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Chapter NR 273

NONFERROUS METALS FORMING AND METAL POWDERS

NR 273.001 Purpose. The purpose of this chapter is to establish effluent limitations, new source performance standards, and pretreatment standards for the discharge of process wastewater pollutants from the nonferrous metals forming and metal powders point source category and its subcategories.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.002 Applicability. (1) Except as provided in sub. (2), this chapter applies to discharges of pollutants to waters of the state and to publicly owned treatment works from the forming of nonferrous metals and nonferrous metal alloys and the associated ancillary operations.

(2) This chapter does not apply to the forming of:

(a) Beryllium, copper, aluminum, or their alloys; or

(b) Cadmium, chromium, gallium, germanium, indium, lithium, manganese, neodynum, or praseodymium.

(3) This chapter applies to discharges to waters of the state and the introduction of pollutants into publicly owned treatment works from the mechanical production of metal powders from iron, copper, aluminum, nonferrous metals, and their alloys, the forming of parts from metal powders, and the associated ancillary operations. This chapter does not apply to the production of metal powders by chemical means such as precipitation. If the metal powder is produced as the final step in refining metal, the regulations for nonferrous metals manufacturing, ch. NR 274, apply.

(4) This chapter applies to any chemical of electrochemical treatment applied to the surface of the metal whenever these surface treatments are performed at the plant site where the metals are formed. If surface treatment is performed at a site other than where the metals are formed, regulations for electroplating, ch. NR 260, or metal finishing, ch. NR 261, apply.

(5) This chapter applies to casting when the casting is performed as an integral part of the metal forming process and takes place at the site where the metals are formed. When the casting does not take place where the metals are formed, the regulations for metal molding and casting, ch. NR 256, apply.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.003 General definitions. In addition to the definitions set forth in ss. NR 205.03, 205.04, and 211.03, the following definitions apply to the terms used in this chapter:

(1) "Alkaline cleaning" means the removal of lard, oil, and other compounds from a metal surface by a solution bath, usually detergent, followed by a rinse or multiple stage rinsing.

(2) "Aluminum alloy" means an alloy in which aluminum is the major constituent in percent by weight.

(3) "Ancillary operation" means an operation performed as an integral part of the forming, such as casting for subsequent forming, heat treatment, surface treatment, alkaline cleaning, solvent degreasing, product testing, surface coating, sawing, grinding, tumbling, burnishing, and wet air pollution control.

(4) "Atomization" means the process by which a stream of water or gas impinges upon a molten metal stream, breaking it into droplets which solidify as powder particles.

(5) "Beryllium alloy" means an alloy in which beryllium is present at 0.1% or greater.

(6) "Burnishing" means a surface finishing process in which minute surface irregularities are displaced rather than removed.

(7) "Casting" means pouring molten metal into a mold to produce an object of the desired shape.

(8) "Cladding" means the art of producing a composite metal containing 2 or more layers which have been metallurgically bonded together by roll bonding, solder application, or explosion bonding.

(9) "Contact cooling water" means wastewater which contacts the metal workpiece or the raw materials used in forming metals for the purpose of removing heat from the metal.

(10) "Continuous casting" means the production of sheet, rod, or other long shapes by solidifying the metal while it is being poured through an open ended mold.

(11) "Copper alloy" means an alloy in which copper is the major constituent by weight, except any copper-precious metal alloy containing 30% by weight or greater precious metal is a precious metal alloy.

(12) "Degreasing" means the removal of oils and greases from the surface of the metal workpiece by detergents as in alkaline cleaning or by the use of solvents.

(13) "Direct chill casting" means an operation in which molten nonferrous metal is poured into a water cooled mold, contact cooling water is sprayed on the metal as it is dropped into the mold, and the metal ingot falls into a water bath at the end of the casting process.

(14) "Forming" means a set of manufacturing operations in which metals and alloys are made into semifinished products by hot or cold working, such as hot and cold rolling, extruding, forging, drawing, swaging, cladding, and tube reducing.

(15) "Drawing" means the process of pulling a metal through dies or succession of dies to reduce the metal's diameter or alter its cross sectional shape.

(16) "Dye penetrant testing" means a nondestructive method for finding discontinuities that are open to the surface of the metal in which a dye is applied to the surface of the metal and the excess is rinsed off so that the dye which penetrates the surface is not rinsed off and thus marks the discontinuities.

(17) "Emulsion" means a stable dispersion of 2 immiscible liquids, usually oil and water.

