

UNILIN INDUSTRIES - Wielsbeke
Hydrocycloon

UNILIN Industries in Wielsbeke is a manufacturer of laminate flooring. For the production of the laminate substrate, calcium and PVC granules are used. These granules are prepared on site by granulating calcium and PVC powder in hot RO water (70-90°C). Afterwards, the granules are separated by a centrifuge.

Due to the sensitive nature of the granules, fine particles are released during the separation process. These particles often led to blockages, fallouts and mainte-

nance work. Trevi was asked to work out a solution for this problem. After intensive preliminary research, Trevi proposed to use both cyclone separation and sludge thickening. The most important constraints were limited space (only about 12 m²), hot temperature and the particle distribution of the particles to be separated.



Hydrocyclone and thickening table

Initial process

From the granulation process, the process water flows to a first Trevi process tank. From this tank, the water is pumped to a cyclone at a constant pressure of 2,3 bar and a flow rate of > 50 m³/h. The cyclone makes it possible to efficiently thicken the entire dirt load (± 99%) to a sludge flow of approx. 1.5 m³/h and a dry matter content of 7% (see table). All particles larger than 25 µm are separated easily (> 99%). Smaller particles are separated less or not at all, but they also cause fewer blockage problems in the granulation process.

After passing through the cyclone, the sludge flow (the underflow of the cyclone) is passed through a thickening table (with mesh 150 µm). The sludge is thickened and the filtrate is returned gravitationally to the process tank. As the underflow is already a light slurry that forms a filter cake on the thickening table, a significant proportion of the finest particles (25 - 150 µm) are retained by the cake and not by the filter itself.

The purified water (the overflow of the cyclone) is transferred to a second process tank from which the water flows back to the initial granulation process. Since the process flow rate is lower than the pressure-dependent flow rate to the cyclone, part of the water always flows back from the second process tank to the first process tank.

Extension of a new line

Recently, the granulation process was extended with a second line. From the start, a second cyclone installation was constructed by Trevi. Unlike the first installation, the process now involves a flow of 100 m³/h. For this purpose, the 2nd system was set up redundantly with 2 feed pumps, 2 cyclones and 2 thickening tables.



	Feed	Overflow	Underflow
Flow rate (water + granules)	52,5 m ³ /h	51,0 m ³ /h	1,5 m ³ /h
Dry Substance	0,2 %	0,0027 %	7,0 %



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