Chapter NR 261

METAL FINISHING

(Interim Effluent Limitations)

Note: Pursuant to chapter 147, Wis. Stats. and under the procedure of section 227.027, Wis. Stats., the department of natural resources has promulgated interim effluent limitations which were in effect for one year. These interim effluent limitations will be periodically replaced by permanent effluent limitations.

NR 261.01 Purpose. The purpose of this chapter is to establish interim effluent limitations for discharges from the metal finishing point source category as authorized by section 147.04(5), Wisconsin Statutes.

History: Cr. eff. 2-28-75.

NR 261.02 Applicability. The interim limitations of this chapter apply to discharges from metal finishing operations conforming to Standard Industrial Classification Codes 3471 and 3479, except discharges from electroplating operations subject to the provisions of Wis. Adm. Code chapter NR 260.

History: Cr. eff. 2-28-75.

NR 261.03 Other limitations. Other interim effluent limitations in accordance with chapter NR 217, Wisconsin Administrative Code, are applicable to discharges from facilities which belong in the classifications of this section but are excluded from, or not specifically included in, its provisions.

History: Cr. eff. 2-28-75.

NR 261.04 Application of interim limitations. The interim limitations of this chapter apply to facilities having discharges greater than 20,000 gallons per day for the categories covered. The metals involved in the effluents discharged by this industry are in ionic form in solution, or as part of a compound in suspension. Limits for each parameter are given on the basis of concentration. It may not be economically practicable for small companies (9 emloyees or fewer), because of their size, to meet interim limitation levels.

History: Cr. eff. 2-28-75.

NR 261.05 Description of abatement models. This section describes in general terms the type of treatment facilities considered to be best practicable treatment technology for the purpose of establishing the interim effluent limitations of this chapter. This description is included to illustrate the type of treatment required. Other treatment technology may be acceptable. The basic treatment model is that of unit process stream precipitation. For essentially all of the parameters, best practicable control technology currently

available involves precipitation which includes coagulation, sedimentation, flotation, and filtration. Evaporative recovery and ion exchange should be considered. Chemical oxidation for cyanides and chemical reduction for chromium are, where necessary, part of the treatment process. Such heavy metals as copper, zinc, iron, manganese, nickel, chromium +3, and conceivably cobalt, can be readily and inexpensively precipitated as the hydroxides by lime treatment. Cadmium is most effectively precipitated as the sulfide; lead as the carbonate. Most of the hydroxides are precipitated at pH 9. Zinc hydroxide, being amphoteric, manifests its minimum solubility in the pH range of 8-9. Aluminum hydroxide, being amphoteric, manifests its minimum solubility over the pH range of 5-6. Depending on the kinds of heavy metal ions present in the effluent, it is possible to remove them either concurrently or in stages by precipitation techniques. The necessity for pH control and desirability of segregation of streams is determined by the particular combination of heavy metal ions involved. The discharge limits should apply equally as well to effluents containing one or more metals; however, in treating effluents containing a mixture of metals, compliance with the effluent limitation must be evaluated on a case-by-case basis.

History: Cr. eff. 2-28-75.

NR 261.06 Table of interim effluent limitations.

Effluent Parameter	Concentration mg/1 (a) (b)	lbs/1000 gal
TSS	10	0.0834
Cyanide Dest. by $C1_2$	0.03	0.00025
Fluoride	18	0.150
Aluminum	0.2	0.00167
Baruim	1.0	0.00834
Cadmium	0.1	0.000834
Chromium $CR+^3$	0.05	0.000417
CRtotal	0.25	0.00209
Copper	0.2	0.00167
Iron	0.5	0.00417
Lead	0.05	0.000417
Manganese	1.0	0.00834
Nickel	1.0	0.00834
Silver	0.05	0.000417
Zinc	0.5	0.00417
pH (Ave. Daily Discharge) 6-9		

Notes: (a) Metal concentrations are based on analysis of filtered clear solutions. (b) The maximum permissible concentration for a particular metal in the total suspended solids shall be equivalent to 1 mg/1, (0.00834 lbs/1000 gal).

History: Cr. eff. 2-28-75.