Claims

1. System of catalyst frost protection of selective catalytic reduction, which system comprises an engine (10), an exhaust gas duct (11) leading from the engine (11) to outside, a selective catalytic reduction (SCR) reactor (16) comprising catalyst elements (19) is located on the path of the exhaust gas duct (11), a heating system of the selective catalytic reduction system (SCR), which comprises a compressed air supply (12, 24) connected to the exhaust gas duct (11) via an air channel (18) for feeding the compressed air via the exhaust gas duct (11) to the SCR reactor (16) and at least one heater (17) for keeping warm and/or warming catalyst elements (19) of the SCR reactor (16), characterized in that the system comprises control for activating the heater (17) heating the selective catalytic reactor and for activating the compressed air supply (12,24) to ensure sufficient heat convection for keeping the selective catalytic reaction reactor in temperatures above 0ºC in case ambient temperature being below 0 ºC.

2. System according to claim 1, **characterized in that** at least one heater (17) is located on the path of the air flow upstream of at least one of the catalyst elements of the SCR reactor (16) for heating the air flow.

3. System according to claim 1 or 2, **characterized in that** the system comprises a connection point (14) of the air channel (18) of the compressed air supply (12) to the exhaust gas duct (11) located upstream of the catalyst elements (19) of the SCR reactor (16).

4. System according to any of claims 1 - 3, **characterized in that** the system further comprises a reductant injector (13) for feeding compressed air from the compressed air supply (12) to the exhaust gas duct (11).

5. System according to any of claims 1 - 4, **characterized in that** the pressure of the air flow for the heater when fed to the channel is 0,5 — 4 bar.

6. System according to any of claims 1 - 5, **characterized in that** the compressed air supply (12) has means for controlling the compressed air feed to continuous feeding and/or to feeding at selected intervals during the engine (10) shutdown.

7. System according to any of claims 1 - 6, **characterized in that** the heater (17) has a control for automatically switching the heater on by feedback from at least one temperature measurement sensor arranged in the SCR reactor (16).

8. System according to any of claims 1 - 7, **characterized in that** the SCR reactor (16) and at least part of the exhaust gas duct (11) are located in environment susceptible to humidity and to ambient temperature.

9. System according to any of claims 1 - 8, **characterized in that** the heating system has at least two heaters (17) which are selectively activable.

10. System according to claim 1, **characterized in that** the heater (17) comprises at least one heating cable (22, 23) located at the SCR reactor surface structure or located on at least one end surface of a catalyst element (19) in flow direction of the air.

11. System according to any of claims 1 - 10, **characterized in that** the SCR reactor (16) is insulated by insulation (21).

12. System according to any of claims 1 — 11, **characterized in that** each end of the SCR reactor (16) in flow direction of the air is provided with a closure element (23) in order maintain heat in the SCR reactor (16) when the heating system has been stopped.

13. Method of catalyst frost protection of selective catalytic reduction of engine (10), characterized in that in the method when the engine (10) is not running catalyst elements (19) of a selective catalytic reduction reactor (16) are heated by heater (17) and kept in temperatures above 0 °C in case of ambient temperature being below 0 °C, and a compressed air is provided to the SCR reactor (16) from a compressed air supply (12) to ensure sufficient heat convection.

14. Method according to claim 13, **characterized in that** in the method when engine (10) is stopped for a period and due to low ambient air temperature the catalyst elements (19) would cool down close to 0°C, the catalyst elements (19) are heated by an electrical heater (17) and heat convection thru the catalyst elements (19) is ensured by pushing air from a compressed air supply (12) by an urea injector (13).