

A COMPLETE TOOLBOX

Guillaume Coupez, Standard Industrie International, provides a series of case studies that describe the application of various cleaning systems at cement plants around the world.

Introduction

For 40 years, Standard Industrie has provided customised technologies for different types of blockages in the cement

production process. These build-ups often cause a loss in productivity, higher cleaning expenditure, and present avoidable risks to maintenance staff. To prevent these negative and recurring challenges to the cement-making process, the group has developed four fields of expertise: blockage and build up removal, industrial vacuum cleaning, conveyor belt optimisation, and silo and hopper cleaning services. This article includes a number of case studies, describing the use of Standard Industrie's technology in the cement industry.

Tackling clogging in the cyclone

A customer based in Tanzania has installed a complete AIRCHOC® AC51010 on its gooseneck and other cyclones to

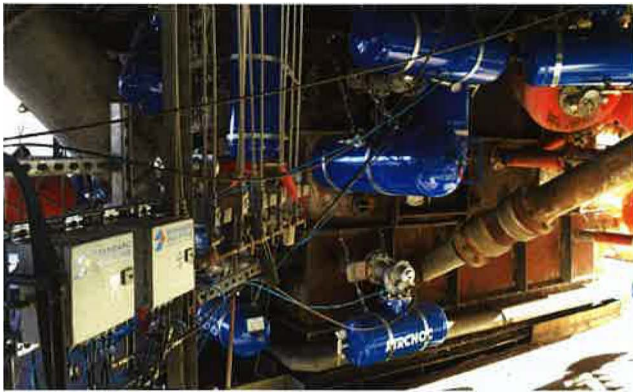


tackle clogging problems. The clogging had required many dangerous and tedious human interventions to remove.

In fact, the cement producer decided to install the AIRCHOC in order to increase the safety of the installation and, above all, reduce the risk of personnel accidents by eliminating the intervention of ringarding. This supply was accompanied by the delivery of many other AIRCHOC installed on other parts of the preheating tower in order to reduce the risk of rupture of the production process.

Cleaning the furnace inlet, smoke box, and gas duct

A cement plant in Missouri, US, was challenged by blockages that were created following the passage of hot gases rising in the cyclones. The meeting of the colder



Cleaning of a large part of the furnace inlet, the smoke box, and the gas duct.



The vacuum cleaner on trailer enables the operator to carry out cleaning operations, as well as heavy pumping with a large scope of possible actions.



A MACSYS® Wireless that was recently installed at an Austrian cement plant.

material with these hot gases created clogging, which could modify the gas velocity, thus influencing the precalcination of the raw meal. The cement manufacturer decided to install 70 AIRCHOC, with guillotine insulators. Following commissioning and adjustment of the system, the customer is now fully satisfied with the results given by the AIRCHOC.

Preventing snowman formation

The challenge at a cement plant in Pakistan was to prevent snowman formation and the free flowing of hot clinker into the cooler. For this, the client replaced an old cooler with a new LVT cooler and awarded Standard Industrie France with the supply of an AIRCHOC to be integrated during installation of the new cooler.

The new cooler increased plant capacity from 3400 tpd to 3900 tpd clinker production. It was very important for the customer to have a reliable and efficient blaster solution to prevent snowmen or clogging inside the cooler. The AIRCHOC blasts in an automatic sequence, every 20 min. The customer is happy with the efficiency and has not encountered snowmen since the start-up of the new cooler. It is planning a new line at the same site and will consider Standard Industrie again for the same application.

Cleaning up a cement plant in Lebanon

In this case, the cement plant in Lebanon and all its operating areas (bagging, tunnels, conveyor belts, cement grinding, and coal workshop) needed to be cleaned. The cement plant was already equipped with an AIRCHOC WIRELESS. This time, to address these issues, the cement producer ordered a UMA3000DMX vacuum cleaning solution from Standard Industrie.

The UMA was the best solution to tackle the difficulties and constraints associated with a heavy vehicle. Powerful, mobile, and adaptable, the UMA is equipped with explosion vents. It can therefore vacuum coal and petcoke. Their old equipment could not do it. Standard Industrie International was also responsible for installing a fixed pipe network in the bagging area. The nine suction inlets of the network made it possible to optimise the cleaning of three buildings.

Replacing air cannons on a smoke box

A customer in Austria wanted to replace old air cannons on the smoke box. The cement plant purchased a MACSYS®, which was part of a trial done on a cyclone. These multi-output air cannons – along with stainless steel reinforced hoses – enable operation in very hot or difficult-to-access areas, while ensuring operator safety. A combination of the number of outputs and their nominal diameter helps to better cover the distance between the MACSYS system and the area to unclog without loss of efficiency.

After six months of tests, the client decided to keep the equipment on its smoke box for several reasons: the MACSYS provided the possibility to ensure safe maintenance, as the heads are at human height and they are away from all source of heat. The risk of burns are therefore reduced. This installation also allowed a reduction in the number of permits to deal with the compressed

air reservoir, as well as reducing the management of certification and the requalification of the reservoirs by the competent bodies.

Preventing dust emissions from a conveyor

The LIFTUBE® system, developed and patented by Standard Industrie International, responds to the



Before (top) and after (bottom) the installation of the LIFTUBE® at a cement plant in Austria. The LIFTUBE optimises the sealing of the conveyor belt, reducing dust emissions and maintenance costs, while providing full safety.



Cleaning of cement silos in South Africa.

problem of dust emissions by improving the sealing of conveyor belts, raising the productivity and safety standards.

One of Standard Industrie's customers recorded an important loss of product, because of a significant rate lost from its conveyor. Dust emissions are due to the height of the chute and a slight inclination of the belts. Standard Industrie International recommended the installation of two LIFTUBE systems: one belt with 4 m of LIFTUB2-650 and one belt with 5 m of LIFTUB2-650. The product chutes have been integrated into the flat covers, with the implementation of lateral curtains inside the LIFTUBE and guiding plates on 1.5 m at the chute level. The client is satisfied and is equipping a 60 m belt in the raw material storage area and a 12 m clinker additives loading belt at the beginning of the process.

Cleaning build-up from a cement silo

The customer was faced with a serious build-up in a cement silo. The cement clogging created ratholing on more than six silos of 25 m high and 6 m wide. The customer contacted Standard Industrie International because it wanted to clean its clogged silos and reduce the cement dead stock. The clogging had been present in the silos for a long time. The contact with humidity had increased the clogging.

With a technician, the Standard Industrie International team carried out a cleaning intervention during several days onsite. A lot of blocks on different silos fell down, thanks to the GIRONET. The use of the pneumatic GIRONET effectively cleans silos and limits stock reduction. With a motorised cleaning tool and an articulated arm, it provides effective cleaning of all types of silos. Fully mechanised and remotely controlled, the GIRONET process ensures safe intervention without a human presence inside the silo, without the risk of injury.

Conclusion

The range of products supplied by Standard Industrie International meets the needs of the cement industry. Encountering a wide variety of problems, it is necessary to offer an equally flexible cleanout solution. The implementation of optimisation tools contributes to the smooth running of a cement plant. Apart from recovering lost product and capacity, lowering maintenance and cleaning costs, and enhancing storage capacity and productivity, a cleanout system enables a cement plant to respond to environmental and safety requirements. Above all, the reduction of dust emissions and new cleaning practices participate in the creation of a safer working environment, benefitting both personnel and the environment. 🌍

About the author

Guillaume Coupez has been the Project Manager at Standard Industrie International for 5 years and assists sales representatives at the customer's site in all technical aspects.