

# Clean Air...

## BIOLOGICAL DECOMPOSITION OF STYRENE IN A FRP PRODUCTION



Styrene emissions are one of the major problems when producing Fiber Reinforced Plastic tanks and Vessels using Vinylester Resin. In fact of serial production the emissions are rather high.

The barrels of these FRP-tanks are produced in filament winding method whereas the covers and the bottoms are manufactured by shop-gun technique with high Acetone emissions.

In the present application the shop-gun and filament winding processes alternate every 3 hours interrupted by a pause of about one hour with low emissions.

The manufacturing plant is ventilated constantly and the off-gases are conducted to an air pollution control plant comprising a modular biofilter with a filter area of 120 m<sup>2</sup>. Before entering the organic filter media the air is pre-conditioned and humidified in a packed-bed wet scrubber. The scrubber is integrated in the biofilter vessel. A special bioculture, adapted to Styrene is implanted into the filter bed.

Results of performance measurements are shown below

	TIME	STYRENE			ACETONE		
		in mg/m <sup>3</sup>	out mg/m <sup>3</sup>	removal %	in mg/m <sup>3</sup>	out mg/m <sup>3</sup>	removal %
1	13:13 -13:47	57	0,4	99,3	91	0,1	99,8
2	13:47 -14:10	160	7,2	95,5	510	0,4	99,9
3	14:10 -14:48	260	53	79,6	430	0,4	99,9
4	14:48 -15:08	220	15	93,1	93	0,9	99,0
5	15:08 -15:33	95	11	88,4	87	0,2	99,7