

What is claimed is:

1. An electrophoretic mobility measurement cell comprising: a container having a rectangular parallelepiped internal space for introducing a sample solution; at least two electrodes formed in the interior of the container and being for applying an electric field to the internal space; a tubular sample injection portion in communication with the internal space; a tubular sample extraction portion in communication with the internal space; a first cap for covering the sample injection portion and sealing the internal space; and a second cap for covering the sample extraction portion and sealing the internal space; and

wherein the first cap has a first side surface that contacts an inner side surface of the tubular sample injection portion when the first cap is mounted,

the inner side surface of the tubular sample injection portion is formed so that the cross-sectional area of the tube increases with distance apart from the internal space, and the area of the cross section of the first side surface decreases gradually in the direction of insertion of the first cap.

2. The electrophoretic mobility measurement cell according to claim **1**, wherein the electrodes are formed integral to the container.

3. The electrophoretic mobility measurement cell according to claim **1**, wherein the inner side surface of the tubular sample injection portion forms a fixed inclination angle with respect to a centerline of the tube in a sectional side view and the first side surface of the first cap forms the inclination angle with respect to a centerline of the first cap in a sectional side view.

4. The electrophoretic mobility measurement cell according to claim **1**, wherein an inner side surface of the tubular sample extraction portion is formed so that the cross-sectional area of the tube increases with distance from the internal space, and

the second cap has a second side surface contacting the inner side surface of the tubular sample extraction portion and the area of the cross section of the second side surface decreases gradually in the direction of insertion of the second cap.

5. The electrophoretic mobility measurement cell according to claim **4**, wherein the inner side surface of the tubular sample extraction portion forms a fixed inclination angle with respect to a centerline of the tube in a sectional side view and the second side surface of the second cap forms the inclination angle with respect to a centerline of the second cap in a sectional side view.

6. The electrophoretic mobility measurement cell according to claim **1**, wherein a female thread is formed on the inner

side surface of the tubular sample injection portion and a male thread, fitting to the female thread, is formed on the first side surface of the first cap.

7. The electrophoretic mobility measurement cell according to claim **4**, wherein a female thread is formed on the inner side surface of the tubular sample extraction portion and a male thread, fitting to the female thread, is formed on the second side surface of the second cap.

8. An electrophoretic mobility measurement method comprising:

preparing the electrophoretic mobility measurement cell according to claim **1**;

measuring a profile of central frequencies of heterodyne spectra while changing the distance from a wall of the internal space;

fitting a parabola to the profile;

specifying a stationary plane inside the internal space at which the electroosmotic flow velocity is zero; and

determining the true migration velocity, based on an applied electric field, of the particles at the stationary plane.

9. The electrophoretic mobility measurement method according to claim **8**, wherein the electrophoretic mobility measurement cell is set on a movable stage and by an automatic stage moving function of the movable stage, the stationary plane is determined from the electroosmotic flow measurement to realize accurate measurement of the electrophoretic mobility.

10. An apparatus for measuring the electrophoretic mobility of particles in a sample solution, comprising:

electrophoretic mobility measurement cell according to claim **1**; an electric field applying means applying an electric field to the electrodes of the electrophoretic mobility measurement cell; a light source; an optical path splitting means splitting the light from the light source; a focusing means focusing one of the lights, resulting from the splitting by the optical path splitting means, onto the sample solution; an automatic stage moving means for moving the focal position; a phase modulating means performing phase modulation on the other light resulting from the splitting by the optical path splitting means; a spectrum measuring means receiving an interference light of the phase-modulated reference light and scattered light emitted from the sample solution and measuring a spectrum of the interference light; and an analyzing means calculating the electrophoretic mobility of the particles based on the interference light spectrum measured by the spectrum measuring means.

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