liquids in a cooling apparatus for computers (see e.g. US 4,644,443, US 6,708,515, US 7,284,389).

The present ~~invention~~disclosure therefore aims at providing an electrically insulating liquid for use as a cooling fluid, especially for electrical equipment. The electrically insulating liquid should have a high specific heat capacity and should in particular be suitable for use in thermal management systems for high power batteries. Further, the electrically insulating liquid should not be toxic or harmful to the environment.

In the present ~~invention~~disclosure it has surprisingly been found that a liquid composition comprising polymers of ethylenically unsaturated monomers can be used as a non-electrical conductive thermal management fluid for batteries and other electrical equipment.

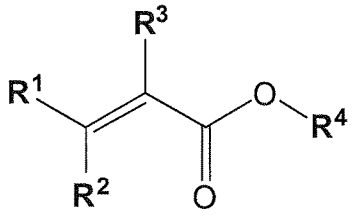
~~The present invention consequently relates to~~In one aspect, there is provided the use of a liquid composition as heat transfer fluid, characterized in that the liquid composition comprises polymers derived from at least an ethylenically unsaturated monomer or of a mixture of ethylenically unsaturated monomers. Preferably, the liquid composition is used as a heat transfer fluid for electrical equipment.

The inventive liquid composition may preferably be used as heat transfer fluid for electrical equipment like electric batteries, electric motors, electric transformers, electric power converters, electric capacitors, fluid-filled transmission lines, fluid-filled power cables, and computers.

The liquid composition of the present ~~invention~~disclosure has a high specific heat capacity, namely a specific heat capacity of at least 1.80 kJ/kg/K, more preferably at least 1.9 kJ/kg/K, measured at 40°C according to ASTM E 1269. Even more preferably, the liquid composition has a specific heat capacity of at least 1.80 kJ/kg/K, more preferably at least 1.9 kJ/kg/K, measured at temperatures between 20°C to 100°C, in particular at 40°C, 60°C, and 100°C, according to ASTM E 1269.

The polymers used in the present ~~invention~~disclosure have a low viscosity, preferably a kinematic viscosity of less than 100 mm^2/s, more preferably less than 25 mm^2/s, most preferably less than 15 mm^2/s, measured at 100°C according to ASTM D 445.

In a preferred embodiment the ethylenically unsaturated monomers are compounds according to formula (I)



(I)

wherein $\mathbf{R^1}$ and $\mathbf{R^2}$ independently represent a hydrogen atom or a group of the formula $-COOR^5$, $\mathbf{R^3}$ represents a hydrogen atom or a methyl group, $\mathbf{R^4}$ represents a C_1 to C_{30} alkyl group, a C_2 to C_{30} alkenyl group, a C_2 to C_{30} alkinyl group or a C_3 to C_{30} cycloalkyl group, and $\mathbf{R^5}$ represents a hydrogen atom or a C_1 to C_{30} alkyl group, a C_2 to C_{30} alkenyl group, or a C_2 to C_{30} alkinyl group.

In a particularly preferred embodiment, $\mathbf{R^1}$ and $\mathbf{R^2}$ represent hydrogen atoms, $\mathbf{R^3}$ represents a hydrogen atom or a methyl group, and $\mathbf{R^4}$ represents a C_1 to C_{30} alkyl group, preferably a C_6 to C_{18} alkyl group, even more preferably a C_{10} to C_{15} alkyl group.

In the context of the present ~~invention~~disclosure, these preferred compounds are also called "C_n (meth)acrylic acid ester" or "C_n (meth)acrylate", referring to compounds according to formula (I), wherein $\mathbf{R^1}$ and $\mathbf{R^2}$ represent hydrogen atoms, $\mathbf{R^3}$ represents a hydrogen atom or a methyl group, and $\mathbf{R^4}$ represents a C_n alkyl group.

In the context of the present ~~invention~~disclosure, the term "(meth)acrylic" refers to either acrylic or to methacrylic, or mixtures of acrylic and methacrylic. Correspondingly, the term "(meth)acrylate" refers to either acrylate or to methacrylate, or mixtures of acrylate and methacrylate.