

عنوان مقاله:

The Best Possible Energy Management in Primary Aluminum Industry by Constructing Waste Heat Recovery Plant –
A Detailed Investigation

محل انتشار:

دومین کنفرانس بین المللی آلومینیوم (سال: 1391)

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خلاصه مقاله:

Half of the input energy to aluminum reduction cell will be lost as waste heat which could be studied for possible recovery. One of the possible choices for recovering is from aluminum exhaust gases that needs minimum modifications for reduction cell and has no influence on cell heat balance, which is vital for the operation. By using heat exchangers with in-line and staggered tube arrangements, which placed before fume treatment plant (FTP) we will be able to recover enough amount of heat. The main challenging problem, which is necessary to overcome, will be the heat exchanger material and its design because of corrosive and dusty exhaust gases from potroom. In this paper, a desalination system with six effects of evaporator is proposed for producing distilled water by using recovered heat from hot exhaust gases. The theoretical calculated amount of produced distilled water is around 27,000 in this specific suggested desalination plant. Besides theoretical investigation, we are trying to make a quick and simple understanding of the real situation for the waste heat recovery plant regarding heat exchangers fouling, how often we need to shut down the plant for maintenance or cleaning, and plant thermal efficiency with considering .fouling

کلمات کلیدی:

(Desalination, Heat Exchanger, Fouling, Corrosion, Thermal Efficiency, FTP (Fume Treatment Plant

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