as low as possible as the cost for many efficient synthetic emulsifiers is relatively high. Hence, there is a need for new microemulsions reducing the need for costly emulsifiers, and reducing the environmental impact through the use of oils or hydrocarbons of non-fossil origin.

Short Description of the Disclosure

The disclosure relates to a microemulsion comprising
water in an amount of 1-30 w%;
sodium or potassium oleate, Na/K salts of tall oil fatty acid, and/or Na/K salts of C16-C18 saturated or unsaturated fatty acids in an amount of 10-40 w%;
oleic acid, tall oil fatty acid, or C16-C18 saturated or unsaturated fatty acids in an amount of 2-40 w%;
ethanol in an amount of 0-40 w%;
glycerol in an amount of 5-40 w%;
and liquid hydrocarbon(s) in an amount of 5-40 w%, up to a maximum or total of components parts of 100 w%.

In one aspect, the disclosure relates to a microemulsion comprising
water in an amount of 1-30 w%;
sodium or potassium oleate, Na/K salts of tall oil fatty acid, and/or Na/K salts of C16-C18 saturated or unsaturated fatty acids in an amount of 10-40 w%;
oleic acid, tall oil fatty acid, or C16-C18 saturated or unsaturated fatty acids in an amount of 2-40 w%;
ethanol in an amount of 5-40 w%;
glycerol in an amount of 5-40 w%;
and liquid hydrocarbon(s) in an amount of 5-40 w%, up to a maximum or total of components parts of 100 w%.

In another aspect, the disclosure relates to a gel, comprising 35-50 w% of the microemulsion as disclosed herein, and 50 – 65 w% of a hydrotreated vegetable oil, up to a maximum or total of components parts of 100 w%.

The microemulsion is prepared using a method comprising the following consecutive steps:
(a) mixing of NaOH or KOH with water, glycerol, and ethanol to obtain a solution;
(b) mixing oleic acid, tall oil fatty acid, and/or C16-C18 saturated or unsaturated fatty acid(s) into the solution to obtain a microemulsion;
(c) mixing of the microemulsion with liquid hydrocarbon(s) to form a second microemulsion;
(d) optionally addition of water or ethanol;
(e) optionally full or partial evaporation of the ethanol,
whereby steps (d) and (e) may be performed in reversed order.

In another aspect, the disclosure relates to a method of preparing a microemulsion as disclosed herein, comprising the following consecutive steps:
(a) mixing of NaOH or KOH with water, glycerol, and ethanol to obtain a solution;
(b) mixing oleic acid, tall oil fatty acid, and/or C16-C18 saturated or unsaturated fatty acid(s) into the solution to obtain a microemulsion;

(c) mixing of the microemulsion with liquid hydrocarbon(s) to form a second microemulsion;
(d) optionally addition of water or ethanol;
(e) optionally partial evaporation of the ethanol,
whereby steps (d) and (e) may be performed in reversed order.

The microemulsion finds its use as e.g. a lubricant, metal working fluid, water proofing agent for porous materials, and in in pharmaceutical preparations.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein for temporary corrosion protection on metal surfaces, especially steel.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein as a lubricant.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein as metal working fluid.
In another aspect, the disclosure relates to use of a microemulsion as disclosed herein as a water proofing agent for porous materials.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein for coating of paper, paperboard, cardboard, or rubber.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein as a leather or rubber shine liquid, or as a leather impregnation liquid.

In another aspect, the disclosure relates to use of a microemulsion as disclosed herein, as a thickening agent for hydrotreated vegetable oil.

In another aspect, the disclosure relates to use of a gel as disclosed herein, as a fuel or a lubricant.

In another aspect, the disclosure relates to package or container comprising a microemulsion as disclosed herein, or a gel as disclosed herein, wherein the microemulsion or gel is fully diluted or intended to be diluted with up to 35 w% water.

In another aspect, the disclosure relates to a kit of parts, comprising
(a) Package or container containing a microemulsion or gel as disclosed herein;
(b) Instructions for use.

In another aspect, the disclosure relates to a wood block, characterized in that it has been impregnated with a microemulsion as disclosed herein.

The microemulsions according to the disclosure comprise low viscosity hydrocarbon fluids (biobased or of fossil origin), high amounts of natural emulsifiers, low amounts of water, and glycerol. The innovative microemulsions as described herein possess a unique specific property in that they form a non-soluble material when contacted with excess water. That is to say, they cannot be referred to as *soluble oils* which is a common term for oil preparations forming emulsions when mixed with water.

The microemulsions disclosed herein exist as microemulsions at ambient temperature, unless another temperature is specifically disclosed. In certain examples, microemulsions exist as microemulsions only at a temperature exceeding 60°C, e.g. in a temperature interval from 60 to 90°C. Microemulsions comprising palmitic and/or stearic acid are examples of the latter kind of microemulsions.