

PENURUNAN NIKEL PADA LIMBAH INDUSTRI PELAPISAN LOGAM DENGAN MENGUNAKAN MEDIA ZEOLIT

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ABSTRACT

Metal coating industry, which is more grown up now, has negative environmental impact because of its waste water containing any kind of heavy metal especially nickel. Zeolite as media of ion exchange, may remove nickel concentration from metal coating waste water. The examination for capability of zeolite to remove nickel content is used by batch and recirculation column process. The Batch process uses zeolite with diameter 10-20 MESH and 20-40 MESH.

The highest efficiency of 97,483% is reached at zeolite with diameter 20-40 MESH, while recirculation column process is applied in column with diameter 2,54 cm when the concentration is 4 mg/l and flow rate variation at 30-450 ml/mnt. Nickel concentration can reduced until 0.1mg/l. It's reached when flow rate is 30 ml/mnt. Nickel concentration can reduce, so that can fulfill the standardization of waste water metal coated industry which limi thas 0.6 mg/l. The calculation gotten Reynold number is about 0,45-4,78 which still in the reynold range 0.016-1500. The relationship between Sherwood and Reynold number is $Sh = 4,53 NRe^{0.3896}$.

The reducing of nickel concentration use zeolit can be applied in the metal coating industry, so that can reduce the environmental pollution.

Keywords: *Ion exchange, zeolit, nickel, waste waste*