
制糖用含 N-W 不锈钢磨片
组织与耐磨性能分析

摘 要

针对制糖用撕解磨片在服役过程中承受较大的摩擦、磨损、变形等形式的破坏，导致撕解磨片的服役时间短、耐磨性能差。因此要求撕解磨片具有抵抗这些现象的特性，增加服役时间。本课题根据撕解磨片的服役条件和失效形式来分析热处理过程对性能的影响。

首先对材料进行合金成分设计，对已有的 Cr13 成分中加入 N、W 等元素，其次对其进行熔炼浇注，得到一种新型的含 N-W 不锈钢材料，通过改变淬火、回火的温度和回火次数，得到不通热处理工艺的试样，对其进行微观组织观察、力学性能测试、材料的定相分析，对比得出一种最优的热处理工艺。

实验结果表明含 N-W 不锈钢在经过 880℃ 淬火后再进行 560℃ 三次回火处理，得到的含 N-W 不锈钢强韧性结合，具有良好的综合性能。符合甘蔗的撕解过程中磨片的使用条件，提高了磨片的力学性能和服役时间，具有更好的发展前景，降低了企业的磨片使用成本。

关键词： Cr13 ； 撕解磨片 ； 淬火；回火；微观组织；力学性能

Analysis of microstructure and wear resistance of N-W stainless steel for sugar making

Abstract

In view of the fact that the tear grinding pieces used in sugar industry are subjected to great friction, wear and deformation during the service, the tear grinding pieces have short service time and poor wear resistance. Therefore, it is required to have the characteristics of resisting these phenomena and increase the service time. According to the service conditions and failure forms of the tear pieces, the influence of heat treatment process on the performance is analyzed.

First to alloy composition design of material, added to the existing Cr13 composition elements such as N, W, secondly to smelting casting, get a new type of stainless steel materials, with N - W by changing the temperature of the quenching and tempering and the number of tempering, heat treatment process of the sample, on the microstructure observation, mechanical performance testing, materials phasing analysis, contrast it is concluded that an optimal heat treatment process.

The experimental results show that the n-w stainless steel is tempered three times at 560°C after quenching at 880°C. It is in line with the use conditions of the mill pieces in the tearing process of sugarcane, improves the mechanical properties and service time of the mill pieces, has a better development prospect, and reduces the cost of the mill pieces.

key word: Cr13; Solution of grinding; Quenching; The tempering; microstructures ; mechanical property

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