

# Removal of Chromium and Cadmium from Wastewater in Waste Stabilization Ponds, Yazd-Iran

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## Abstract

**Background:** Heavy metals have destructive and irreversible effects on the human, plants and animals. Some industries in Yazd enter industrial wastewater to municipal wastewater collection system. This can lead to high levels of heavy metals in wastewater and in turn in the wastewater treatment plant effluent.

**Methods:** This study was carried out during four months from December 22, 2009 to May 20, 2010. The experiment was performed on the inflow, outlet of anaerobic pond and first and second facultative ponds of wastewater treatment plant and then transferred to the laboratory and measured by atomic absorption spectroscopy.

**Results:** The results of the experiments showed that the average cadmium concentrations in the inflow, anaerobic pond outlet, and first and second facultative pond outlet were 0.0066, 0.0087, 0.0076, and 0.0083  $\mu\text{g/l}$ , respectively. The average amounts of chromium in the inflow, anaerobic pond outlet, and first and second facultative pond outlet were 0.0076, 0.0065, 0.0043, and 0.0056  $\mu\text{g/l}$ , respectively. Cadmium concentration in the effluent was higher than standard.

**Conclusion:** The comparison of the obtained data with Iranian standards for wastewater treatment for reuse in irrigation shows that the cadmium concentration exceeded the standard and the chromium concentration was lower than the standard. Therefore, it is not suitable for reuse in the crop farms and aquatic life.

## Keywords

Heavy metals, Stabilization ponds, Yazd, Cadmium, Chromium