Iittala, a Finnish world brand in fine glass items

Fiskars brand Iittala invited Lahti Precision to discuss in 2010 how to reorganize raw materials logistics and batch production for glass making. The situation was quite challenging since at that time Iittala was producing batch in Nuutajärvi, 60 km from Iittala, which is also the name of the village located between Tampere and Hämeenlinna. So ready mixed batch was transported long distance because there was no batch production in Iittala factory area.

The solution was to build a new batch plant in Iittala. Brainstorming of the new facility was conducted jointly and guide lines were found: some of the old storage buildings were to be utilized since sand delivery take place only once or twice a year, sand should be dried also. Therefore one part of the plant should contain sand drying equipment. Samples of the major raw materials were observed by Lahti's experts. All the raw materials have nearly equal particle size distribution or sieving curve, therefore experts performed some mixing tests and proposed a pneumatic blender for batch mixing. Blenders are successfully used in fiberglass production which encouraged Lahti's engineers to go that route.

Iittala's project manager, Mr. Ari-Matti Tuovinen was a bit hesitant since they did not have any experience about pneumatic blending.: Iittala is famous for its clear and color glass quality. One of the main targets was to get homogenous batch without iron

contamination. Glass clearness needed to be minimum same level as produced from the old Batch House. Main concerns about pneumatic blending concerned homogenous batch after mixing and transfer through pipeline. Numerous tests proved that needed requirements were able to reach.

As the main target was to maintain the bright, clear glass or make it even more transparent, some measures were taken to ensure that: velocity in the pipeline should be as low as possible using dense phase method, Also all curves were basalt lined so that wearing of steel is minimized and iron contamination eliminated as much as possible.

In the process elimination of contamination start in the beginning by drying moist sand before it enters to the sand silo. Liners

prevent direct contact of steel, strong magnet picks up iron particles and a metal detector other metals.

When these fundamental issues were solved the remaining was to realize the project keeping in mind the details in design work. Lahti engineering team was controlled by the project manager, Leo Raatikainen, who also kept close contact with Iittala since the foundations were supplier by Iittala. From thereof all the rest was included in Lahti's supply.

Project team's co-operation was in good level. No information breaks were seen with project teams and subcontractors. Brainstorming was free and problem solving attitude/competence was one of strong points.

The batch plant was ready for testing some time before the deadline. During the testing phase the batch samples taken showed consistent batch quality and good homogeneity. Special attention was put on iron content; it turned out to be so that in the beginning iron content was somewhat elevated. The assumption was that some residue of manufacturing scale from the dryer and silo may have caused it. This was proven to be true later, since the iron contamination dropped down after a few days.

Mr. Tuovinen confirms this. First batch samples showed elevated iron contamination. Project teams took several batch samples to search the source for the iron contamination. Small amount of sand contained iron in the sand silo after cleaning runs. Iron contamination dropped after few days when sand run out from the silo.

After running one year the new batch plant the expectations about pneumatic blending have proven to be as positive as expected. The batch house is worked very well. Only few parts have been broken and few setup changes have been made to the sender/mixer. One major change compare to the old Batch house is the amount of waste batch that we have been able to save. Biggest changes are the modern filtration systems and automatic feeding lines from the Batch House.