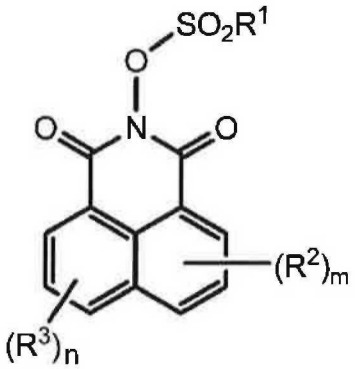
CLAIMS

1. An aromatic imide compound represented by the formula (1):

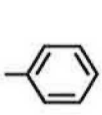


(1)

wherein in R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group, R^3 represents a halogen atom or a hydrocarbon group,

n is zero or an integer of 1 or more, m is at least 1 and a sum of n and m is 1 to 6, and R^2 is the group R^4-R^5- wherein

R^4 is selected from the group consisting of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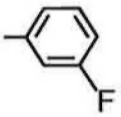
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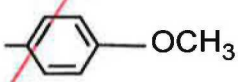
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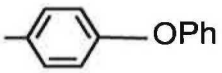
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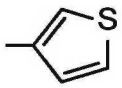


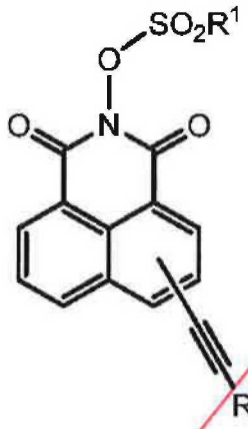
and where R^5 is an alkenylene group or an alkynylene group.

2. The aromatic imide compound according to claim 1, which can absorb light of g-line (436 nm) and/or h-line (405 nm) as measured using ultraviolet absorption spectroscopy of a solution of this aromatic imide compound in solution in methylene chloride, and where the addition of bromocresolgreen imparts a dark blue color to this solution, and further where upon irradiation with this light, the solution shows both a discoloration of the dark blue color indicating of a decreasing pH, and an attenuation of an absorption maximum measured by ultraviolet spectroscopy at the g-line (436 nm) and/or h-line (405 nm).

3. The aromatic imide compound represented by the formula (1) of claim 1 wherein R^1 represents a haloalkyl group having 1 to 7 carbon atoms.

4. The aromatic imide compound represented by the formula (1) of claim 3, where R^5 is an alkynylene group.

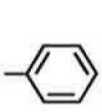
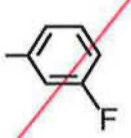
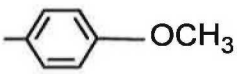
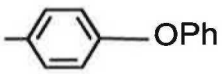
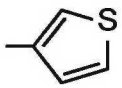
5. An aromatic imide compound represented by formula (2):



(2)

wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group,

R^4 is selected from the group consisting of


, 
, 
, 
, and 
.

6. The aromatic imide compound of claim 5 wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms.

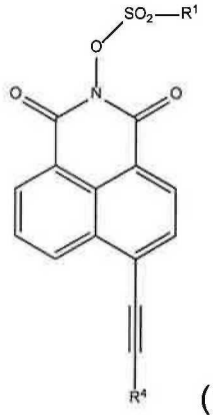
7. The aromatic imide compound of claim 5 wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms.

8. The aromatic imide compound of claim 5 wherein the haloalkyl group having 1 to 7 carbon atoms or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the group consisting of a linear alkyl, a branched alkyl and a cyclic alkyl groups.

9. The aromatic imide compound of claim 5 wherein the haloalkyl group having 1 to 7 carbon atoms or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group and further where the aryl group of the haloaryl is selected from phenyl or tolyl.

10. The aromatic imide compound of claim 5 wherein R^1 is a haloalkyl group having 1 to 7 carbon atoms, and this haloalkyl is in one where the halo moiety is a fluorine atom and further where a part or all of hydrogen atoms in the alkyl group of the haloalkyl are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group.

11. The aromatic imide compound of claim 5 wherein the aromatic imide compound is selected from the compounds having structure (1_{ra}),



(1_{ra})

and further wherein R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group, and where the haloalkyl or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms.

