

عنوان مقاله:

Speciation of heavy metals in coastal water of Qeshm Island in the Persian Gulf

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خلاصه مقاله:

Fuel storage tanks are one of the main sources of water pollution as well as loss of crude oil and oil products in refineries. In the process of utilization of these tanks, considerable amounts of hydrocarbons may find their way into the coastal water, which eventually lead to loss of valuable hydrocarbons. Oil type, climatic condition and characteristics of oil tanks are among the main variables in computing evaporative losses. The present study brings out the results of a project that was carried out to investigate the adverse effects of oil terminal on coastal waters of Qeshm Island and aims to elaborate on speciation of metals in coastal waters. For this purpose, 12 stations were sampled. Water chemistry software was used to draw Eh-pH diagrams. Along with the speciation of heavy metals, cluster analysis was carried out by MVSP software. According to the results, HSC diagrams showed that Cu and Cd were present as free ions. Lead, manganese, cobalt, zinc and nickel were respectively present as PbOH, MnOH, ZnOH, CoOH and NiOH in the Persian Gulf. Speciation of Cu and Ni was in the form of Cu₂O and NiO. Vanadium was also present in combination with hydroxide. Since all the studied elements were within the water stability range, they were stable, and there were no environmental risks of contamination and toxicity. The results of cluster analysis did not show any relation between Eh and pH. This clearly showed that Eh-pH was governed by different mechanisms in coastal waters of Qeshm Island. Vanadium and Ni concentration was governed by pH, while Cu and Cd concentration was controlled by Eh.

کلمات کلیدی:

Entropy; Heat capacity; Multivariate statistical package (MVSP); Oil tank; Water pollution

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