(18) "Electrocoating" means the electrodeposition of a metallic or nonmetallic coating onto the surface of a workpiece.

(19) "Existing source" means any point source from which pollutants may be discharged either directly into the waters of the state or into a POTW, except a new source as defined in sub. (30).

(20) "Extrusion" means the application of pressure to a billet of metal which forces the metal to flow through a die orifice.

(21) "Forging" means deforming a usually hot metal with compressive force into a desired shape, with or without dies, but where dies are used the metal is forced to take the shape of the die.

(22) "Grinding" means processes, such as surface finishing, sanding and slicing, in which stock is removed from a workpiece by the use of a tool consisting of abrasive grains held by a rigid or semirigid grinder.

(23) "Heat treatment" means the application of heat of a specified temperature and duration to change the physical properties of the metal.

(24) "Hot pressing" means the forming of a powder metallurgy compact at a temperature high enough to effect concurrent sintering.

(25) "Hydrotesting" means the testing of piping or tubing by filling with water and pressurizing to test for integrity.

(26) "Impregnation" means the process of filling the pores of a formed powder part, usually with a liquid such as a lubricant, or mixing particles of a nonmetallic substance in a matrix of metal powder.

(27) "Metal powder production" means mechanical process operations which convert metal to a finely divided form.

(28) "Milling" means the mechanical treatment of a nonferrous metal to produce a powder or to coat one component of a powder mixture with another.

(29) "Neat oil" means a pure oil, with no or few impurities added, used mostly as a lubricant.

(30) "New source" means any point source for which construction commenced after March 4, 1984, and from which pollutants may be discharged either directly into waters of the state or into a POTW.

(31) "Nonferrous metal" means any pure metal other than iron and any metal alloy for which a metal other than iron is the alloy's major constituent in percent by weight.

(32) "Off-kg" and "off-lb" mean the mass of metal or metal alloy removed from a forming operation at the end of a process cycle for transfer to a different machine or process.

(33) "Powder forming" means forming and compressing powder into a fully dense finished shape, usually within closed dies.

(34) "Precious metals" means gold, platinum, palladium, and silver and any alloy containing 30% or more by weight of these metals.

(35) "Product testing" means operations such as dye penetrant testing, hydrotesting, and ultrasonic testing.

(36) "Refractory metals" means the metals columbium, tantalum, molybdenum, rhenium, tungsten, and vanadium and their alloys.

(37) "Rolling" means the reduction in thickness or diameter of a workpiece by passing it between lubricated steel rollers.

(38) "Roll bonding" means the process by which a permanent bond is created between 2 metals by rolling under high pressure in a bonding mill.

(39) "Sawing" means cutting a workpiece with a band, blade, or circular disc having teeth.

(40) "Shot casting" means the production of shot by pouring molten metal in finely divided streams to form spherical particles.

(41) "Stationary casting" means the pouring of molten metal into molds and allowing the metal to cool.

(42) "Surface treatment" means a chemical or electrochemical treatment applied to the surface of a metal, such as pickling, etching, conversion coating, phosphating, and chromating, and any rinse or multiple stage rinsing which follows.

(43) "Swaging" means a process in which a solid point is formed at the end of a tube, rod, or bar by the repeated blows of one or more pairs of opposing dies.

(44) "Tube reducing" means an operation which reduces the diameter and wall thickness of tubing with a mandrel and a pair of rolls with tapered grooves.

(45) "Tumbling" means an operation in which castings, forgings, or parts pressed from metal powder are rotated in a barrel with ceramic or metal slugs or abrasives to remove scale, fins, or burrs, either dry or with an aqueous solution.

(46) "Ultrasonic testing" means a nondestructive test in which sound at a frequency above 20 Hz is applied to metal which has been immersed in a liquid, usually water, to locate inhomogeneities or structural discontinuities.

(47) "Wet air pollution control scrubbers" means air pollution control devices used to remove particulates and fumes from the air by entraining the pollutants in water spray.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.004 Compliance dates. (1) Any existing source subject to this chapter which discharges to waters of the state shall achieve:

(a) The effluent limitations representing BPT by July 1, 1977; and

(b) The effluent limitations representing BAT by July 1, 1984.

(2) Any new source subject to this chapter which discharges to waters of the state shall achieve NSPS at the commencement of discharge.

(3) Any existing source subject to this chapter which discharges to a POTW shall achieve PSES by August 23, 1988.

