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1P57 - Generation of carbon monoxide from carbon dioxide using nanosecond pulsed discharge

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Carbon monoxide is a gas generated by incomplete combustion and carbon compounds, and generally recognized as a toxic gas. Also, it is known as greenhouse gas. The emission amount of carbon dioxide is increasing year by year, which is recognized as a severe environmental problem. On the other hand, it is considered to be an industrially useful material used for the synthesis of methanol. Carbon dioxide was converted to carbon monoxide using nanosecond pulsed discharge which created by a very short, high voltage with pulse width is 5 ns. The nanosecond pulsed discharge was generated in a coaxial cylinder type rector with a large discharge volume. The applied voltage from the nanosecond pulse generator to the reactor was adjusted to 30, 40, 50 kV and the pulse repetition rate was adjusted 50 - 400 pps. The initial carbon dioxide concentration of simulated gas was regulated at 100 %; and gas flow rate was controlled to 2, 5, and 10 L/min. The results showed that carbon monoxide was successfully generated and by products was not detected. Detailed results will be presented at the conference.

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