

RINGKASAN

Aluminium dengan valensi tiga dalam posisi tetrahedral memerlukan adanya penambahan muatan positif seperti alkali dan alkali tanah didalam kerangka zeolit untuk mempertahankan kenetralan muatan listriknya, ion - ion tersebut dapat ditukarkan dengan ion-ion lain. Hal itulah yang menjadi dasar sifat penukar kation dari zeolit. Kation Ca^{2+} dan Mg^{2+} yang banyak terdapat dalam air sadah dapat menggantikan kation yang ada dalam zeolit.

Telah diteliti penggunaan zeolit bayah sebagai penukar kation untuk menurunkan kesadahan air. Proses pertukaran kation ternyata dipengaruhi waktu kontak zeolit dan kation tertukar. Untuk sample dengan perbandingan konsentrasi Ca^{2+} : Mg^{2+} (ppm) :

- 200 : 0 tertukar sebanyak 154,55 ppm.
waktu kontak 90 menit.
- 150 : 50 tertukar sebanyak 129,51 ppm.
waktu kontak 120 menit.
- 100 : 100 tertukar sebanyak 112,76 ppm.
waktu kontak 120 menit.
- 50 : 150 tertukar sebanyak 92,93 ppm.
waktu kontak 120 menit.
- 0 : 200 tertukar sebanyak 80,66 ppm.
waktu kontak 120 menit.

Apabila dibandingkan dengan resin penukar kation, 200 ppm larutan Ca^{2+} tertukar sebanyak 192,73 ppm, jadi terdapat perbedaan sebanyak 38,18 ppm.

SUMMARY

The aluminium with three valences in tetrahedral position needed an positif charged addition such as alkaline and alkaline earth within zeolite framework to defent their electric charged neutralization. These ions can be changed with another cation. That case to be basic characteristic cation exchange of zeolite. Ca^{2+} and Mg^{2+} cation in hard water are able to exchange cation within zeolite framework.

The use of Bayah zeolites have been examined as cation exchange to decrease the water hardness. Cation exchange processes were influenced by time contact of zeolite and cation changed. For sample in this examination with concentration composition utilize Ca^{2+} : Mg^{2+} (ppm) :

200 : 0 changed as much as 154,55 ppm.

time contact 90 minutes.

150 : 50 changed as much as 129,91 ppm.

time contact 120 minutes.

100 : 100 changed as much as 112,76 ppm.

time contact 120 minutes.

50 : 150 changed as much as 92,93 ppm.

time contact 120 minutes.

0 : 200 changed as much as 80,66 ppm.

time contact 120 minutes.

If comparatived with cation exchange of resin, 200 ppm solution of Ca^{2+} changed as much as 192,73 ppm, so finable diffrence as much as 38,18 ppm.