

4 PFC gas treatment technology to protect the global environment

While PFC gas is used for semiconductors and liquid crystal panels, which are essential for our lives, it causes global warming because of its greenhouse effect. EBARA's PFC gas treatment system equipment contributes to preventing global warming by reducing the emissions of that gas.

Respond to the electronic component manufacturers' needs for global warming prevention measures

The demand of semiconductors and liquid crystal panels has expanded along with the rapid growth of cell phones, PCs and flat-screen TV sets. In their production, PFC gas*¹ is used for etching and scrubbing, and its consumption has been growing. PFC gas is stable and has a minimal influence on our health. But since its greenhouse effect is a couple of hundreds to ten thousand times higher than that of CO₂, electronic component manufacturers have proactively tried to reduce its emissions as an action to prevent global warming.

EBARA has commercialized an exhaust gas treatment system, which decomposes over 99 percent of PFC gas and detoxifies it before releasing it into the air. In this way, we are helping the environmental conservation actions of the electric component manufacturers.

■ Combustion abatement system (GDC series, G5)

The combustion abatement system decomposes PFC gas by oxidization through flames created by its fuel gas and oxygen, and it can decompose various gases in large quantities. This system has achieved a highly efficient gas treatment with little quantity of fuel needed because of the effect of swirling created by the originally developed special burner (picture above right). At present, over 500 units are working in electronic component manufacturing plants around the world.

■ F (fluoride) gas captured abatement system (FDS series): chemical reaction type

In conventional systems, fluoride, generated in decomposing PFC gas, has been dissolved in water in a treatment that necessitates another wastewater treatment facility.

However, the F gas captured abatement system developed by EBARA decomposes PFC gas by catalysis and turns fluoride generated in the system into calcium fluoride.

Therefore, the dissolving process and waste water treatment facility aren't necessary, and it also removes the

need to discharge the treated water into a river. In addition, it can be easily installed in existing plants. With these advantages, it is drawing the attention of many electronic component manufacturers.



Special burner of combustion abatement system



Appearance of the F gas captured abatement system (FDS series)

*1 [PFC gas] Perfluoro compounds. It is an alternative to CFCs, which are used for etching and scrubbing in the semiconductor manufacturing process. It is a greenhouse gas, designated as a controlled substance by the Kyoto Protocol.