solvent having a low dielectric constant is used as a reaction solvent, insulating materials such as glass, plastic, and ceramic as shown in Patent Documents 1 and 2 have not been able to be used for the flow reactor.

[0010]

As materials that can be used with a substance having an electrostatic charge property such as the above organic solvent having a low dielectric constant and that is also excellent in corrosion resistance, metals and alloys such as stainless steel, titanium, Hastelloy and Monel can be given. However, since these materials are generally heavy and rigid, a relatively large number of workers, machines, working days, or costs has been required for assembly.

[0011]

An object of the invention is to provide a flow reactor that enables the use of the substance having an electrostatic charge property such as the organic solvent having a low dielectric constant and that is also excellent in corrosion resistance.

SOLUTIONS TO THE PROBLEMS

[0012]

As a result of intensive studies for achieving the above object, the inventors have found that by allowing at least a part of the inner wall of a reactor unit in a flow reactor to be formed of a fluororesin containing a conductive filler, the risk of electrostatic ignition is avoided, whereby it is possible to obtain the flow reactor that enables the use of the substance having an electrostatic charge property such as the organic solvent having a low dielectric constant and that is also excellent in corrosion resistance.

In one aspect, there is provided a flow reactor comprising two or more raw material feeding units, a mixing unit to mix raw materials fed from the raw

material feeding units, and a reactor unit in which a mixed solution prepared in the mixing unit flows, wherein at least a part of an inner wall of the reactor unit is formed of a fluororesin containing a conductive filler, and wherein a flow channel of the reactor unit has an equivalent diameter of 0.1 mm or more and 50 mm or less.

[0013]

That is, the flow reactor according to the present invention has one or more features described below.

CLAIMS

1. A flow reactor comprising two or more raw material feeding units, a mixing unit to mix raw materials fed from the raw material feeding units, and a reactor unit in which a mixed solution prepared in the mixing unit flows, wherein at least a part of an inner wall of the reactor unit is formed of a fluororesin containing a conductive filler, and wherein a flow channel of the reactor unit has an equivalent diameter of 0.1 mm or more and 50 mm or less.

2. The flow reactor according to claim 1, wherein the cross-section of the reactor unit has a single-layer structure comprising the fluororesin containing the conductive filler.

3. The flow reactor according to claim 1 or 2, wherein a quenching agent of a reaction solution is in contact with an outer wall surface of the reactor unit.

4. The flow reactor according to any one of claims 1 to 3, wherein the fluororesin is a homopolymer or a copolymer produced from a fluorine atom-containing monomer.

5. The flow reactor according to any one of claims 1 to 4, wherein the conductive filler is at least one or more selected from a carbon-based filler, a metal-based filler, a metal oxide-based filler, and a metal alloy-based filler.

6. The flow reactor according to any one of claims 1 to 5, wherein the fluororesin containing the conductive filler has a volume resistivity, measured under the conditions of 50% RH and 23°C in accordance with JIS K 6911, of 10^6 Ω・m or less.

7. The flow reactor according to any one of claims 1 to 6, comprising a temperature control unit.

8. The flow reactor according to any one of claims 1 to 7, wherein a shape of the reactor unit is a tube-type.