(4) Any new source subject to this chapter which discharges to a POTW shall achieve PSNS at the commencement of discharge.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter I — Lead-Tin-Bismuth

NR 273.01 Applicability; description of the lead-tin-bismuth subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from lead-tin-bismuth forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.011 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Drawing spent neat oils; and

(2) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.012 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 1-1
Lead-Tin-Bismuth
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with emulsions	
Antimony	0.068	0.030
Lead	0.010	0.005
Oil and grease	0.468	0.281
Total suspended solids	0.960	0.457
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-2
Lead-Tin-Bismuth
Rolling Spent Soap Solutions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with soap solutions	
Antimony	0.125	0.055
Lead	0.019	0.009
Oil and grease	0.860	0.520
Total suspended solids	1.80	0.840
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-3
Lead-Tin-Bismuth
Drawing Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with emulsions	
Antimony	0.076	0.034
Lead	0.011	0.005
Oil and grease	0.526	0.316
Total suspended solids	1.08	0.513
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-4
Lead-Tin-Bismuth
Drawing Spent Soap Solutions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with soap solutions	
Antimony	0.022	0.010
Lead	0.003	0.002
Oil and grease	0.149	0.090
Total suspended solids	0.306	0.146
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-5
Lead-Tin-Bismuth
Extrusion Press and Solution Heat Treatment
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth heat treated	
Antimony	4.14	1.850
Lead	0.605	0.288
Oil and grease	28.80	17.30
Total suspended solids	59.10	28.10
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-6
Lead-Tin-Bismuth
Extrusion Press Hydraulic Fuel Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg(pounds per million off-pounds) of lead-tin-bismuth extruded	
Antimony	0.158	0.071
Lead	0.023	0.011
Oil and grease	1.10	0.660
Total suspended solids	2.26	1.07
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-7
Lead-Tin-Bismuth
Continuous Strip Casting
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth cast by the continuous strip method	
Antimony	0.003	0.001
Lead	0.0004	0.0002
Oil and grease	0.020	0.012
Total suspended solids	0.041	0.020
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-8
Lead-Tin-Bismuth
Semi-Continuous Ingot Casting
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth ingot cast by the semi-continuous method	
Antimony	0.085	0.038
Lead	0.013	0.006
Oil and grease	0.588	0.353
Total suspended solids	1.21	0.574
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-9
Lead-Tin-Bismuth
Shot Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot cast	
Antimony	0.107	0.048
Lead	0.016	0.008
Oil and grease	0.746	0.448
Total suspended solids	1.53	0.728
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-10
Lead-Tin-Bismuth
Shot-Forming Wet Air Pollution Control
Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot formed	
Antimony	1.69	0.753
Lead	0.247	0.118
Oil and grease	11.8	7.06
Total suspended solids	24.1	11.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-11
Lead-Tin-Bismuth
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	0.345	0.154
Lead	0.051	0.024
Oil and grease	2.40	1.44
Total suspended solids	4.92	2.34
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-12
Lead-Tin-Bismuth
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	6.78	3.02
Lead	0.991	0.472
Oil and grease	47.2	28.4
Total suspended solids	96.8	46.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-13
Lead-Tin-Bismuth
Swaging Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth swaged with emulsion	
Antimony	0.005	0.002
Lead	0.0007	0.0004
Oil and grease	0.036	0.022
Total suspended solids	0.073	0.034
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.013 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 1-14
Lead-Tin-Bismuth
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with emulsions	
Antimony	0.067	0.030
Lead	0.010	0.005

Table 1-15
Lead-Tin-Bismuth
Rolling Spent Soap Solutions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with soap solutions	
Antimony	0.120	0.055
Lead	0.018	0.009

Table 1-16
Lead-Tin-Bismuth
Drawing Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with emulsions	
Antimony	0.080	0.034
Lead	0.011	0.005

Table 1-17
Lead-Tin-Bismuth
Drawing Spent Soap Solutions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with soap solutions	
Antimony	0.022	0.010
Lead	0.003	0.002

Table 1-18
Lead-Tin-Bismuth
Extrusion Press and Solution Heat Treatment
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth heat treated	
Antimony	0.414	0.185
Lead	0.061	0.030

Table 1-19
Lead-Tin-Bismuth
Extrusion Press Hydraulic Fuel Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth extruded	
Antimony	0.158	0.071
Lead	0.023	0.011

Table 1-20
Lead-Tin-Bismuth
Continuous Strip Casting
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth cast by the continuous strip method	
Antimony	0.003	0.001
Lead	0.0004	0.0002

