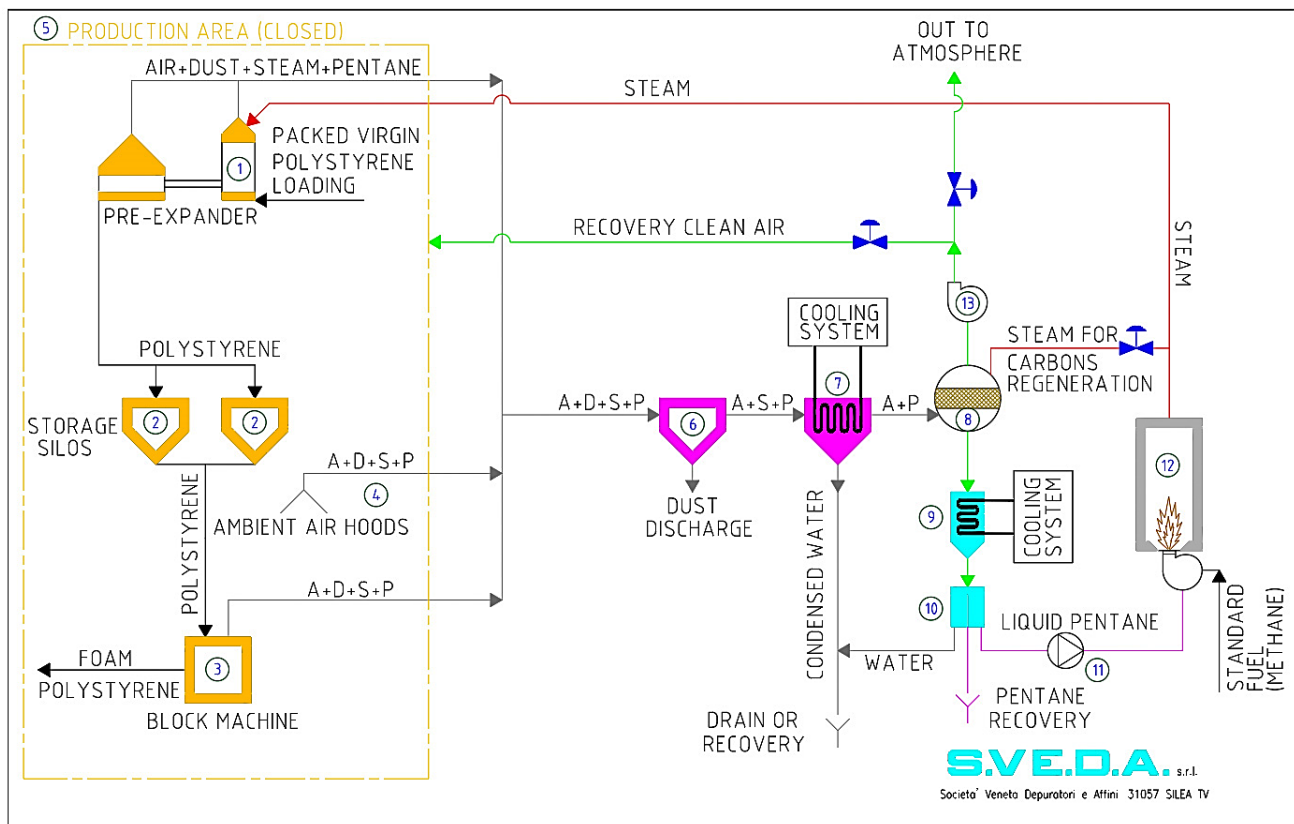


AIR PURIFYING AND PENTANE RECOVERY PLANT

The described process finds its main application in foam polystyrene or polyurethane production lines, in which the release of gaseous pentane causes severe pollution of the ambient air.

The unique feature of the process designed by S.V.E.D.A., leader company in the area of sustainability, is to purify the air by recovering pentane and recycle it in a **closed-cycle process**. **The benefits are not only environmental but also energetic** (pentane is burned to produce heat and steam for the EPS production lines) **and economic ones** (incentives in many countries for Zero Emission processes).

