HANOI CERAMIC TILES

Increase awareness and knowledge of operating staff regarding recovery of spilled granules on the floor

SUMMARY OF THE OPTION

Hanoi Ceramic Tiles is the first manufacturer of high quality wall tiles and floor tiles in Vietnam. The company has five presses, which are used to produce raw tiles. A total of 720 tons of material (granules) are lost annually during the operation of the presses and the in-line defect rate is 7%. By collecting spilled granules and change the receipts for mixing raw material, the loss of materials and defect rate was reduced by 60% and 1% respectively. These measures were implemented and resulted in reduction of diesel oil (DO) and electricity use and corresponding yearly cost savings of approximately US$ 40,148. The annual GHG emission reduction is 468 tons CO_2 per year.

KEY WORDS

Ceramics, Vietnam, Granules, Press/Former

OBSERVATIONS

The input materials of the press are granules. Due to the fact that the material-feeding funnel of the press was fixed and had no automatic valve to control material feeding, the materials were not spread regularly and a significant amount of granules were lost. Measurements were taken to estimate the loss of granules. Spilled granules were collected after a working shift and it was found that the quantity of granule loss is approximately 670 kg per shift, three shifts a day, which is equivalent to 720 tons per annum. Apart from the absence of automatic valve, the main reason for the spillages is the lack of awareness of the operators about material savings.

Because they are mixed with dust, the spilled granules (*dirty materials*) cannot be reused directly in the press. They first have to be diluted by water to form a liquid and then passed to the spray dryer to obtain new clean and dry granules.

OPTIONS

In an effort to reduce granule loss from the presses, the company has installed open-close automatic valves in the material-feeding funnel as well as drive systems so that the funnel can be moved along the press and the materials spread more regularly. By using this system, it is possible to reduce spilled materials by around 60%. Additionally, to avoid materials spilling on the floor, the workers are forced to put a barrow under the press to collect the falling granule before they reach the ground. These granules can then be fed directly into the press, thereby avoiding the cleaning operation.

Together with recovery of granules, the company also researched new receipts for mixing raw material that result in high resistant raw tiles. Thanks to these new receipts, the defect rate in line was reduced by 1% (reduced from 7% to 6%). As a result the raw material mixture could be reduced by 1,200 tons per year, which is equivalent to the production of 60,000 m^2 product. This contributes to reduce energy cost per unit of product.

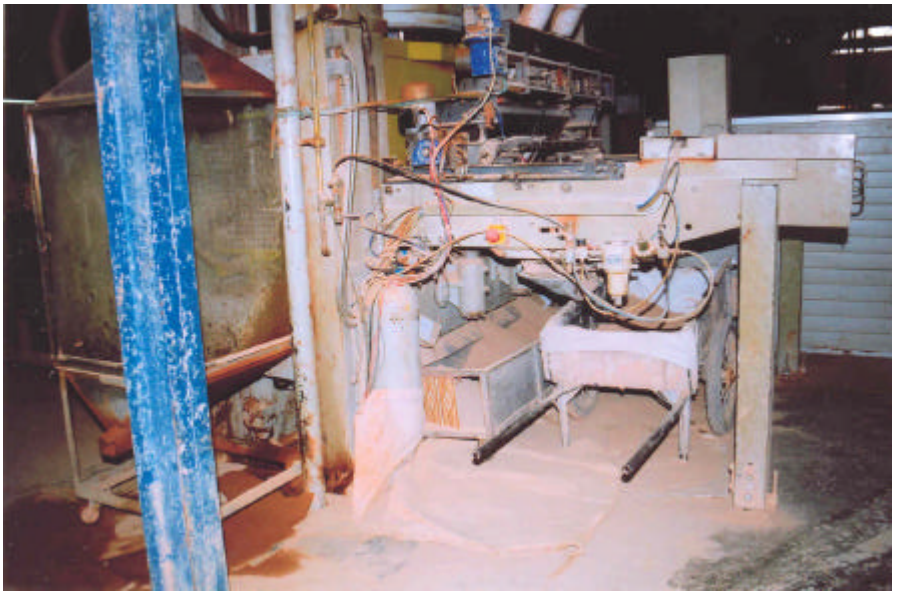

Figure 1: Using the barrow to collect materials

RESULTS

By simply installing open-close automatic valves, collecting spilled granules and changing the receipts for mixing raw material, the company has achieved annual savings of approximately US$ 40,148. The achieved energy savings amount to 118.8 tons of DO and about 130,200 kWh of electricity. The measures necessitated a negligible investment and brought big savings. The payback time was very short.

Financial benefits

- Investment: Negligible
- Operating cost: US$ 368
- Annual cost savings: US$ 40,202
- Payback period: Immediate

Environmental benefits

- Annual DO savings: 119 tons
- Annual electricity savings: 130,200 kWh
- Annual GHG emissions reduction: 468 tons CO_2 (emission factor: 3.19 tons CO_2/ton of DO)

FOR MORE INFORMATION

GERIAP National Focal Point (NFP) of Vietnam
Dr. Tran van Nahn, Director VNCPC
Center for Environmental Science and Technology (CEST)/
Vietnam National Cleaner Production Center (VNCPC)
Hi-tech Building, Dai Co Viet Road, Hanoi, Vietnam
Tel: +84-4 8681 686-7
Fax: +84-4 8681 618
Email: vncpc@vncpc.org

GERIAP Company in Vietnam
Pham Van Minh, Vice Director
Hanoi Ceramic Tiles Company Trung Hoa
Cau Giay District, Hanoi, Vietnam
Tel: +84-4 8543043
Fax: 84-240 8542889
Email: ceramichn@hn.vnn.vn
Website: www.ceramichn.com