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**Question 89: In shifting from partial burn to full burn in a side by side unit, what has been your observed impact on the NOx emissions? What is necessary to achieve 20 ppm NOx?**

**David Hunt (Grace Davison)**

Several Grace customers successfully operate with NOx emissions less than 20 ppm in full combustion without the use of NOx removal hardware in the flue gas circuit.

These units have the following common theme:

- Regenerator Flue Gas excess O2 levels are less than 1.5 vol%.
- If necessary, a non Pt combustion promoter like Grace's CP® P is used to control afterburn and/or CO emissions. Additions of promoter are minimized since excessive additions of any CO combustion promoter can increase NOx.
- Some of these units inject ammonia into the flue gas stream to meet NOx limits.
- Some of these units use a NOx reduction additive such as Grace's DENOX®.
- The regenerator combustion air and spent catalyst are extremely well mixed.

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Year

2010

Submitter

[Consultant](#)

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