Table 1-21
Lead-Tin-Bismuth
Semi-Continuous Ingot Casting
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth ingot cast by the semi-continuous method	
Antimony	0.009	0.004
Lead	0.001	0.0006

Table 1-22
Lead-Tin-Bismuth
Shot Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot cast	
Antimony	0.107	0.048
Lead	0.016	0.008

Table 1-23
Lead-Tin-Bismuth
Shot-Forming Wet Air Pollution Control
Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot formed	
Antimony	0.169	0.076
Lead	0.025	0.012

Table 1-24
Lead-Tin-Bismuth
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	0.345	0.154
Lead	0.051	0.024

Table 1-25
Lead-Tin-Bismuth
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	0.678	0.302
Lead	0.099	0.047

Table 1-26
Lead-Tin-Bismuth
Swaging Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth swaged with emulsion	
Antimony	0.005	0.002
Lead	0.0008	0.0004

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.014 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 1-27
Lead-Tin-Bismuth
Rolling Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with emulsions	
Antimony	0.067	0.030
Lead	0.010	0.005
Oil and grease	0.468	0.281
Total suspended solids	0.960	0.457
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-28
Lead-Tin-Bismuth
Rolling Spent Soap Solutions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth rolled with soap solutions	
Antimony	0.120	0.055
Lead	0.018	0.009
Oil and grease	0.860	0.520
Total suspended solids	1.8	0.840
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-29
Lead-Tin-Bismuth
Drawing Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with emulsions	
Antimony	0.076	0.034
Lead	0.011	0.005
Oil and grease	0.526	0.316
Total suspended solids	1.087	0.513
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-30
Lead-Tin-Bismuth
Drawing Spent Soap Solutions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth drawn with soap solutions	
Antimony	0.022	0.010
Lead	0.003	0.002
Oil and grease	0.149	0.090
Total suspended solids	0.306	0.146
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-31
Lead-Tin-Bismuth
Extrusion Press and Solution Heat Treatment
Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth heat treated	
Antimony	0.414	0.185
Lead	0.061	0.030
Oil and grease	2.8	1.72
Total suspended solids	5.91	2.81
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-32
Lead-Tin-Bismuth
Extrusion Press Hydraulic Fuel Leakage

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth extruded	
Antimony	0.158	0.071
Lead	0.023	0.011
Oil and grease	1.10	0.660
Total suspended solids	2.26	1.07
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-33
Lead-Tin-Bismuth
Continuous Strip Casting Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth cast by the continuous strip method	
Antimony	0.003	0.001
Lead	0.0004	0.0002
Oil and grease	0.020	0.012
Total suspended solids	0.041	0.020
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-34
Lead-Tin-Bismuth
Semi-Continuous Ingot Casting
Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth ingot cast by the semi-continuous method	
Antimony	0.009	0.004
Lead	0.001	0.0006
Oil and grease	0.059	0.036
Total suspended solids	0.121	0.058
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-35
Lead-Tin-Bismuth
Shot Casting Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot cast	
Antimony	0.107	0.048
Lead	0.016	0.008
Oil and grease	0.746	0.448
Total suspended solids	1.53	0.728
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-36
Lead-Tin-Bismuth
Shot-Forming Wet Air Pollution Control
Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth shot formed	
Antimony	0.169	0.076
Lead	0.025	0.012
Oil and grease	1.18	0.706
Total suspended solids	2.41	1.15
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-37
Lead-Tin-Bismuth
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	0.345	0.154
Lead	0.051	0.024
Oil and grease	2.40	1.44
Total suspended solids	4.92	2.34
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-38
Lead-Tin-Bismuth
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth alkaline cleaned	
Antimony	0.678	0.302
Lead	0.099	0.047
Oil and grease	4.72	2.84
Total suspended solids	9.68	4.60
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 1-39
Lead-Tin-Bismuth
Swaging Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of lead-tin-bismuth swaged with emulsion	
Antimony	0.005	0.002
Lead	0.0008	0.0004
Oil and grease	0.036	0.022
Total suspended solids	0.073	0.035
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.015 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.013.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.016 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.013.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter II — Magnesium

NR 273.02 Applicability; description of the magnesium subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from magnesium forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.021 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Forging spent lubricants; and

