CLAIMS

1. A control method of an exhaust post-processing device, the exhaust post-processing device comprising a first processing device, a second processing device, a bypass pipeline (7), and a control valve (8), wherein

the first processing device comprises a first diesel oxidation catalyst DOC (1), a diesel particulate filter DPF (2), and a first selective catalytic reduction SCR (3) sequentially arranged in an exhaust pipeline in a flow direction of an exhaust gas,

the second processing device is arranged upstream of the first processing device and comprises a second DOC (5) and a second SCR (6) sequentially arranged in the exhaust pipeline along the flow direction of the exhaust gas,

the bypass pipeline (7) has a first end being in communication with an input end of the second DOC (5), and a second end being in communication with an output end of the second SCR (6), and

the control valve (8) is configured to control connection or disconnection of the bypass pipeline (7), the control method comprises:

determining if a passive regeneration request is received;

opening the control valve (8) in response to a determination that the passive regeneration request is received; and

conducting a thermal management by the first processing device, wherein the step of conducting the thermal management by the first processing device comprises:

obtaining a temperature at an input end of the first DOC (1);

determining that the temperature at the input end of the first DOC (1) exceeds a set temperature;

obtaining a flow rate of the exhaust gas flowing through the first DOC (1);

obtaining the temperature at an input end of the DPF (2);

determining a feedforward fuel quantity based on the temperature at the input end of the first DOC (1) and the flow rate of the exhaust gas flowing through the first DOC (2);

determining a corrected fuel quantity based on the temperature at the input end of the

first DOC (1), the flow rate of the exhaust gas flowing through the first DOC (1), and the temperature at the input end of the DPF (2);

calculating a total fuel quantity equal to a sum of the feedforward fuel quantity and the corrected fuel quantity;

comparing the total fuel quantity with a set fuel quantity; and

assigning the total fuel quantity to a regeneration fuel injection quantity in response to a comparison that the total fuel quantity is less than the set fuel quantity.

2. The control method according to claim 1, wherein the step of conducting the thermal management by the first processing device further comprises:

assigning the set fuel quantity to the regeneration fuel injection quantity in response to a comparison that the total fuel quantity is not less than the set fuel quantity.

3. The control method according to claim 1, wherein the step of determining the feedforward fuel quantity based on the temperature at the input end of the first DOC (1) and the flow rate of the exhaust gas flowing through the first DOC (2) comprises:

Q = the flow rate of the exhaust gas flowing through the first DOC * hot melt of the exhaust gas * (a set value of a regeneration temperature – the temperature at the input end of the first DOC), and

the feedforward fuel quantity = Q/a calorific value/a conversion efficiency of HC in the first DOC,

where, Q represents quantity of heat, and the set value of the regeneration temperature, the calorific value, and the conversion efficiency of HC in the first DOC (1) are all constants, and the hot melt of the exhaust gas is determined based on the temperature at the input end of the first DOC (1).

4. The control method according to claim 1, wherein the step of determining the corrected fuel quantity based on the temperature at the input end of the first DOC (1), the flow

rate of the exhaust gas flowing through the first DOC (1), and the temperature at the input end of the DPF (2) comprises:

determining an upstream set temperature of the DPF (2) based on the temperature at the input end of the first DOC (1) and the flow rate of the exhaust gas flowing through the first DOC (1),;

calculating a difference between the upstream set temperature of the DPF (2) and the temperature at the input end of the DPF (2); and

determining the corrected fuel quantity based on the difference.

5. The control method according to claim 1, further comprising:

keeping the control valve (8) closed in response to a determination that the passive regeneration request is not received.

6. The control method according to claim 1, wherein the exhaust post-processing device further comprises a first urea injection device and a second urea injection device, wherein

the first urea injection device is configured to feed urea into the first SCR (3), and the second urea injection device is configured to feed urea into the second SCR (6).

7. The control method according to claim 1 or 6, wherein the exhaust post-processing device further comprises:

a first temperature sensor for detecting a temperature at an input end of the first DOC (1);

a flow sensor for detecting a flow rate of the exhaust gas at the input end of the first DOC (1); and

a second temperature sensor for detecting a temperature at an input end of the DPF (2).