

Introduction

GTS gas scrubber is a process waste gas treatment system for effluents from MCVD and plasma deposition equipment. GTS scrubber removes silica particles and pollutants resulting from preform fabrication process. GTS size and purification capacity can be adapted to the number of installed deposition lines and can serve from single MCVD up to 6 (max 10) deposition lines. GTS is designed to operate continuously in automatic mode, with minimal maintenance and expenses.

Application

GTS scrubber is installed as central exhaust and waste gas treatment systems in facilities or laboratories producing optical fiber preforms by MCVD or plasma deposition processes, using silicon (Si, Ge, P...) tetrachloride as basic glass forming precursor. GTS scrubber efficiently removes all pollutants coming from such processes (soot particles, chlorine, hydrochloride and hydrofluoride vapors, eventual other products) in accordance with standard European environmental standards. GTS scrubber provides stable and continuous exhaust at deposition equipment connection point, contributing to constant and repeatable process conditions.

Description

GTS scrubber uses water jet and Venturi separator to eliminate dust particles from effluent gases, which are then neutralized in a packed column neutralization tower. A tank with two sections is used as a base, with circulation flow of caustic scrubbing liquid through each section. Neutralization and reduction chemicals are automatically dosed from storage tanks, using pH and redox sensor control by PID controller. Circulation liquid is exchanged from time to time, and typically 1-4 maintenance stops are expected per year, depending on load. Saturated circulation liquid has to be pumped out and sent to subcontractor for treatment.

GTS scrubber is controlled by PLC program and touchscreen monitor. GTS can be controlled from any system running under OptiFACT control software in small labs with a single deposition machine.

Installation

GTS scrubber is delivered as a complete system and only needs space with suitable foundation and infrastructure connections to become fully operational. Delivery includes all the interconnecting ducts and cables, including control system and alarm devices or connections. Upon request, Bimes can design interconnecting ducts from MCVD/plasma system and other equipment to scrubber. Other options include HCl or HF sensors, automatic switch-over in case of exhaust fan failure, and interface to facility safety system.