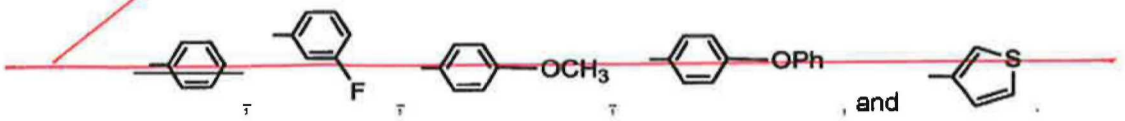
12. The aromatic imide compound of claim 11 wherein the haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms and further where the alkyl group in the haloalkyl is selected from the groups consisting of a linear alkyl, a branched alkyl and a cyclic alkyl groups.

13. The aromatic imide compound of claim 11 wherein the haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further wherein, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl ,or the aryl of the haloaryl group are substituted by a fluorine atoms and further where the alkyl group of the haloalkyl is selected from the groups

consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group and further where the aryl group of the haloaryl is selected from phenyl or tolyl.

14. The aromatic imide compound of claim 11 wherein R^1 is a haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl are substituted by a fluorine atom and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group.

15. The aromatic imide compound of claim 11 wherein R^4 is selected from the group consisting of



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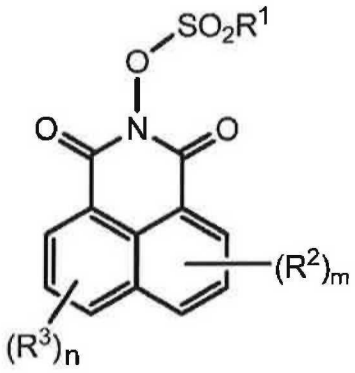
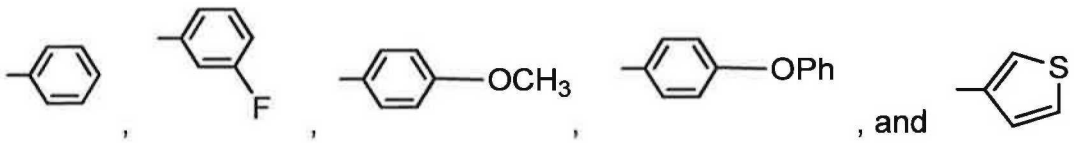
CLAIMS

1. An aromatic imide compound represented by the formula (1):



(1)

wherein in R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group, R^3 represents a halogen atom or a hydrocarbon group n is zero or an integer of 1 or more, m is at least 1 and a sum of n and m is 1 to 6, and R^2 is the group R^4-R^5- wherein R^4 is selected from the group consisting of



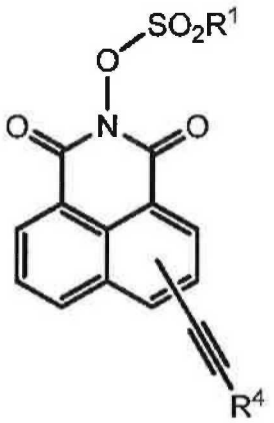
and where R^5 is an alkenylene group or an alkynylene group.

2. The aromatic imide compound according to claim 1, which can absorb light of g-line (436 nm) and/or h-line (405 nm) as measured using ultraviolet absorption spectroscopy of a solution of this aromatic imide compound in solution in methylene chloride, and where the addition of bromocresolgreen imparts a dark blue color to this solution, and further where upon irradiation with this light, the solution shows both a discoloration of the dark blue color indicating of a decreasing pH, and an attenuation of an absorption maximum measured by ultraviolet spectroscopy at the g-line (436 nm) and/or h-line (405 nm).

3. The aromatic imide compound represented by the formula (1) of claim 1 wherein R^1 represents a haloalkyl group having 1 to 7 carbon atoms.

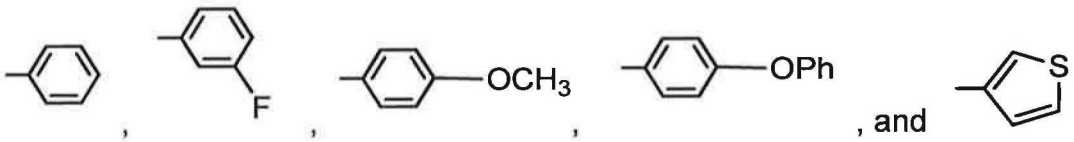
4. The aromatic imide compound represented by the formula (1) of claim 3, where R^5 is an alkynylene group.

