

Water quality index of Karoon River as indicator of Khorramshahr Soap Factory sewage effects

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Abstract

The Khorramshahr soap factory is the biggest and most advanced Iranian soap and glycerine factory with daily producing 100 tons soap-chips and 14 tons glycerine. The produced sewage of this factory is directly drained into the Karoon River through a channel.

In this study, samples were collected from 4 stations including: 50 meter above, 50 and 500 meter lower and the sewage evacuation area during 10 months starting from October 2006 to July 2007 using Van Dorn sampler. The comparison of physic-chemical parameters of water and sewage with the standard values defined by Department of Environment, showed that the amount of COD, BOD and Chlorine (means 1300, 169.8 and 4042.9 ppm, respectively) in sewage is higher than the standard level.

Based on water quality index, stations 1, 2, 3 and factory sewage with annual quality index of 54.63, 40.29, 45.71 and 24.32 were classified as moderate, bad and very bad, respectively. There was significant difference ($p < 0.05$) in factors such as BOD, COD, nitrate, phosphate and bicarbonate among the stations during the sampling period. The results also revealed factory sewage has affected the river water quality in spite of high water volume and sewage exit flow.

These changes in the quality of river water indicate increase of many parameters in second station and decrease in third station which shows Karoon River high ability of self purification.

Keywords: Karoon River, Water Quality Index, Sewage, Soap Factory Khorramshahr
