



FERTILE GROUND FOR ENERGY-SAVING MEASURES

What properties must flooring have in order to be used in laboratories, radiology rooms or in the electronic industry? It must be both electro-conductive and insulating so as to protect those put at risk through contact with live parts. Swiss-based Forbo-Giubiasco SA specializes in precisely this type of flooring. To make production as energy-efficient as possible, the company enlisted the support of the Energy-Agency of the Swiss Private Sector (EnAW).



Forbo-Giubiasco SA has participated in the EnAW Energy Model since 2009.

Colorex is the name of the non-porous, easy-care, high-tech vinyl flooring. It meets the highest hygiene requirements and is therefore suited for clean rooms. It must have an insulating and antistatic effect vis-à-vis electrical voltages emanating from equipment. If surfaces are not statically discharged, friction with clothing or shoes can produce spark discharges, especially in winter and in dry air conditions. But how is such a product made and what are the most energy-intensive stages of production? Bruno Guidotti, Managing Director of Forbo Giubiasco SA, explains the process.

LIKE BAKING

«Imagine, you are baking a plaited loaf», Guidotti begins. «At the start of process we receive the plastic raw material in powder form. We mix the powder with various additives and a plasticizer. The compound thus obtained is fed into a machine where it is thoroughly mixed and heated, creating a thick mass comparable to a dough. Calender rolls are then used to press the hot mass into a long sheet, which is then allowed to cool in the open air. In the next step, this sheet is shredded into small rectangular chips which are then coated with a black liquid based on carbon black.

The black paste contains conductive material that makes floorings antistatic. The chips are then reheated and pressed in moulds inside a large, high-pressure oven at 45 kg/cm². The resulting slabs are then cut horizontally. Next comes the surface treatment, which consists of sanding, brushing and smoothing. The sheets thus obtained then enter the stress relieving oven, where they are first heated then cooled. At the end of the process, they are cut to order into tiles and meticulously inspected before being palletized and prepared for shipment.»

LESS IS MORE

For over five years now Forbo Giubiasco SA has been participating in the EnAW Energy Model, thereby underlining its commitment to its worldwide motto: «Creating Better Environments». Guidotti is convinced that by cooperating with EnAW and EnAW Consultant Walter Bisang, the company can reduce its ecological footprint as well as pro-actively lower its energy consumption. «Our Environment and Security Officer Giacomo Pansardi, together with Mr. Bisang, have accomplished a lot in five years», he says. One of the most important measures implemented concerns in the stress relieving oven. A pinch analysis (see box, page 2) conducted by DM Energieberatung AG has revealed that

226 000

FRANCS ARE SAVED BY FORBO-GIUBIASCO EVERY YEAR.*

the temperature of 110°C used to heat the plates for stress relief can be reduced to just 60°, thereby economizing 90 000 litres of fuel oil.

INSULATION IS THE MAGIC WORD

Forbo-Giubiasco SA requires a considerable amount of thermal energy for the entire production process. Besides the mixing machine, also the large press too is heated by thermal oil. Previously this heat was simply lost due to the absence of insulation. Pansardi therefore devised a solution to this problem, whereby insulation mats were installed to insulate the press and tubes around the machines from the outside. This ensures that most of the heat remains inside the process. The →

payback period of 2.6 years guarantees the cost-effectiveness of the investment, which is always the central consideration for EnAW. The insulation of these machines alone enables Forbo-Giubiasco SA to save 20 000 francs per year.

CO₂ EMISSIONS REDUCED BY 50%

Compared to 2011/2012, Forbo-Giubiasco SA has effectively halved its CO₂ emissions. From 1,400 tonnes per year initially, the company's annual CO₂ emissions fell to just 700 tonnes in 2016 – a remarkable performance made possible by the process optimizations described above and the use of district heating. The only incineration plant for municipal waste in the Canton of Ticino is located one kilometre from the Giubiasco operating site. «We were one of the first firms to get involved in promoting the development of local remote power and we now heat the entire building with district heating and waste heat from our production processes», says Guidotti. «Calculations have shown that this enables

us to economize some 150 000 litres of oil per year. That annual figure is now as much as 170 000 litres.» We still cannot dispense with oil, however, as the thermal oil needed for our processes cannot be heated up by district heating. Under the target agreement drawn up with the EnAW, Forbo-Giubiasco SA also benefits from the refund of the CO₂ tax, which means savings of 58 000 francs per year.

Yet for Guidotti it is not just about financial incentives. «Involvement in the building of the district heating system was largely influenced by sustainability considerations», he explains.

→ www.forbo.com

* The financial savings comprise the sum of energy cost savings and the CO₂ tax refund. We are assuming average energy costs (electricity, heating oil and natural gas) of 10 centimes per kilowatt hour. The CO₂ tax refund amounts to CHF 84 per tonne of CO₂ (2017 figure).

YOU TOO CAN SAVE



Forbo-Giubiasco SA is saving on energy and costs thanks to its collaboration with the EnAW. Every enterprise can lower its energy consumption and CO₂ emissions through cost-effective efficiency measures. Contact us so that you too can fully harness your establishment's cost efficiency potential.

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The EnAW Consultant responsible for Forbo-Giubiasco SA is Walter Bisang.

Interview with Bruno Guidotti

QUALITY «MADE IN SWITZERLAND»

Mr. Guidotti, Forbo's main product is linoleum. It is not produced in Giubiasco. Why?

In Switzerland we always wanted to focus on a product that did not previously exist. With our industrial product «Colorex» we currently occupy a niche and as such we can also export most of it. Only ten per cent of the end product stays in Switzerland. The rest goes to Europe and the USA, and the bulk of it to Asia.

Asia is home to your biggest worldwide competitors, which produce a similar electro-conductive product. Why is Asia still such a big customer?

This is about trust first and foremost. The clean rooms where our products are installed must be immaculate. Bulk buyers in the chip manufacturing industry have been our loyal customers for 30 to 50 years. The question always arises as to whether Chinese plants can consistently



BRUNO GUIDOTTI

Managing Director
Forbo-Giubiasco SA

turn out products of a quality comparable to ours.

The topic of sustainability is deeply embedded in your corporate philosophy. How do you raise staff awareness on the topic?

At the start of our cooperation with EnAW we collected ideas for optimization from our employees. Some of them have already been implemented. With us, sustainability is ever present. We also regularly implement new projects, like «Bike to work», to name an example.

PINCH ANALYSIS

To analyse its energy flows, Forbo-Giubiasco SA opted for a pinch analysis. The pinch analysis method makes it possible to accurately determine and economically exploit a company full CO₂ and energy-saving potential. It is suited to large industrial enterprises and medium-size firms with annual energy costs in excess of 300 000 francs.

→ www.enaw.ch/pinch-analyse