5. An aromatic imide compound represented by formula (2):



(2)

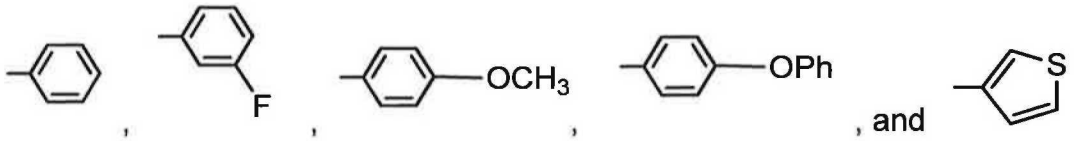
wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group, R^4 is selected from the group consisting of



, , , , and

6. The aromatic imide compound of claim 5 wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms.

7. The aromatic imide compound of claim 5 wherein, R^1 represents a haloalkyl group having 1 to 7 carbon atoms and R^4 is selected from the group consisting of



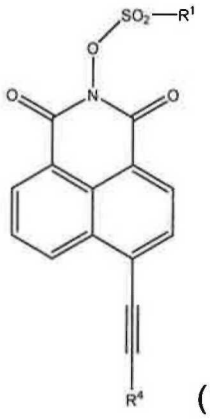
, and

8. The aromatic imide compound of claim 5 wherein the haloalkyl group having 1 to 7 carbon atoms or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the group consisting of a linear alkyl, a branched alkyl and a cyclic alkyl groups.

9. The aromatic imide compound of claim 5 wherein the haloalkyl group having 1 to 7 carbon atoms or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group and further where the aryl group of the haloaryl is selected from phenyl or tolyl.

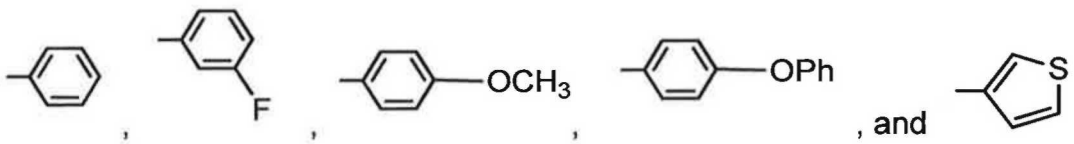
10. The aromatic imide compound of claim 5 wherein R^1 is a haloalkyl group having 1 to 7 carbon atoms, and this haloalkyl is in one where the halo moiety is a fluorine atom and further where a part or all of hydrogen atoms in the alkyl group of the haloalkyl are substituted by a fluorine atoms, and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group.

11. The aromatic imide compound of claim 5 wherein the aromatic imide compound is selected from the compounds having structure (1_{ra}),



(1_{ra})

and further wherein R^1 represents a haloalkyl group having 1 to 7 carbon atoms or a haloaryl group, and where R^4 is selected from the group consisting



and where the haloalkyl or the haloaryl in one where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms.

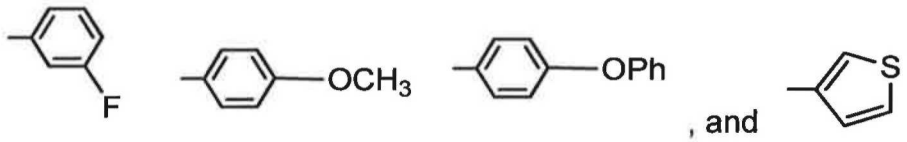
12. The aromatic imide compound of claim 11 wherein the haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl or the aryl of the haloaryl group are substituted by a fluorine atoms and further where the alkyl group in the haloalkyl is selected from the groups consisting of a linear alkyl, a branched alkyl and a cyclic alkyl groups.

13. The aromatic imide compound of claim 11 wherein the haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further wherein, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl ,or the aryl of the haloaryl group are substituted by a fluorine atoms and further where the alkyl group of the haloalkyl is selected from the groups

consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group and further where the aryl group of the haloaryl is selected from phenyl or tolyl.

14. The aromatic imide compound of claim 11 wherein R^1 is a haloalkyl group having 1 to 7 carbon atoms, where the halo moiety is a fluorine atom and further where, respectively, a part or all of hydrogen atoms in the alkyl group of the haloalkyl are substituted by a fluorine atom and further where the alkyl group of the haloalkyl is selected from the groups consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, and a heptyl group.

15. The aromatic imide compound of claim 11 wherein R^4 is selected from the group consisting of



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