

White Paper: Abatement of Waste Gases in Semiconductor Fabrication Using Nitrogen Heated with FLUENT®

By: - June 29, 2022

Semiconductor fabrication creates a number of waste gases, many of which are corrosive, pyrophoric or potentially explosive. Often, diluting these gases with nitrogen gas (N_2) is an early step in the abatement process to make sure they either stay below the lower explosive limit or to reduce corrosive effects. Mixing colder nitrogen gas with waste gases has been known to accelerate condensation, and when deposits build up, it can lead to unplanned downtime. Heating the nitrogen gas is a better option, but only if this can be done in a way that does not introduce new points at which the nitrogen gas can leak from the system. Watlow's FLUENT® heating technology achieves this, meaning that semiconductor manufacturers no longer need to trade off between safety concerns and possible downtime caused by the need to flush clogged exhaust systems.

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Summary:

Semiconductor fabrication creates a number of waste gases, many of which are corrosive, pyrophoric or potentially explosive. Often, diluting these gases with nitrogen gas (N_2) is an early step in the abatement process to make sure they either stay below the lower explosive limit or to reduce corrosive effects. Mixing colder nitrogen gas with waste gases has been known to accelerate condensation, and when deposits build up, it can lead to unplanned downtime. Heating the nitrogen gas is a better option, but only if this can be done in a way that does not introduce new points at which the nitrogen gas can leak from the system. Watlow's **FLUENT®** heating technology achieves this, meaning that semiconductor manufacturers no longer need to trade off between safety concerns and possible downtime caused by the need to flush clogged exhaust systems.