

11  
11

( )

\*

---

:

( )

ε :

*NIOSH*

ε :

%

%

%

ε

:

:

---

.( )

.( )

)  
( ) (

.( )

.( )

.( )

.( )

Daneshvar

.( )

pH

)

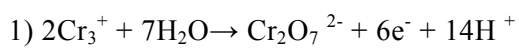
/ %

(

pH< ppm

( )

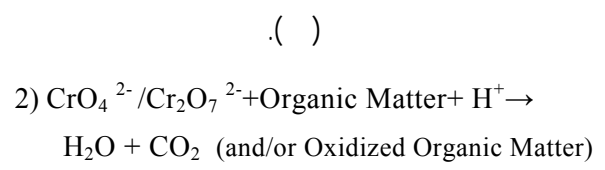
.( )



.( )

/ ( Soner

.  
:  
/ / / / / )  
(



.  
:  
)  
(

/ / / / / ) .( )  
( ) ( )  
( )

.  
( )  
( )

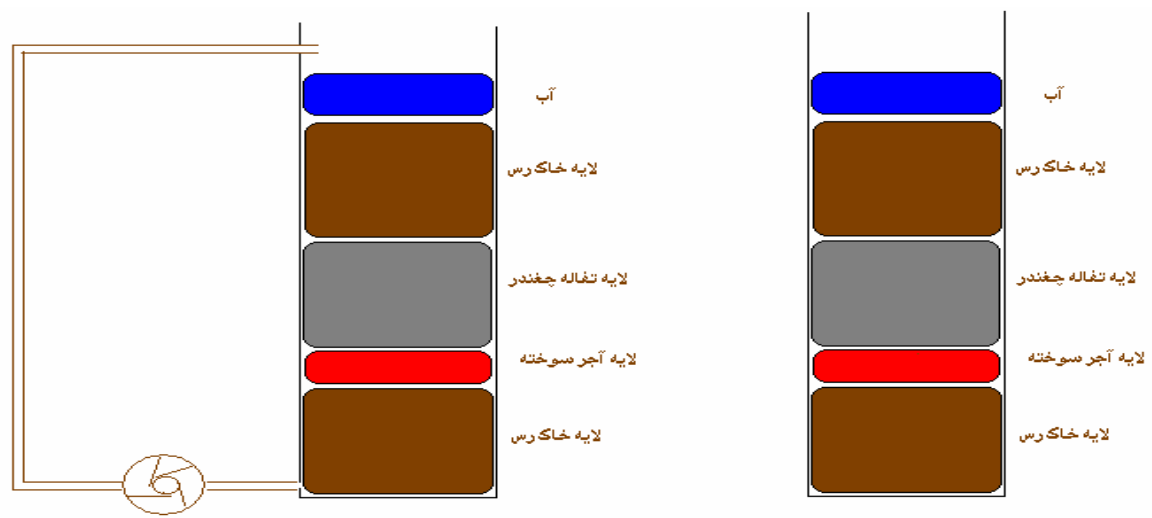
.  
)  
( ) ( )  
) ( )  
( )  
) )

(

( )

( )

( )



NIOSH

( )

(Colorimetric)

( )

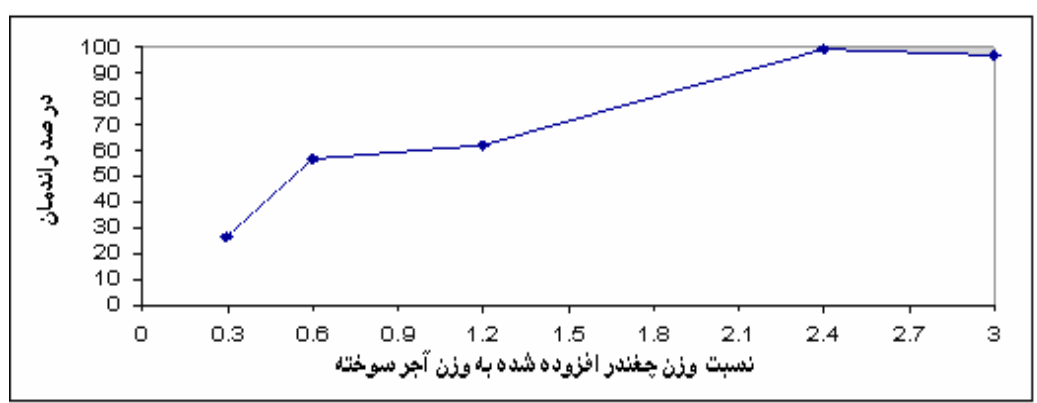
CV

(Recovery)

/ ( )  
 % (

/ :  
 ( )  
 % / / / / / )  
 (

|   | mg/kg |   | mg/kg |
|---|-------|---|-------|
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |



/ / / / / / )

(

( )

)

/)

(

ء

(

/

(

)

(

)

