[0006] Accordingly, a need exists for improved ESC manufacturing methods that resolve or mitigate some or all of the above described problems.

SUMMARY

[0007] In a first aspect, the present disclosure provides a method for manufacturing electrostatic chucks, comprising: depositing at least a first layer of a first dielectric material on a handle using a depositing method selected from the group of depositing methods consisting of: spin coating, direct spray coating, or a combination thereof; depositing a functional electric layer on the at least the first layer of the first dielectric material; and depositing at least a second layer of a second dielectric material on the combination of the first layer of the first dielectric material and functional electric layer using a depositing method selected from the group of depositing methods consisting of: spin coating, direct spray coating, or a combination thereof. Additional optional steps, such as depositing a mechanical dielectric layer on the at least one layer of second dielectric material and patterning the mechanical dielectric layer, may also be carried out. In some embodiments, the material of the handle is Al_2O_3, AlN or Y_2O_3. In some embodiments, the first dielectric material and the second dielectric material are the same dielectric material, and the dielectric material is a material having a high dielectric constant. In some embodiments, the material of the mechanical dielectric layer is the same material as the handle.

[0007a] In a second aspect, the present disclosure provides an electrostatic chuck manufactured by the method according to the first aspect.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Figure 1 illustrates a configuration of an electrostatic chuck according to the prior art.

[0009] Figure 2 illustrates a tape casting technique according to the prior art.

[0010] Figure 3 is a flow diagram illustrating a method of manufacturing an electrostatic chuck according to various embodiments described herein.

[0011] Figure 4 illustrates an electrostatic chuck manufactured in accordance with methods described herein.

DETAILED DESCRIPTION

[0012] With reference to Figure 3, a method 300 for manufacturing an electrostatic chuck includes a step 310 of depositing at least one layer of first dielectric material on a handle using spin coating and/or direct spraying, a step 320 of depositing a functional electric layer on the at least one layer of a first dielectric material, and a step 330 of