hydroxide, and 9.35 g of purified water are mixed to prepare an aqueous solution containing approximately 5 wt.% of free polyunsaturated fatty acid sodium in the aqueous solution, and the obtained aqueous solution is used as a reference solution;

Test solution:

an aqueous solution containing approximately 5 wt.% of free polyunsaturated fatty acid sodium in the aqueous solution is prepared by mixing 0.5 g of the free polyunsaturated fatty acid-containing composition, 0.15 g of 48 wt.% sodium hydroxide, and 9.35 g of purified water, and the obtained aqueous solution is used as a test solution; and

Preparation of circular frame for test:

a tool that is formed from plastic and that has five sections divided by inner frames having a thickness of 2 mm in an outer frame having a diameter of 64 mm, an inner diameter of 52 mm, and a thickness of 3 mm is used as the circular frame for test.

6. The free polyunsaturated fatty acid-containing composition according to any one of claims 1 to 5, wherein the metal is iron.

7. A manufacturing method of a free polyunsaturated fatty acid-containing composition, the method comprising:

providing a raw material composition containing at least one polyunsaturated fatty acid having 20 or more carbons;

performing hydrolysis treatment on a reaction solution prepared by combining the provided raw material composition, a lower alcohol, water having a total content of metal of 0.01 ppm or less, and an alkali catalyst; and

limiting contact between the reaction composition after the hydrolysis treatment and metal surface such that a product T (cm^2 × day) of a contact surface area (cm^2) per 1 g of the composition and the metal and contact time (day) becomes 100 or less.

8. The manufacturing method according to claim 7, wherein the product T (cm^2 × day) of the contact surface area (cm^2) per 1 g of the composition and the metal surface and the contact time (day) becomes 80 or less.

9. The manufacturing method according to claim 7 or 8, wherein a content of the free polyunsaturated fatty acid having 20 or more carbons in the raw material composition is 80.0% or greater of the fatty acids in the composition.

10. The manufacturing method according to any one of claims 7 to 9, wherein the hydrolysis treatment is performed at a temperature condition of 10°C or lower.

11. The manufacturing method according to any one of claims 7 to 10, wherein an iron content of the water used in the hydrolysis treatment is 0.01 ppm or less.

12 The manufacturing method according to any one of claims 7 to 11, wherein the polyunsaturated fatty acid in the raw material composition is a polyunsaturated fatty acid alkyl ester.

13. The manufacturing method according to any one of claims 7 to 12, wherein the raw material composition is derived from a microbial raw material.

14 A storing method of a free polyunsaturated fatty acid-containing composition, the method comprising: retaining a free polyunsaturated fatty acid-containing composition containing at least one free polyunsaturated fatty acid having 20 or more carbons in an amount that a content thereof is 80.0% or greater of fatty acids in the composition in a condition that limits contact with metal surface such that a product T (cm^2 × day) of a contact surface area (cm^2) per 1 g of the composition and the metal and contact time (day) becomes 100 or less.