DAS
Environmental Experts.

STYRAX – ABATEMENT SYSTEM WITH ALTERNATIVE ENERGY SOURCES

The STYRAX product family represents a comprehensive range of abatement systems designed for the effective removal of process waste gases from demanding semiconductor applications (CVD, Etch, EPI and others).

STYRAX *INLINE*: High-Performance Waste Gas Treatment for Semiconductor Processes

STYRAX *INLINE* employs advanced **Plasma-Wet** or **Burn-Wet technology** to reliably treat complex waste gas mixtures directly at the point of use, achieving a destruction and removal efficiency (DRE) of ≥95% and higher for critical gases such as CF_4, SF_6 and NF_3 and offering high capacity for CVD gases like SiH_4, TEOS, and H_2. This makes the abatement system ideally suited to meet the stringent environmental standards in advanced semiconductor manufacturing. With optimised abatement of perfluorocarbons (PFCs) like CF_4 and minimised maintenance intervals, the system ensures maximum performance. Its innovative design – featuring up to six independent waste gas inlets, minimised water and lye consumption, clogging prevention – delivers outstanding performance and operational flexibility.

Basic Features

	Plasma-Wet System	Burn-Wet System
Energy Source	Electric (DC Arc Plasma, N_2 carrier gas)	Fuel gas (NG, propane, hydrogen)
Max. Torch Power	15 kW	–
Benefits	50% energy saving vs. Burn-Wet	Proven technology, now with hydrogen as fuel gas option
Typical Applications	Etch, CVD and EPI processes typical for semiconductor manufacturing industries	

semi certified S2

Semiconductor Climate Consortium

Plasma-Wet System **STYRAX *INLINE***

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Options

- Up to 6 waste gas inlets
- Fully heated inlet pipes up to 200°C
- Low water consumption due to closed design
- Process-Tool-Interface
- Monitoring
- Adaptive Combustion Control – integrated NOx emission reduction
- Auxiliary fan for negative pressure
- Earthquake Safety Kit

System Description

Process waste gases enter the reactor via up to six inlets. Depending on their composition, reactions like oxidation, reduction, or pyrolysis occur. In **Plasma-Wet systems**, a central DC plasma torch generates high temperatures to break down harmful components; in **Burn-Wet systems**, a burner uses natural gas or propane with O_2 or CDA, or hydrogen with O_2. Optional features like heating jackets or plungers optimise conditions. A fluid wall film prevents corrosion and deposits. Washing columns absorb soluble components and suspend particles; the scrubbing liquid cools and neutralises products like hydrogen halides, is recirculated, and lye can be added.

Which System to Choose?

Both Burn-Wet and Plasma-Wet systems offer top performance. The best choice depends on factors such as CO_2 taxes or costs for oxidants such as O_2. Plasma-Wet systems using renewable energy or green hydrogen can cut CO_2 emissions by 35 t per abatement. Both systems reduce media, energy, and water consumption compared to competitor products. No matter which system you choose, **DAS EE** adheres to exceptionally high safety standards that are implemented in our systems. This ensures safe operation, protecting personnel and equipment from significant damage and preventing process deviations.