

Maintenance of Electric Equipment for Flue Gas Desulphurization and Denitrification in Coke Oven

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Abstract

5 sets of flue gas desulfurization and denitrification are newly built in China Angang Coking Plant as 5#-10# coke oven environmental protection supporting projects, its main equipment includes: unloader, chain bucket machine, air cooling fan, combustion-supporting fan, high and low temperature heat exchange fan, booster fan, etc. Since the system was put into operation in 2017, in order to better adapt to cleaner production, our adaptive electrical transformation has never stopped. From the perspective of commissioning and operation of electrical equipment for desulfurization and denitrification, the paper briefly describes the electrical control system of coke oven flue gas desulfurization and denitrification by using the fault treatment that has occurred.

Keywords

power supply; coke oven; desulfurization and denitrification

焦炉烟道气脱硫脱硝电气设备维护

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摘要

中国安钢焦化厂新建5套烟道气脱硫脱硝为5#-10#焦炉环保配套项目,其主要设备包括:卸料器、链斗机、空冷风机、助燃风机、高低温换热风机、增压风机等。该系统自2017年投运以来,为了更好地适应清洁生产,我们对其适应性的电气改造从未间断。论文从脱硫脱硝电气设备调试、运行角度出发,利用曾出现的故障处理,简要阐述焦炉烟道气脱硫脱硝电控系统。

关键词

电源; 焦炉; 脱硫脱硝

1 工艺流程

将焦炉烟道气从焦炉焦侧和机侧的地下烟道翻板阀上游引出,每个支路烟道上设置一台电动蝶阀。焦侧和机侧烟气合并后进入换热器。200℃—220℃高温焦炉烟道气进入一台(烟气—烟气)换热器,高温焦炉烟道气降温至150℃—190℃后,再进入(烟气—空气)换热器降温至130℃左右,然后进入活性炭烟气净化装置,从烟气净化装置出来的处理后的焦炉烟道气回前端(烟气—烟气)换热器升温至150℃—170℃,再通过增压风机送回烟囱排放,保证烟囱排放的烟气温度高于150℃,不影响烟囱热备。活性炭烟气净化装置使用活性炭作为吸附剂,喷NH₃进行脱硝。活性炭解析释放的SO₂制备硫酸铵溶液,活性炭在装置内循环使用。

2 电源设计

配套电力系统有:10kV和0.4kV供配电系统、电气检修、电气照明、防雷及接地等设施。5#6#7#8#焦炉系统10KV配电负荷630KVA,0.4KV配电负荷280KVA;9#10#焦炉系统10KV配电负荷710KVA,0.4KV配电负荷300KVA。系统增压风机的电源为10KV配电,10KV电源取自相应焦炉系统的10KV供电系统。增压风机为变频调节,配置了10KV变频调节系统。系统除增压风机以外均为0.4KV供电。系统内380/220V低压配电系统为动力照明合一的中性点直接接地供电系统,其电源取自本系统焦炉0.4KV配电系统。

3 电气设备调试与运行

带变频器调速设备功能:电源正常、集中操作、变频运