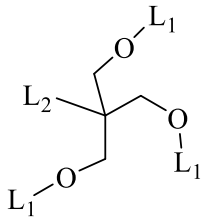
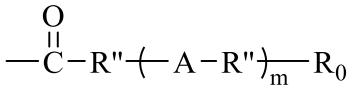
CLAIMS

1. An ester compound, which has a structure as shown in formula (IV):



(IV)

wherein, the L_1 groups are a hydrogen atom or a group represented by the following formula (III-1), and, at least two L_1 groups are groups represented by formula (III-1),



(III-1);

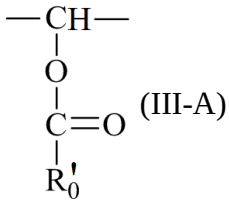
L_2 is an optionally substituted $C_{1\text{-}10}$ linear or branched alkyl or a group represented by (III-1);

m is 1, 2 or 3,

each R" groups, identical to or different from each other, are each independently selected from a $C_{1\text{-}10}$ linear or branched alkylene,

the R_0 group is an optionally substituted $C_{1\text{-}10}$ linear or branched alkyl,

the A group is selected from a group represented by formula (III-A), the R_0' group is independently selected from an optionally substituted $C_{1\text{-}17}$ linear or branched hydrocarbyl,



(III-A)

said substituents that optionally substitute is selected from halogen atoms, hydroxy, $C_{1\text{-}6}$ linear or branched alkyl, $C_{6\text{-}10}$ aryl, $C_{3\text{-}10}$ cycloalkyl.

2. The ester compound according to claim 1, which is characterized in that L_1 groups are a group represented by the formula (III-1).

3. The ester compound according to claim 1 or 2, which is characterized in that m is 1.

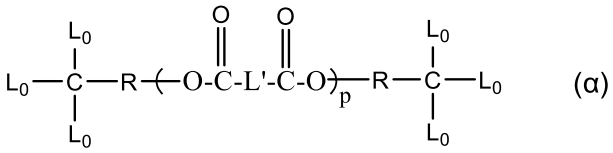
4. The ester compound according to any one of claims 1-3, which is characterized in that each R" groups, identical to or different from each other, are each independently selected from a $C_{1\text{-}8}$ linear or branched alkylene.

5. The ester compound according to any one of claims 1-4, which is characterized in that the R_0' group is independently selected from an optionally substituted $C_{1\text{-}15}$ linear or branched alkyl.

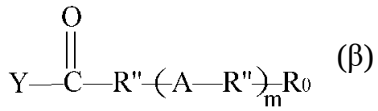
6. The ester compound according to any one of claims 1-5, which is characterized in that the R_0' group is independently selected from an optionally substituted $C_{1\text{-}11}$ linear or branched alkyl.

7. A process for preparing an ester compound, comprising the following steps:

step (1): a step of reacting a compound represented by formula (α) and a compound represented by formula (β),



(α)



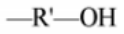
(β)

in formula (α), the L' groups, identical to or different from each other, are each independently selected from C_{1-16} linear or branched alkylene;

the R groups, identical to or different from each other, are each independently selected from a single bond, a C_{1-50} linear or branched alkylene;

p is an integral number of 0;

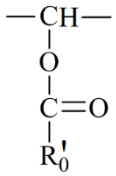
the L_0 groups, identical to or different from each other, are each independently selected from hydrogen atom, an optionally substituted C_{1-10} linear or branched alkyl, a group represented by formula (δ), wherein at least two L_0 groups are selected from a group represented by formula (δ),



(δ)

In the formula (δ), the R' group is selected from a single bond, a C_{1-10} linear or branched alkylene, and the carbon atoms bonded to the L_0 group are at most directly bonded to one oxygen atom,

In the formula (β), the R" groups, identical to or different from each other, are each independently selected from a C_{1-10} hydrocarbylene; the R_0 group is an optionally substituted C_{1-10} linear or branched alkyl; m is an integral number of 1-10; A groups are represented by formula (ε);



(ε)

The R_0' groups, are each independently selected from an optionally substituted C_{1-17} hydrocarbyl;

the Y group is selected from OH, Cl or Br,

said substituents that optionally substitute are selected from halogen atoms, hydroxy, amino, C_{1-6} linear or branched alkyl, C_{6-10} aryl, C_{3-10} cycloalkyl.

8. The process according to claim 7, wherein,

at least three L_0 groups are selected from a group represented by formula (δ).

9. The process according to claim 7 or 8, wherein,

the R' group is selected from a single bond, a C_{1-6} linear or branched alkylene.

10. The process according to any one of claims 7-9, wherein,

the R" groups, identical to or different from each other, are each independently selected from a C_{1-6} hydrocarbylene.

11. The process according to any one of claims 7-10, wherein m is an integral number of 1-5.

12. The process according to any one of claims 7-11, wherein,

the R_0' groups are independently selected from an optionally substituted C_{1-15} linear or branched

alkyl.

13. The process according to any one of claims 7-12, wherein,

the R_0' groups are independently selected from an optionally substituted C_{1-11} linear or branched alkyl.

14. A lubricating oil composition, which comprises the ester compound according to any of claims 1-6 or the ester compound obtained with the preparation process according to any of claims 7-13, and a lubricating base oil, relative to the total mass of the lubricating oil composition, the content of said ester compound is 0.01%-50%.