
Produse chimice anorganice de bază

I.D.: 6653450

Data publicarii	06.06.15	Coduri CPV	24310000 24962000
-----------------	----------	------------	-------------------

Termenul limita pentru depunere:	25.06.15 11:00
----------------------------------	----------------

Descriere: The Ministry of Environment and Physical Planning has set as priority the settlement of one of the biggest hot-spots of Vardar River pollution and this is contamination with six-valent chromium (Cr6+) by the old industrial landfill in Jegunovce. The Ministry of Environment and Physical Planning is implementing the project 'Protection of Vardar River from contamination with chromium'. This project is part of the programme for environment reconstruction in Southeastern Europe as segment of the Stability Pact. The treatment plant conducts treatment of waters contaminated with Cr 6+ in the vicinity of the village Jegunovce, collected by 3 individual systems, resulting from the former operation of HEK Jugohrom: 1. Ground waters polluted by production plants of HEK Jugohrom (as historical pollution); 2. Polluted ground and surface waters in the village Jegunovce; and 3. Polluted ground and leakage waters from the industrial landfill of HEK Jugohrom. Treatment of wastewaters containing Cr6+ is carried out through technological process consisting of several chemical reactions. Under the agreement between MEPP and Jugohrom Ferroalloys DOOEL from the village Jegunovce, one of the obligations of the MEPP is to cover the costs for consumed chemicals that are necessary for the technological process for treatment of wastewater containing Cr 6+.

2. Goal The main goal of this project is to provide continuous operation of the wastewater treatment plant thus ensuring continuous treatment of polluted ground waters, decontamination of contaminated soils in the surrounding of the village Jegunovce and preventing polluted waters from the industrial landfill (both ground and leakage waste waters) to run directly into Vardar River. This will prevent possible pollution of the springs of Rasche which is the main source of water supply for the City of Skopje. Continuous operation of the treatment plant will be secured only by timely supply of required chemicals for the technological process of contaminated waters treatment.

3. Location The location of the treatment plant is within the site of Jugohrom Ferroalloys DOOEL — village Jegunovce, where polluted waters are brought by the three systems of different concentration of contamination. The populated place Jegunovce is located at a distance of 16 km from Tetovo and around 50 km from Skopje.

4. Functions of the system

4.1. Description of the technological process of the treatment plant The treatment plant performs treatment of waters contaminated with Cr6+ from the 3 systems. The main process of treatment is reduction of the toxic Cr6+ into significantly less toxic Cr3+ which under normal conditions forms unsolvable compounds that are not dangerous for the environment. The system of treatment of waters contaminated with Cr6+ consists of the following functional components: Pumping station and equalization well Chromium reduction neutralization Pumping station and equalization well Polluted waters from wells, drainage systems and landfill are brought to the equalization tank where diffuse equalization of concentrations of Cr6+ in the water is performed. The pump abstracts water from the equalization tank and it is transported to the treatment plant for further treatment. Chromium reduction Contaminated water from the equalization tank is brought to reduction tubes. Depending on pH value, sulfuric acid is dosed so that pH value is maintained below 2,5. By measuring of redox potential, Sodium disulfide is dosed. Through this process, Cr6+ is reduced to Cr 3+.

Neutralization Decontaminated water runs to the tube for 1 degree of neutralization. Depending on pH value, automatic dosing of calcined soda is made so that constant pH value is maintained at 8 1. At second degree of neutralization, final neutralization is made with pH value of 8,5 0,3. Upon the control of pH, water is discharged in the sewerage network.

4.2. Required chemicals Required costs for chemicals depend on the treatment of water/concentration of contamination. To estimate the costs for chemicals, the Final Report on 'Protection of land, surface and ground waters against pollution with chromium in the surrounding of Jegunovce' was used, 'GIUGLARIS039 — Recovery — EAR-SK; EU FWC LOT 6 Environment', prepared by the expert Mr Miroslav Chernak engaged by the European Reconstruction Agency, as well as the experience of EKOMAK from the operation of the treatment plant in the past.
