

Hazardous Effects Of Electroplating Industry Effluents On Our Health And Environment**Renu Sarwal, Dr. Ashutosh Pathak****Research Scholar, Assistant Professor****Guru Kashi University****Talwandi Sabo**

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Introduction

As we all know electroplating industry is proving boon for whole mankind since many years. So as there are many advantages of electroplating but side by side its effluents are too much toxic for us and our environment. These effluents contaminate air, water and soil. Some of the polluting agents have toxic effect on our health. e.g cadmium, lead, nickel. How it is going on? How our health is ruining day by day. Because the electroplating discharges toxic materials and heavy metals through waste water, air emissions and solid wastes in environment. There are almost more than 600 automatic plants in the country and about its worth is up to Rs1000 Crores and approximately 1,30,000 people are working in it. As my research work would be mostly based on Ludhiana area which is the hub of industries.

Brief knowledge Of Effluents Released During Electroplating Of Metals

Electroplating industry is that industry who's effluent is dumped into water bodies that disturbs the aquatic eco system. The effluence contain high pollution load of heavy metals thereby decreasing PH level of the effluence and it becomes acidic. Many processes physical, chemical and electro-chemical are used in electroplating industry. The effluents which may be complex in their chemical composition but become complicated when goes to sewerage system. Electroplating effluents are generally acid upto 200 – 300 mg/l of suspended solids, Cu, Ni and Zn. So these effluents are toxic and corrosive one to presence of these metals. Nickel^[1] Nickel plating in today's proving very much allergic, causes lung and nosal cancer among refinery workers.

Nickel Dermatitis

Its other health effect is dermatitis. As 10–20% of women and 1–2% of men are nickel sensitive. It is caused by wearing inexpensive nickel plated jewellery. As sweat reacts with nickel, dissolved nickel cause an allergic reaction. Nickel plates get dermatitis

Chromium^[2]

Exposure to it during electroplating may cause asthma. These fumes are too much toxic and develop asthma in them. Germination of Plants is delayed when there is mixing of electroplating effluent in plants. The discharge of effluent from industry in the water bodies causes bio magnification and phyto toxicity.

[3] Kaur A. *et al.* (2006) have been proposed Sub lethal toxicity of nickel-chrome electroplating effluent on blood plasma protein and cholesterol was investigated in the fish *Channa punctatus*(BI). The fish was most sensitive to stress during the spawning phase followed by preparatory and prespawning phase of the reproductive cycle. An increase in the concentration of biomolecules corresponding to a decline in GSI clearly indicates that the metabolism of the fish is affected and the biomolecules are not taken up by the body under the stress of the effluent.

[3] Koga S. *et al.* (1977) developed a metal plating waste water reclamation system which consisted of reuse of waste water from pre-treatment and post-treatment process with the help of RO plant. The waste water discharged from the electro-plating equipment, contained acidic chromium and alkaline cyanides. However, this study proved to be unsuccessful because of the fluctuation in the quality of inflowing waste water, which made the treatment difficult. Kremen *et al.*, (1977) reported a RO scheme for metal finishing wastewater containing Cu^{2+} , Zn^{2+} , Cr^{3+} and Cr^{6+} , where, 95% of water recovery was found that could be reused in process. The government setup the parameters the following effluents should be in this concentration.

Mercury – 0.01mg/litre
PH – 5.5 to 9.0
BOD – 150mg/litre
Oil and Grease – 10mg/litre

Conclusion

To conclude, as electroplating is proving boon for us and also gives metal protection, anti frictional characteristics lubrication, electrical conductivity, but still there are many pollutants which are released in their effluents. which leads to the large scale pollution by small scale industries. Government should establish a centralized waste treatment plant. This will also reduce the burden on small scale industries.

References

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