METHOD FOR CONTROLLING THE FORMATION OF SMOKE CONSTITUENTS IN AN ELECTRICAL AEROSOL GENERATING SYSTEM

This invention relates to electrically heated aerosol generating systems and in particular to the control of smoke constituents released by an electrically heated aerosol generating system on heating.

Traditional cigarettes deliver smoke as a result of combustion of the tobacco and the wrapper which occurs at temperatures which may exceed 800 degrees Celsius during a puff. At these temperatures, the tobacco is thermally degraded by pyrolysis and combustion. The heat of combustion releases and generates various gaseous combustion products and distillates from the tobacco. The products are drawn through the cigarette and cool and condense to form a smoke containing the tastes and aromas associated with smoking. At combustion temperatures, not only tastes and aromas are generated but also a number of undesirable compounds.

Electrically heated smoking systems are known, which operate at lower temperatures. An example of such an electrical smoking system is disclosed in the International patent application WO03/070031. This electrical smoking system uses a controller to control the amount of electric power delivered to the heating elements in response to the battery discharge cycle.

Furthermore, commonly assigned U.S. Patent Nos. US-A-5,060,671; US-A-5,144,962; US-A-5,372,148; US-A-5,388,594; US-A-5,498,855; US-A-5,499,636; US-A-5,505,214; US-A-5,530,225; US-A-5,591,368; US-A-5,665,262; US-A-5,666,976; US-A-5,666,978; US-A-5,692,291; US-A-5,692,525; US-A-5,708,258; US-A-5,750,964; US-A-5,902,501; US-A-5,915,387; US-A-5,934,289; US-A-5,954,979; US-A-5,967,148; US-A-5,988,176; US-A-6,026,820 and US-A-6,040,560 disclose electrical smoking systems and methods of manufacturing such an electrically smoking system, which patents are incorporated by reference.

According to the invention, there is provided an aerosol generating system comprising: at least one heating element configured to receive an aerosol forming substrate; and a controller configured to control the release of volatile compounds from the aerosol generating system, wherein the aerosol-forming substrate releases a plurality of volatile compounds upon heating, and wherein each of the plurality of volatile compounds has a minimum release temperature above which the volatile compound is released, the controller comprising: means for selecting a predetermined maximum operation temperature, wherein the predetermined maximum operation temperature is below the minimum release temperature of at least one of

the volatile compounds in order to prevent its release from the aerosol-forming substrate; means for controlling the temperature of the at least one heating element such that at least one volatile compound is released; and means for measuring the resistivity of the at least one heating element, wherein the controller is further configured to: derive a value of actual operation temperature of the at least one heating element from the measurement of resistivity; compare the value of actual operation temperature with the predetermined maximum operation temperature; and adjust the temperature of the at least one heating element in order to keep the actual operation temperature of the at least one heating element below the predetermined maximum operation temperature.

Also disclosed is a method of controlling the release of volatile compounds from an electrically heated aerosol generating system is provided. The electrically heated aerosol generating system comprises a supply of electrical energy, at least one heating element connected to the supply of electrical energy and an aerosol-forming substrate. The aerosol-forming substrate releases a plurality of volatile compounds upon heating, wherein each of the plurality of volatile compounds has a minimum release temperature above which the volatile compound is released. The method according to the invention comprises the step of selecting a predetermined maximum operation temperature. This predetermined maximum operation temperature is below the minimum release temperature of at least one of the plurality of volatile compounds in order to prevent its release from the aerosol-forming substrate. The