

白水泥生产技术

TECHNOLOGY OF WHITE CEMENT PRODUCTION



主要技术优势

Main technical advantage

- 可适应150~1500t/d的生产规模
- 熟料烧成热耗低
- 适应煤、石油焦、重油和天然气等多种燃料
- 熟料质量稳定，白度可达90%以上
- 可靠的生产工艺
- 全面的技术服务
- Available for white cement production line with capacity of 150~1500 t/d clinker;
- Low heat consumption;
- Adaptable for coal, petcoke, heavy oil and natural gas. ...;
- Stable clinker quality to reach over 90% whiteness;
- Reliable process;
- Comprehensive technical service

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1 概述

General

白水泥是一种重要的建筑和装饰材料，用途十分广泛，可用于制作水磨石地面、水磨石地板、地砖、水刷石、水泥面砖、饰面砌块、墙板、纪念碑、雕塑等以及配制白色和彩色净浆、砂浆、彩色混凝土等。

目前白水泥主要采用小型预热器窑和干法中空窑生产，也有少数生产线采用新型干法生产技术，但生产规模较小，熟料热耗高，产品质量差，特别是白水泥熟料的白度偏低，水分波动大。

我公司开发的白水泥新型干法生产技术系统能力可达150~1500t/d，可适应煤、石油焦、重油和天然气等多种燃料，熟料烧成热耗低，白水泥白度高，可达90%以上，质量稳定。

我公司以高质量、高可靠性的设备为主要支柱，还有对水泥生产线工艺操作富有经验的工程师团队为坚强后盾。可为企业提供全套的工程技术支持和服务，包括设计、安装、调试、培训和生产管理等。

White cement is a type of important material for construction and refurbishment. It can be used to make terrazzo slab, terrazzo floor, ground tile, Granitic plaster, cement brick, decorative block, wall panel, monument, Sculpture and prepare for white and color paste, motar and color concrete.

Presently, it mainly uses small preheater kiln and long dry process kiln to produce white cement. Only a few white cement production lines use new dry process to produce white cement but in small capacity, high heat consumption, and bad quality, especially low whiteness and large water fluctuation.

The new dry process for white cement production developed by us can cover the capacity from 150t/d to 1500t/d, adaptable for coal, petcoke, heavy oil and natural gas. It can fulfill over 90% whiteness of white cement and stable in quality.

Besides high quality and high reliability equipment, we are back up of experienced and skilled engineers who know well of operation of cement production line and able to provide complete technical support and services including engineering design, erection, commissioning, training and operation management.

2 全面系统的生产技术

Comprehensive & systematic production technology

我公司开发的白水泥生产技术包括石灰石一次水洗、两段破碎、三次筛分工艺、生料制备干湿结合方法、熟料冷却热回收技术、熟料烧成预分解、窑头废气处理技术，降低了白水泥生产能耗，该技术达到了国际先进水平，并荣获第二届节能中国十大新技术应用奖。

White cement production technology, including limestone primary washing, 2-stage crushing, 3-stage screening, dry-wet raw meal preparation, clinker quench cooling, precalcining burning, cooler gas treatment, greatly reduces heat consumption of white cement production and be awarded of the 2nd "TOP 10 Applicable New Technology".



1、高效石灰石水洗系统

石灰石水洗系统是确保提高石灰石品位重要环节，可有效清除石灰石中的大部分杂质，减少Fe₂O₃的带入量，确保熟料较高的白度。洗矿水循环利用，节约用水。



High efficiency limestone wash system

Limestone wash system is important to ensure the quality of limestone, which can effectively clean out major foreign matters of limestone, minimize the content of Fe₂O₃ to ensure the higher whiteness of clinker. The water for limestone washing will be recirculated.



2、生料制备系统

为避免原料中铁的带入，采用湿法粉磨与干法立磨相结合的方式，可合理控制生料细度，并适当降低系统电耗。湿法磨采用橡胶衬板和卵石研磨体，立磨磨辊和磨盘采用合金材料。



Raw meal preparation system

In order to avoid the content of iron in raw material, it will use wet mill and dry VRM technology, which can reasonably control the fineness of raw meal, reduce system power consumption. Wet mill is to use rubber liner and pebble grinding media. The grinding table and roller is using alloy material.

