Vortex Ecological Technologies Ltd
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Case study

I: Advance Vortex Chamber (AVC) implementation in Poliva industries, ADOLAC Plant.

Introduction:	Main products of Poliva LTD industries: Margarines, Chocolate Creams, Backing improvers. ADOLAK Plant, a daughter company, produces food for cattle.
Environmental Restrictions:	Poliva(ADOLAK) industries located at Ramala industry zone Israel, in proximity to both urban and agricultural areas. Therefore, the plant was forced to comply with air pollution restriction.
Background	The process involves the mixing of three components creating an exothermic reaction accompanied by strong smells and dust emission. In order to meet the new environment regulations of the Ministry of Environment and to control emissions from the production lines, a few options were evaluated. The company evaluated solutions that balanced environment treatment cost and overall benefits. In addition and due to the material, hard sediments build up on the chambers and pipe walls and jamming them frequently – causing maintenance costs and production loses. The company mandated that the new systems resolve these problems as well. Several complicated solutions were evaluated. The designers required filters solutions that: Gases temperature vary between 110ºC and 120ºC. Humidity in stack 100%. Flow rate vary from 35000- 40000 Nm3/h. Particles inlet load 1400mg/Nm3 TOC 46mg/Nm3 The levels of odors emitted were high according to smell experts of Ministry of Environment.
Designer requirements	• Particles less than 20 mg/Nm3 • Odor- No complaints from neighbors.
Program Description	• ***Wet-Vortex Cleaning Technology*** was chosen for implementation. • Recycled water used in the Vortex chamber, were pumped from a settling pool. • Mud is removed from the settling pool, packaged and sold. • During production, some of the water in the settling pool, is recycled to the production line. Fresh water is pumped instead.

Results	• ***Wet-Vortex Cleaning*** has dramatically reduced the emission particles from 1400mg/Nm³ to less than 14 mg/Nm³ - **an improvement of 99%** from the previous system. • Since installing of the system, no complaints from neighbors about smell, have been recorded.
Sampling and Testing	• By certified company under ISO 17025 according to USEPA. Parameters as per EPA method 1-4.Sampling device-APEX STACK SAMPLER
Environmental Benefits	• Dramatic reduction of particles emission of more than 99%. • Significant reduction of smells. • The work environment has become cleaner enable employees move around without masks.
Operational Benefits	• No blocking in water recycling systems. • No operational shutdowns.
Economic Benefits	• Dramatically cost saving due to fresh water saving
Summery	• Using WET Vortex Cleaning System is a good example of an "end to end" solution. • A combination of an efficient, inexpensive solution of cleaning gases while using recycling water.