S.V.E.D.A. plant captures all the polluted streams coming from the various emission points (pre-expander [1], silos [2], block machine [3]) through a branched suction system, that adapts to the air flowrate required time by time by the process according to the production phase that is working in that moment.



Polluted air is contaminated with pentane, dust and water vapor [4]. After extracted dust with a special filter [6], and condensed the vapor with a cooling unit, the air is sent to one or more adsorbers with **ACTIVATED CARBON** where pentane is retained [8]. Pentane is recovered through a water vapor stream and reduced into liquid phase via condensation [9]. Recovered pentane is stored in a tank and sent to the boiler [12], which produces steam for the polystyrene production machines. The boiler, designed by us, works with pentane, methane or a mixture of the two.

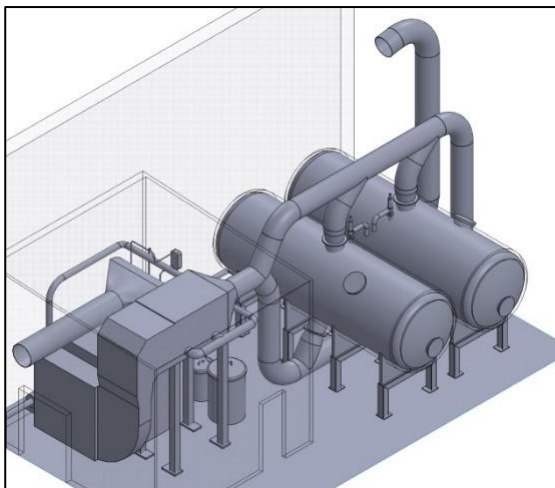
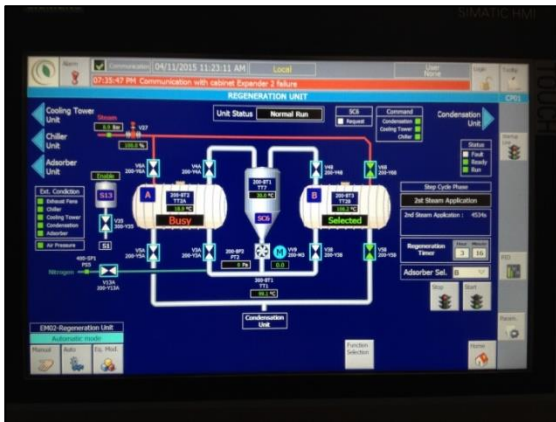
The air coming out of the activated carbon [13], purified from pentane and dust, is sent to the production area again. In this way, a zero emission plant is employed, both in terms of pentane and emitted air.

The plant is supplied turn-key, complete with electrical panel, electric system, PLC and operator interface terminal, assembled, calibrated and ready for production.

ADVANTAGES OF S.V.E.D.A. TECHNOLOGY :

- Very high efficiency of solvent removal (up to 99.8%)
- 100% GREEN system (Zero Emissions)
- Solvent Recovery with its reuse for heat production = economic saving + no environmental impact in the manufacturing process
- Government subsidies in many European and non-European countries
- Low energy consumption and less system management costs
- Modular plant design which allows further enlargements according to the flow to be treated

PENTANE RECOVERY PLANT



Technical features of “RECOVERY” section:

- | | |
|---------------------------------|---|
| - Air flowrate to be treated | 500 to 50.000 Nm ³ /h |
| - Type of solvent to be removed | isopentane , normalpentane |
| - Electricity consumption | ≈ 12KW (for each 10.000 Nm ³ /h of treated air) |
| - Industrial Water consumption | ≈ 0.2 m ³ /h (for each 10.000 Nm ³ /h of treated air) |
| - Steam consumption | Regenerated from pentane combustion |
| - Type of activated carbon | Renewable in situ (lifetime > 18 years) |

Services offered by S.V.E.D.A. :

- Study of the available spaces and realization of tailored layouts
- Study and optimization of existing suction lines
- Installation, start-up and in-situ calibration of the plant
- Customer service and spare parts maintenance
- Training sessions for staff for the proper use of the system
- Remote assistance and remote monitoring system
- Continuous monitoring of stack emissions