3、低能耗的熟料烧成系统

烧成窑尾系统采用单系列五级旋风预热器和TTF分解炉，生料喂料可实现四五级切换。熟料烧成系统热耗比国内外现有系统大幅降低；预热器系统压损低，在五级操作时C1出口负压低于4500Pa。

4、高效熟料漂白冷却系统

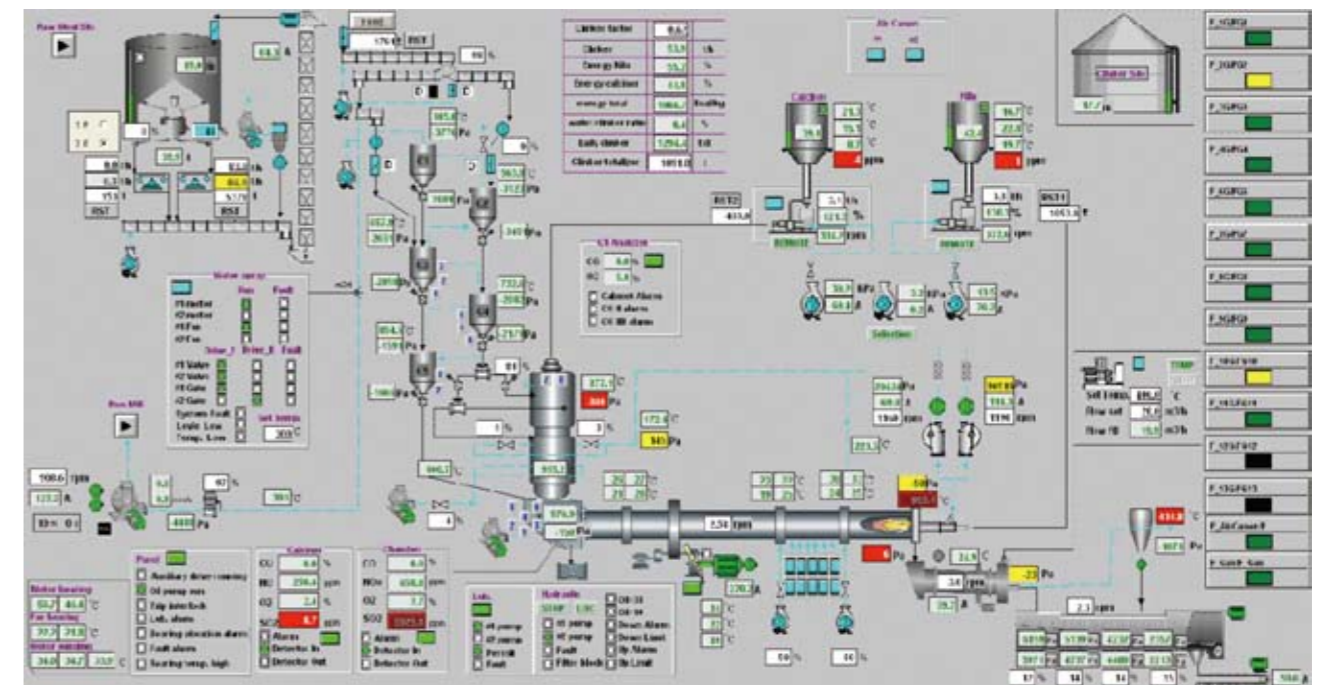
根据生产线规模不同可以采用一段冷却或两段冷却，白水泥漂白和冷却的效率。当生产线规模较小时采用一段冷却，当生产线规模较大时可采用漂白机+篦冷机两段冷却。采用两段冷却时篦冷机回收的200℃废气作为入窑二次风和入炉三次风，大幅降低烧成热耗。

