Application Note

PSA Oxygen for Waste Gas Treatment in the Semiconductor, PV and LED Industries

Break the
STRONGEST SINGLE BOND
known to organic chemistry

Used by industry-leading manufacturers, *OGSI* Oxygen Systems are a safe & reliable way to produce oxygen for waste gas abatement & emissions reduction.

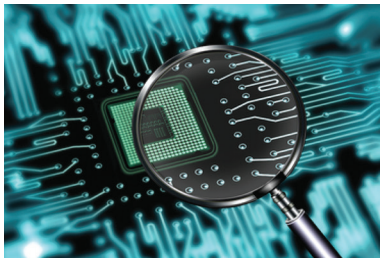
Waste gas treatment is an important, but often overlooked, function of semiconductor, PF and LED fabrication. Often viewed as an avoidable expense rather than a vital part of operating a safe facility, serious accidents have occurred where no abatement was installed.

Why install waste gas treatment?

- **Health and safety concerns**
  Many of the process gases used are flammable or explosive such as H2 or SiH4. Others are poisonous such as COF2, HBr and F2 and must be treated before any exposure to humans or wildlife.
- **Environmental factors**
  Many gases used are dangerous for the environment such as tetrafluoromethane or carbon tetrafluoride (CF4) which have a lifetime of nearly 50,000 years in the atmosphere. They have a global warming impact 6,500 times that of carbon dioxide.
- **Quality control**
  Waste gases contain particles or dust in the gas flow. This dust has the possibility to disrupt the facility exhaust systems leading to unintended downtime in the manufacturing plant.

In order to crack the CF4 molecule, temperatures of nearly 1400 °C (2552 °F) must be reached. In a reactor or burn box, fuel gas and oxygen provide both the energy and oxidant to allow the CF4 to breakdown.

Why *OGSI?*



- Extremely cost-effective and safe source of oxygen.
- Produce oxygen at a cost of 3 to 4 KWh per 100 SCF. Much less expensive than producing high purity oxygen used in other areas of the facility.
- Generate oxygen on-site, as needed and eliminate transportation costs.
- ***OGSI*** PSA oxygen is always in the gaseous form, no storage of liquid oxygen (LOX) required.
- ***OGSI*** PSA oxygen systems can operate from shop air.

Rev. 0715

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