

Technical Disclosure Commons

Defensive Publications Series

November 2023

CORROSION CONTROL FOR ROLLING MILL

Ana Elisa Pinto Moreira Sorrilha

Thalita Goncalves Berti

Tiago Elias Souza

Nilton Cesar Cispim de Oliveira

Follow this and additional works at: https://www.tdcommons.org/dpubs_series

Recommended Citation

Sorrilha, Ana Elisa Pinto Moreira; Berti, Thalita Goncalves; Souza, Tiago Elias; and Oliveira, Nilton Cesar Cispim de, "CORROSION CONTROL FOR ROLLING MILL", Technical Disclosure Commons, (November 07, 2023)

https://www.tdcommons.org/dpubs_series/6392



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

CORROSION CONTROL FOR ROLLING MILL

Inventors: Ana Elisa Pinto Moreira Sorrilha, Thalita Goncalves Berti, Tiago Elias Souza, Nilton Cesar Cispim de Oliveira

[0001] Rolling mills, such as hot rolling mills and cold rolling mills, often have parts that deteriorate over time and need to be replaced due to normal usage. In addition to regular usage, other factors may cause corrosion of parts and accelerate the deterioration of such parts, thereby causing unplanned downtime for the machine to change parts, increased maintenance costs, and unplanned component replacement.

[0002] Some corrosion on a rolling mill may be caused by a specific type of bacteria found in an emulsion (e.g., rolling mill coolant) used in the rolling mill. To combat this specific type of bacteria, proposed herein is a bacteria control system to control the bacteria and thereby reduce a corrosion rate of the rolling mill.

[0003] In some cases, the bacteria control system may utilize an inert gas as a bactericide. In various cases, the bactericide may be generated by equipment, may be odorless, and may be environmentally friendly and/or non-toxic to humans. In some cases, the bacteria control system may address the bacteria without causing (or minimizing) side effects on the emulsion, in the rolled material, and in the machine itself.

[0004] In use, the bactericide (e.g., inert gas such as chlorine dioxide) of the bacteria control system acts directly on a protective film of bacteria, which may be under sludge formed by the degradation of the emulsion. In use, the bactericide, such as chlorine dioxide, may also remove dirt from the mill while destroying the protective film of the bacteria, thereby treating the bacteria itself and reducing a likelihood of proliferation of the bacteria colony. Accordingly, the rolling mill with the bacteria control system may be less susceptible to fires that can occur (e.g., due to dirt / sludge) and may provide a cleaner environment around all the mill house.

[0005] Advantages of the systems and methods described herein include reducing fire risk (e.g., because the bactericide does not allow for sludge accumulation inside the rolling mill), facilitating the removal of heavy dirt, and reducing water and energy consumption needed for cleaning (e.g., with jet washing machines). In some embodiments, the systems and methods described herein may

reduce the amount of water and washings that need to be chemically treated and/or may reduce the generation of waste that must be sent for final treatment.