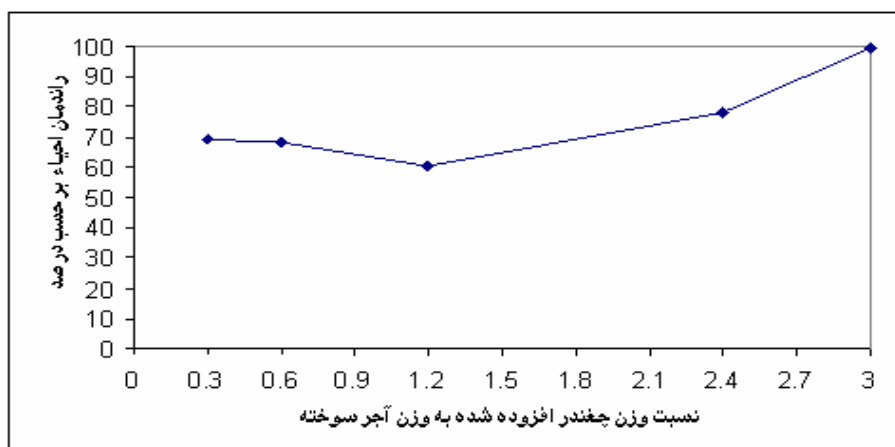
(

)

mg/kg

mg/kg

|   | mg/kg |   | mg/kg |
|---|-------|---|-------|
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |
| / | /     | / | /     |



/ ,

---

) ( ° (

( :

)

) (

)

(

(

°

°

---

mg/kg

mg/kg

|   |   |   |   |
|---|---|---|---|
| / | / | / | / |
| / | / | / | / |
| / | / | / | / |
| / | / | / | / |
| / | / | / | / |

---

mg/kg

mg/kg

|   |   |   |   |
|---|---|---|---|
| / | / | / | / |
|   | * | / | / |
|   | * | / | / |

---

\*

( )

pH

( )

( )

( )

(C )

pH

( )

( )

pH



---

## **REFERENCES**

---

1. Mukherjee AB. Chromium in the environment of Finland. *Sci Total Environ* 1998;217(1-2):9-19.
2. Fryzek JP, Mumma MT, McLaughlin JK, Henderson BE, Blot WJ. Cancer Mortality in Relation to Environmental Chromium Exposure. *J Occup Environ Med* 2001; 43(7):635-40.
3. Cervantes C, Campos-García J, Devars S, Gutiérrez-Corona F, Loza-Tavera H, Torres-Guzmán JC, et al. Interactions of chromium with microorganisms and plants. *FEMS Microbiol Rev.* 2001 May;25(3):335-47.
5. Sinha S, Saxena R, Singh S. Chromium induced lipid peroxidation in the plants of *Pistia stratiotes* L.: role of antioxidants and antioxidant enzymes. *Chemosphere.* 2005;58(5):595-604.
6. Rai V, Vajpayee P, Singh SN, Mehrotra S. Effect of chromium accumulation on photosynthetic pigments, oxidative stress defense system, nitrate reduction, proline level and eugenol content of *Ocimum tenuiflorum* L. *Plant Sci* 2004; 167(5):1159-69.
7. Shanker AK, Cervantes C, Loza-Tavera H, Avudainayagam S. Chromium toxicity in plants. *Environ Int* 2005 ;31(5):739-53.
8. Fang H, Smith JD, Peaslee KD. Study of spent refractory waste recycling from metal manufacturers in Missouri. *Resour Conserv Recyc* 1999; 25:111-24.
9. Shimaoka T, Hanashima M. Behavior of stabilized fly ashes in solid waste landfill. *Waste Manage* 1996; 16(5-6): 545-54.
10. Orloff K, Falk H. An International perspective on Hazardous waste practices. *Int J Hyg Environ Health.* 2003;206(4-5):291-302.
11. Daneshvar N, Salari D, Aber S. Chromium adsorption and Cr(VI) reduction to trivalent chromium in aqueous solutions by soya cake. *J Hazard Mater.* 2002 Sep 2;94(1):49-61.
12. Altundogan HS. Cr(VI) removal from aqueous solution by iron (III) hydroxide-loaded sugar beet pulp. *Process Biochem* 2005; 40(3-4): 1443-52.
13. Burhanettin Işıklı B, Demir TA, Akar T, Berber A, Ürer SM, Kalyoncu C. Effects of chromium exposure from a cement factory. *Environ Res* 2003; 91: 113-8.
14. NIOSH [1994] Chromium, Hexavalent; Method 7600. Eller PM, Cassinelli ME, editors. NIOSH Manual of Analytical Methods (NMAM), 4th ed. Cincinnati, OH: National institute for occupational safety and health, DHHS(NIOSH) Publication No.94-113.
15. Erdem M, Gür F, Tümen F. Cr (VI) reduction in aqueous solutions by siderite. *J Hazard Mater* 2004;113: 217-22.

- 
16. Mullet M, Boursiquot S, Ehrhardt JJ. Removal of hexavalent chromium from solutions by mackinawite, tetragonal FeS. *Colloids surf, A Physicochem Eng Asp* 2004; 244 : 77-85.
  17. Xu XR, Li HB, Li XY, Gu JD. Reduction of hexavalent chromium by ascorbic acid in aqueous solutions. *Chemosphere* 2004; 57: 609–613.
  18. Wang T, Li Z. High-temperature reduction of chromium (VI) in solid alkali. *J Hazard Mater* 2004; 112: 63-9.
  19. Veeken A, Kalyuzhnyi S, Scharff H, Hamelers B. Effect of pH and VFA on hydrolysis of organic solid waste. *J Environ Eng* 2000;126(12):1076-81.
  20. Lovley DR, Phillips EJ. Organic matter mineralization with reduction of ferric iron in anaerobic sediments. *Appl Environ Microbiol* 1986; 51: 683-9.