HANOI CERAMIC TILES

Use of wasted hot flue gas from kiln as part replacement heat for spray dryer

SUMMARY OF THE OPTION

Hanoi Ceramic Tiles is the first manufacturer of high quality wall tiles and floor tiles in Vietnam. The company has two very sophisticated spray dryers, which convert the wet pasty raw material to dry granular form. The spray dryer 1 is a huge chamber where the liquid raw material is finely sprayed, and hot flue gases come in contact with the spray, instantly drying the material. Heat duty of the spray dryer is around 2,900,000 kcal/hr. The chamber temperature is maintained at 550^{o}C.

The assessment revealed that the kiln presently lets out flue gas to the atmosphere at a temperature of around 143^{o}C and this heat remains unutilized. The total quantity of released flue gas is 10,162 kg/hr, which is equivalent to a heat loss of 290,619 kcal/hr. It was found that the flue gas from the kiln could be used in the spray dryer 1 to replace about 10% of the diesel oil (DO) presently being burned to generate hot gases for the purpose of drying the spray. An initial evaluation showed that annual savings of 252 tons of DO could be realized, worth nearly US$ 68,000. The investment of around US $22,000, involving additional ducting and a booster fan, would be paid back in four months.

To date it has not yet been possible for the company to implement this option for the following reasons:

- The main reason is that the company plans to move its operations to a new industrial zone this year. The management has however committed to carry out this option and it will be integrated in the design of new plant.
- The presence of NO_x, SO_2 and CO in the flue gas could influence the drying process and impact on the characteristics of the dried granules. Trials are thus necessary to determine whether the use of flue gas might alter the texture or other characteristics of the granules, thereby affecting the quality of the raw tiles.

KEY WORDS

Ceramics, Vietnam, Waste heat recovery, Kiln, spray dryer

FOR MORE INFORMATION

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