TAIYO NIPPON SANSO
The Gas Professionals

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TNSC Successfully Melts Glass Using Hydrogen-Oxygen Burner

Taiyo Nippon Sanso Corporation ("TNSC", President: Kenji Nagata) hereby informs that it has successfully conducted a demonstration test with 100% hydrogen combustion to melt glass using a hydrogen-oxygen burner jointly developed with Nippon Electric Glass Co., Ltd.

The jointly developed hydrogen-oxygen burner can switch the mix ratio of natural gas and hydrogen as needed. In the demonstration test to melt glass, it was confirmed that by adjusting the flow rate according to the ratio of mixing natural gas and hydrogen, the same melting capability could be obtained with either combustion fueled using 100% hydrogen, or a mixture of both natural gas and hydrogen, or only natural gas. This enables a significant reduction of CO_2 emissions from melting furnaces. The demonstration test also allowed confirmation of the durability and safety of the hydrogen burner.

TNSC is proposing the reduction of CO_2 in industrial furnace process through oxygen combustion technologies toward realizing carbon neutrality. Oxygen combustion is more energy efficient than air combustion and can significantly recue fuel consumption, enabling a reduction in CO_2 generated when using fossil fuels such as heavy oil and natural gas.

Hydrogen-oxygen combustion technology is expected to contribute to achieving carbon neutrality more efficiently through combination with combustion expertise cultivated until now. TNSC will continue moving forward on technological development to apply oxyfuel combustion technologies in various industrial furnace process.

(a) Hydrogen 100% (b) Hydrogen 60% Natural gas 40% (c) Natural gas 100%

Comparison of combustion states inside a glass melting furnace

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