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A Review on Carbon Monoxide Emission: Formation Measurement and Control Strategies

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Abstract : Abundant increase in population across the world causes many major problems. Peoples' craze towards the automobiles is increasing nowadays. So due to this reason the pollutants from the vehicles are drastically increasing. All these pollutants are emitted through the engine exhaust gas except the HC from gasoline engines. In the conventional gasoline fuelled SI engines, in addition to exhaust emissions, unburnt fuel/HC comes from evaporation in fuel tank, fuel system and from the crank case blow by gases. Amount of sulphur in the current engine fuels such as gasoline and diesel is quite small (<500 ppm by mass) and is being lowered further below 50 ppm. Therefore, emissions of sulphur dioxides and sulphur trioxides from the engines are not considered. The amount of pollutants emitted depends on engine design, operating conditions, ambient conditions, fuel type and exhaust after treatment employed. Under idle engine conditions, CO and HC emissions are high due to fuel rich engine operations. The HC emissions under wide range of engine operating conditions are high. In diesel engines, CO emissions are quite low (0.02-0.1 percentage volume). This technical paper details the engine emissions, formation, measurement in macroscopic level and CO emissions are studied in microscopic level.

Keywords : Carbon Monoxide, lean mixture, equivalence ratio, air-fuel ratio, HCCI, Stoichiometric mixture.

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