(2) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.022 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 2-1
Magnesium
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium rolled with emulsions	
Chromium	0.033	0.014
Zinc	0.109	0.046
Ammonia	9.95	4.37
Fluoride	4.440	1.97
Oil and grease	1.49	0.895
Total suspended solids	3.06	1.46
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-2
Magnesium
Forging Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium cooled with water	
Chromium	1.27	0.520
Zinc	4.22	1.77
Ammonia	385	170
Fluoride	172	76.3
Oil and grease	57.8	34.7
Total suspended solids	119	56.4
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-3
Magnesium
Forging Equipment Cleaning Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium	
Chromium	0.018	0.007
Zinc	0.059	0.025
Ammonia	5.32	2.34
Fluoride	2.38	1.06
Oil and grease	0.798	0.479
Total suspended solids	1.64	0.778
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-4
Magnesium
Direct Chill Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium cast with direct chill methods	
Chromium	1.74	0.711
Zinc	5.77	2.41
Ammonia	527	232
Fluoride	235	105
Oil and grease	79.0	47.4
Total suspended solids	162	77.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-5
Magnesium
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium surface treated	
Chromium	0.205	0.084
Zinc	0.681	0.285
Ammonia	62.1	27.3
Fluoride	27.8	12.3
Oil and grease	9.32	5.59
Total suspended solids	19.1	9.09
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-6
Magnesium
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg(pounds per million off-pounds) of magnesium surface treated	
Chromium	8.32	3.4
Zinc	27.6	11.5
Ammonia	2520	1110
Fluoride	1130	499
Oil and grease	378	227
Total suspended solids	775	369
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-7
Magnesium
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sawed or ground	
Chromium	0.009	0.004
Zinc	0.029	0.012
Ammonia	2.60	1.15
Fluoride	1.16	0.515
Oil and grease	0.390	0.234
Total suspended solids	0.800	0.381
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-8
Magnesium
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sanded and repaired or forged	
Chromium	0.273	0.112
Zinc	0.904	0.378
Ammonia	82.5	36.3
Fluoride	36.9	16.4
Oil and grease	12.4	7.43
Total suspended solids	25.4	12.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.023 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 2-9
Magnesium
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium rolled with emulsions	
Chromium	0.033	0.014
Zinc	0.109	0.046
Ammonia	9.95	4.37
Fluoride	4.44	1.97

Table 2-10
Magnesium
Forging Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium cooled with water	
Chromium	0.127	0.052
Zinc	0.422	0.177
Ammonia	38.5	17.0
Fluoride	17.2	7.63

Table 2-11
Magnesium
Forging Equipment Cleaning Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium	
Chromium	0.002	0.0007
Zinc	0.006	0.003
Ammonia	0.532	0.234
Fluoride	0.238	0.106

Table 2-12
Magnesium
Direct Chill Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium cast with direct chill methods	
Chromium	1.74	0.711
Zinc	5.77	2.41
Ammonia	527	232
Fluoride	235	105

Table 2-13
Magnesium
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium surface treated	
Chromium	0.205	0.084
Zinc	0.681	0.285
Ammonia	62.1	27.3
Fluoride	27.8	12.3

Table 2-14
Magnesium
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium surface treated	
Chromium	0.832	0.340
Zinc	2.76	1.16
Ammonia	252	111
Fluoride	113	49.9

Table 2-15
Magnesium
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sawed or ground	
Chromium	0.009	0.004
Zinc	0.029	0.012
Ammonia	2.60	1.15
Fluoride	1.16	0.515

Table 2-16
Magnesium
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sanded and re-paired or forged	
Chromium	0.273	0.112
Zinc	0.904	0.378
Ammonia	82.5	36.3
Fluoride	36.9	16.4

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.024 New source performance standards.

Any new source subject to this subchapter shall achieve the following standards:

Table 2-17
Magnesium
Rolling Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium rolled with emulsions	
Chromium	0.028	0.011
Zinc	0.076	0.032
Ammonia	9.95	4.37
Fluoride	4.44	1.97
Oil and grease	0.746	0.746
Total suspended solids	1.12	0.895
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-18
Magnesium
Forging Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium cooled with water	
Chromium	0.107	0.044
Zinc	0.295	0.122
Ammonia	38.5	17.0
Fluoride	17.2	7.63
Oil and grease	2.89	2.89
Total suspended solids	4.34	3.47
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-19
Magnesium
Forging Equipment Cleaning Wastewater

