

There is provided an electrically operated aerosol-generating system (10) comprising an aerosol-generating device (12), and first and second removable aerosol-forming cartridges (40, 60) each comprising a resistive heater. The first removable aerosol-forming cartridge (40) comprises a first aerosol-forming substrate requiring a first heating profile and the second removable aerosol-forming cartridge (60) comprises a second aerosol-forming substrate requiring a second heating profile. The aerosol-generating device (12) comprises a main body (16) defining a cavity and at least one opening for removably receiving one of the first and second aerosol-forming cartridges (40, 60) in the cavity. The aerosol-generating device (12) also comprises an electrical power supply and a control unit for controlling a supply of electrical current from the electrical power supply to the electric heater. The control unit is arranged to detect whether the first or second aerosol-forming cartridge (40, 60) has been received within the cavity based upon the resistive load of the respective resistive heater. The control unit is further arranged to control the supply of electrical current to the at least one electric heater according to either the first or the second heating profile in response to the detected aerosol-forming cartridge.