EFFLUENT FROM THE METAL FINISHING INDUSTRY

NEXT to the electrodeposition plant, probably one of the most important items to be considered in laying out a metal finishing shop is the supply and use of water and provision for proper disposal of effluent. In metal finishing, large quantities of water are used and more than 99 per cent of this is discharged as waste. This is due to the fact that the water used in the process gets contaminated and has to be disposed off. With the rapid industrialisation of the country, the metal finishing industry also has expanded considerably. Since the industry has assumed importance in the industrial advancement, a suitable standard for the discharge of effluents in the sewer, river or lakes and a general treatment before discharge has become a necessity.

In the metal finishing industry the contaminants are usually inorganic substances. Toxic materials are often present in the effluent, and each substance has to be evaluated individually as a pollutant. Effluents from the finishing undertakings are mainly of the following types: rolling or annealing scale; impurities immiscible with water like greases, oils, solvents like trichloroethylene, kerosene; pickling wastes —acidic and alkaline; plating solutions; surface conversion solutions, mostly chromate; cyanide solutions, etc.

The question of prescribing the maximum permissible concentration of toxic substances is a ticklish problem. The effluent is generally discharged into sea, river, tanks and sewer. The limits of toxic substances vary depending upon where the effluent is discharged. General limits can be laid down, when the discharged water will be harmless for fish and agricultural purposes.

The problem of effluent disposal should be treated as a national subject, and the Government of India should enact a suitable bill prohibiting the discharge of effluent from the metal finishing industry anywhere beyond a prescribed toxicity. At the State Government level, a suitable addenda or appendix to the limits could be made depending on the local circumstances, the quantum of effluent and based on the actual analysis. The general limits prescribed by the Central Government should be based on (*a*) where it is discharged—river, sea, tanks or sewer, (*b*) the volume of the effluent, etc. The Indian Standards Institution have laid some standards on the lines mentioned above. If a legislation both at the centre and the state levels is enacted, the indiscriminate discharges of the effluent will be greatly reduced, since the treatment of the effluent will become statutory. It may be argued that it will be difficult to give limits for the permissible concentration of the impurities at the point of discharge. But it may be possible to lay down impurity concentration which can generally be regarded as harmless and permissible. In that event, preliminary purification of the effluent will become obligatory on the part of the industry and the pollution could be minimised. It is hoped that suitable steps will be taken by the Government to minimise the contamination of the inland surface water, the rivers, lakes or municipal sewers.

—S.K.