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged magnesium	
Chromium	0.002	0.0006
Zinc	0.004	0.002
Ammonia	0.532	0.234
Fluoride	0.238	0.106
Oil and grease	0.040	0.040
Total suspended solids	0.060	0.048
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-20
Magnesium
Direct Chill Casting Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium cast with di-rect chill methods	
Chromium	1.46	0.593
Zinc	4.03	1.66
Ammonia	527	232
Fluoride	235	105
Oil and grease	39.5	39.5
Total suspended solids	59.3	47.4
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-21
Magnesium
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium surface treated	
Chromium	0.173	0.070
Zinc	0.476	0.196
Ammonia	62.1	27.3
Fluoride	27.8	12.3
Oil and grease	4.66	4.66
Total suspended solids	6.99	5.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-22
Magnesium
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium surface treated	
Chromium	0.700	0.284
Zinc	1.93	0.794
Ammonia	252	111
Fluoride	113	49
Oil and grease	18.9	18.9
Total suspended solids	28.4	22.7
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-23
Magnesium
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sawed or ground	
Chromium	0.007	0.003
Zinc	0.020	0.008
Ammonia	2.60	1.15
Fluoride	1.16	0.515
Oil and grease	0.195	0.195
Total suspended solids	0.293	0.234
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 2-24
Magnesium
Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of magnesium sanded and repaired or forged	
Chromium	0.229	0.093
Zinc	0.632	0.260
Ammonia	82.5	36.3
Fluoride	36.9	16.4
Oil and grease	6.19	6.19
Total suspended solids	9.29	7.43
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.025 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.023.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.026 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.023.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter III — Nickel-Cobalt

NR 273.03 Applicability; description of the nickel-cobalt subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from nickel-cobalt forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.031 Discharge prohibitions. (1) Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(a) Rolling spent neat oils;

(b) Drawing spent neat oils;

(c) Extrusion spent lubricants;

(d) Forging spent lubricants;

(e) Vacuum melting steam condensate;

(f) Annealing and solution heat treatment contact cooling water;

(g) Hydrostatic tube testing and ultrasonic testing wastewater; and

(h) Degreasing spent solvents.

(2) TUBE REDUCING SPENT LUBRICANTS. (a) Tube reducing spent lubricant process wastewater pollutants may not be discharged, except as provided in par. (b).

(b) Tube reducing spent lubricant process wastewater pollutants may be discharged, with no allowance for any pollutants discharged, if the facility owner or operator demonstrates accord-

ing to pars. (c), (d), (e), and (f) that the concentrations of nitrosamine compounds in the discharged wastewater do not exceed the following levels:

Nitrosamine	Maximum Concentration
N-nitrosodimethylamine	0.050 mg/l
N-nitrosodiphenylamine	0.020 mg/l
N-nitrosodi-n-propylamine	0.020 mg/l

(c) For the demonstration required by par. (b), the facility owner or operator shall use the analytical methods approved by ch. NR 219, Table C.

(d) The demonstration required by par. (b) shall be made once per month until the demonstration has been made for all 3 nitrosamine compounds for 6 consecutive months. After this time, the demonstration may be made once per quarter. If a sample is found to contain any of the 3 nitrosamine compounds at concentrations greater than those specified in par. (b), the actions set forth in par. (e) shall be taken and the demonstration required by par. (b) shall be made once per month until it has been made for all 3 nitrosamine compounds for 6 consecutive months.

(e) If sampling results show that any of the 3 nitrosamine compounds is present in the process wastewater at concentrations greater than those set forth in par. (b), the facility owner or operator shall ensure that starting within 30 days of receiving written notification of the sampling results no tube reducing spent lubricant wastewater is discharged until one of the following conditions is met:

1. The owner or operator performs a subsequent analysis which demonstrates that the concentrations of 3 regulated nitrosamine compounds do not exceed the levels set forth in par. (b); or

2. The owner or operator substitutes a new tube reducing lubricant and thereafter complies with the requirements of par. (d); or

3. Determines the source of the pollutants whose concentration exceeded the level set forth in par. (b) and demonstrates to the satisfaction of the permit issuing authority that the source has been eliminated.