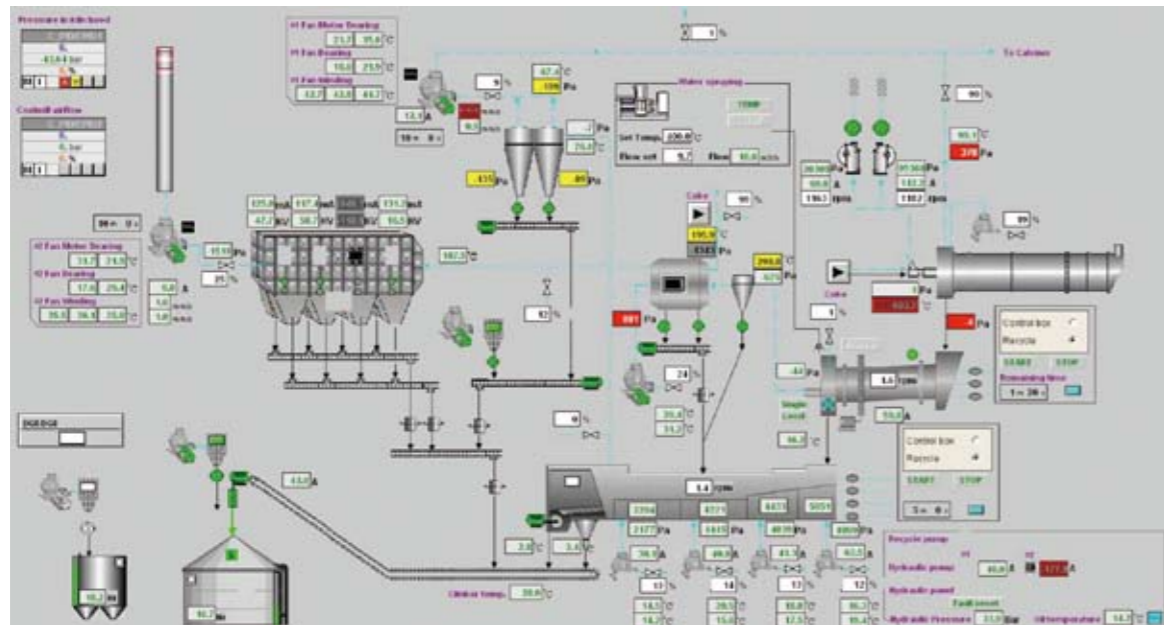
Burning system of low heat consumption

Clinker burning system applies single string 5-stage preheater and TTF Calciner. The 4 or 5 stage shift is available for feed of raw meal. The heat consumption of burning system is greatly reduced comparing with other existing system. The pressure loss of preheater system is low. When operating in 5 stages, the C1 outlet negative pressure is lower than 4500Pa.

High efficiency quench cooling system

According to different capacity, one stage or two stages cooling can be used. When the capacity is smaller, one stage cooling will be used. When the capacity is big, it can use two stages cooling process. When two stages cooling, the recovered 200℃ exhaust gas from cooler can be used as secondary air and tertiary air to greatly reduce the heat consumption of burning system.





3 应用实例

Application

2008年我公司总承包了阿尔博安庆白水泥有限公司的白水泥生产线，白水泥熟料年产量为40万吨，白水泥产量可达60万吨，为全球能力最大的生产线之一。该生产线2009年11月建成投产，2011年8月业主正式签发了最终验收证书。

Year of 2008, we were contracting white cement production line of Aalborg White Anqing Cement Co., Ltd, with capacity of 400,000 tons white clinker per year and 600,000 tons white cement per year. It is one of the biggest white cement production line in the World. It was completed and operated in November of 2009, and FAC is issued in August of 2011. Performance of White Cement Production Line of Aalborg White Anqing Cement Co., Ltd

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安庆阿尔博白水泥生产线运行指标

Performance of White Cement Production Line of Aalborg White Anqing Cement Co., Ltd

项目 Item	产量 Capacity t/d	热耗 Heat Consumption Kcal/kg	烧成系统电耗 Heat Consumption of Burning System kWh/t	水泥综合电耗 Power Consumption of Cement kWh/t	熟料白度 Whitenss of Clinker %
设计指标 Designed at	1300	1210	42	-	>87
实际指标 Operated as	>1500		30.1	<100	89~90



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