CASE STUDY

Bendern, Liechtenstein

INNOPLANA

Eco-Friendly | Safe | Economical | Energy Efficient

INNODRY 2E®

Dust-free

suez environnement

Degrémont

Bendern

INNODRY 2E® - Safety was customer's priority

Needs Analysis

Back in 1997, Bendern (Liechtenstein) was looking for a safe technology for sludge treatment and disposal. Since the main concern of the municipality was the protection of the environment and operator safety, they were looking for an innovative technology which **did not produce dangerous levels of dust**. After a long and detailed evaluation of the available technologies, INNODRY 2E® was selected.

Why Degrémont Technologies-Innoplana?

The plant has a total capacity of **1'300 tons DS/year**. Prior to drying, the sludge is digested and dewatered to **28% DS**. In order to meet the customer's requirements, Degrémont Technologies-Innoplana installed an INNODRY 2E® unit with a total evaporative capacity of **650 kg H_2O/h** which produces dust free granules at **90% DS**. Prior to incineration in a cement oven, the granules are stored in 2 silos situated outside the building.

Implementation

Because of the excellent collaboration between Bendern and Degrémont Technologies-Innoplana, it was possible to realise the project, despite the very tight schedule, in only 12 months from kick-off to take-over. The project team worked closely with the customer on each project phase and, in particular, during the commissioning and start up period. Good teamwork between the commissioning engineers and plant operators allowed the plant to be started within few weeks. Degrémont Technologies-Innoplana experts gave operator training so that the client was fully familiar with the process and knew how to handle the totally automated dryer in a one week training session.

The Result

The plant was taken over at the end of 2005. The client is fully satisfied by the constant granule quality, low energy consumption and **total safety** that the INNODRY 2E® provides to the plant operators and the community.

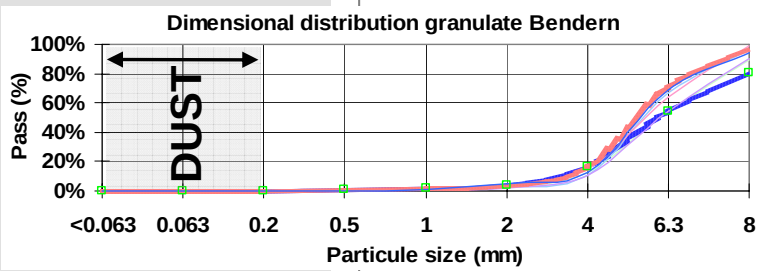
Project Overview

With its 2-stages design, the INNODRY 2E® produces extremely low dust.

Stage 1: the granules are produced after their passage through the thin film evaporator (TFE) when sludge is still in **plastic phase** at 45% DS. This making does not generate any dust.

Stage 2: in the belt dryer, the granules are dried up to 90% DS, with a single pass only, and **without any back-feeding** to avoid any dust production.

EXTREMELY LOW DUST LEVEL → Safety first



Consequently, the level of dust in the dried pellets is extremely low, **as little as 2.5% of the end product with a size of less than 1 mm**.

There is no need for any further dust treatment such as filtering, cooling, sieving, separating, pelletizing, recycling, etc.. With dust handling equipment there would always be a risk of fire or explosion which, in Bendern or in any other plant where an INNODRY 2E® dryer is installed, does not exist.

INNOPLANA

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