(f) The concentration limits specified in par. (b) apply at the point of discharge from the tube reducing process. However, sampling after the tube reducing wastewater has been commingled with other wastewaters is permitted if 2 conditions are met:

1. Any dilution caused by the other wastewaters is accounted for when determining the appropriate allowable discharge concentration; and

2. An analytical method of sufficient sensitivity is used to measure the levels of each of the 3 nitrosamine compounds in the wastewater being sampled.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.032 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 3-1
Nickel-Cobalt
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with emulsions	
Chromium	0.075	0.031
Nickel	0.327	0.216
Fluoride	10.1	4.49
Oil and grease	3.4	2.04
Total suspended solids	6.97	3.32
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-2
Nickel-Cobalt
Rolling Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with water	
Chromium	1.66	0.679
Nickel	7.24	4.79
Fluoride	225	99.6
Oil and grease	75.4	45.3
Total suspended solids	155	73.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-3
Nickel-Cobalt
Drawing Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt drawn with emulsions	
Chromium	0.042	0.017
Nickel	0.183	0.121
Fluoride	5.68	2.53
Oil and grease	1.91	1.15
Total suspended solids	3.91	1.86
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-4
Nickel-Cobalt
Extrusion Press or Solution Heat Treatment
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt heat treated	
Chromium	0.037	0.015
Nickel	0.160	0.106
Fluoride	4.95	2.20
Oil and grease	1.67	0.999
Total suspended solids	3.41	1.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-5
Nickel-Cobalt
Extrusion Press Hydraulic Fluid Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt extruded	
Chromium	0.102	0.042
Nickel	0.446	0.295
Fluoride	13.8	6.13
Oil and grease	4.64	2.79
Total suspended solids	9.51	4.53
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-6
Nickel-Cobalt
Forging Equipment Cleaning Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.018	0.007
Nickel	0.077	0.051
Fluoride	2.38	1.06
Oil and grease	0.800	0.480
Total suspended solids	1.640	0.780
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-7
Nickel-Cobalt
Forging Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged nickel-cobalt cooled with water	
Chromium	0.209	0.086
Nickel	0.910	0.602
Fluoride	28.2	12.5
Oil and grease	9.48	5.69
Total suspended solids	19.5	9.25
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-8
Nickel-Cobalt
Forging Press Hydraulic Fluid Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.083	0.034
Nickel	0.359	0.238
Fluoride	11.2	4.94
Oil and grease	3.74	2.25
Total suspended solids	7.67	3.65
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-9
Nickel-Cobalt
Stationary Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt cast by stationary methods	
Chromium	5.33	2.18
Nickel	23.3	15.4
Fluoride	720	320
Oil and grease	242	145
Total suspended solids	496	236
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-10
Nickel-Cobalt
Metal Powder Production Atomization Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt metal powder atomized	
Chromium	1.16	0.472
Nickel	5.03	3.33
Fluoride	156	69.2
Oil and grease	52.4	31.5
Total suspended solids	108	51.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-11
Nickel-Cobalt
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.357	0.146
Nickel	1.56	1.03
Fluoride	48.2	21.4
Oil and grease	16.2	9.72
Total suspended solids	33.2	15.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-12
Nickel-Cobalt
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	0.412	0.169
Nickel	1.8	1.19
Fluoride	55.7	24.7
Oil and grease	18.7	11.2
Total suspended solids	38.4	18.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-13
Nickel-Cobalt
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	10.4	4.25
Nickel	45.3	30.0
Fluoride	1410	623
Oil and grease	472	283
Total suspended solids	968	460
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-14
Nickel-Cobalt
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	0.015	1.52
Nickel	16.2	10.7
Fluoride	502	223
Oil and grease	169	101
Total suspended solids	346	165
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-15
Nickel-Cobalt
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	1.03	0.420
Nickel	4.48	2.96
Fluoride	139	61.5
Oil and grease	46.6	28.0
Total suspended solids	95.6	45.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-16
Nickel-Cobalt
Molten Salt Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with molten salt	
Chromium	3.72	1.52
Nickel	16.2	10.7
Fluoride	502	223
Oil and grease	169	101
Total suspended solids	346	165
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-17
Nickel-Cobalt
Ammonia Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with ammonia solution	
Chromium	0.007	0.003
Nickel	0.029	0.019
Fluoride	0.881	0.391
Oil and grease	0.296	0.178
Total suspended solids	0.607	0.289
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-18
Nickel-Cobalt
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt sawed or ground with emulsions	
Chromium	0.018	0.007
Nickel	0.076	0.050
Fluoride	2.35	1.04
Oil and grease	0.788	0.473
Total suspended solids	1.62	0.769
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-19
Nickel-Cobalt
Sawing or Grinding Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground nickel-cobalt rinsed	
Chromium	0.797	0.326
Nickel	3.48	2.30
Fluoride	108	47.8
Oil and grease	36.2	21.7
Total suspended solids	74.2	35.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-20
Nickel-Cobalt
Steam Cleaning Condensate

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt steam cleaned	
Chromium	0.013	0.006
Nickel	0.058	0.039
Fluoride	1.79	0.795
Oil and grease	0.602	0.361
Total suspended solids	1.24	0.587
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-21
Nickel-Cobalt
Dye Penetrant Testing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt tested with the dye penetrant method	
Chromium	0.094	0.039
Nickel	0.409	0.271
Fluoride	12.7	5.63
Oil and grease	4.26	2.56
Total suspended solids	8.74	4.16
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-22
Nickel-Cobalt
Electrocoating Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt electrocoated	
Chromium	1.48	0.607
Nickel	6.47	4.28
Fluoride	201	89.0
Oil and grease	67.4	40.5
Total suspended solids	138	65.7
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-23
Nickel-Cobalt
Miscellaneous Wastewater Streams

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.108	0.044
Nickel	0.473	0.313
Fluoride	14.7	6.50
Oil and grease	4.92	2.95
Total suspended solids	10.1	4.80
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.033 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 3-24
Nickel-Cobalt
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with emulsions	
Chromium	0.063	0.026
Nickel	0.094	0.063
Fluoride	10.1	4.49

Table 3-25
Nickel-Cobalt
Rolling Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with water	
Chromium	0.028	0.012
Nickel	0.042	0.028
Fluoride	4.49	1.99

Table 3-26
Nickel-Cobalt
Drawing Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt drawn with emulsions	
Chromium	0.036	0.015
Nickel	0.053	0.036
Fluoride	5.68	2.52

Table 3-27
Nickel-Cobalt
Extrusion Press or Solution Heat Treatment
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt heat treated	
Chromium	0.031	0.013
Nickel	0.046	0.031
Fluoride	4.95	2.20

Table 3-28
Nickel-Cobalt
Extrusion Press Hydraulic Fluid Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt extruded	
Chromium	0.086	0.034
Nickel	0.128	0.086
Fluoride	13.8	6.13

Table 3-29
Nickel-Cobalt
Forging Equipment Cleaning Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.002	0.0006
Nickel	0.002	0.002
Fluoride	0.238	0.106

Table 3-30
Nickel-Cobalt
Forging Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged nickel-cobalt cooled with water	
Chromium	0.018	0.007
Nickel	0.026	0.018
Fluoride	2.82	1.25

Table 3-31
Nickel-Cobalt
Forging Press Hydraulic Fluid Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.069	0.028
Nickel	0.103	0.069
Fluoride	11.2	4.94

Table 3-32
Nickel-Cobalt
Stationary Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt cast by stationary methods	
Chromium	0.448	0.182
Nickel	0.666	0.448
Fluoride	72.0	32.0

Table 3-33
Nickel-Cobalt
Metal Powder Production Atomization Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.970	0.393
Nickel	1.44	0.970
Fluoride	156	69.2

Table 3-34
Nickel-Cobalt
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.300	0.122
Nickel	0.446	0.300
Fluoride	48.2	21.4

Table 3-35
Nickel-Cobalt
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	0.346	0.141
Nickel	0.514	0.346
Fluoride	55.7	24.7

Table 3-36
Nickel-Cobalt
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	0.873	0.354
Nickel	1.30	0.873
Fluoride	141	62.3

Table 3-37
Nickel-Cobalt
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	0.013	0.005
Nickel	0.019	0.013
Fluoride	2.02	0.895

Table 3-38
Nickel-Cobalt
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	0.086	0.035
Nickel	0.128	0.086
Fluoride	13.9	6.15

Table 3-39
Nickel-Cobalt
Molten Salt Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with molten salt	
Chromium	0.312	0.127
Nickel	0.464	0.312
Fluoride	50.2	22.3

Table 3-40
Nickel-Cobalt
Ammonia Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with ammonia solution	
Chromium	0.006	0.002
Nickel	0.008	0.006
Fluoride	0.881	0.391

Table 3-41
Nickel-Cobalt
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt sawed or ground with emulsions	
Chromium	0.015	0.006
Nickel	0.022	0.015
Fluoride	2.35	1.04

Table 3-42
Nickel-Cobalt
Sawing or Grinding Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground nickel-cobalt rinsed	
Chromium	0.067	0.027
Nickel	0.100	0.067
Fluoride	10.8	4.78

Table 3-43
Nickel-Cobalt
Steam Cleaning Condensate

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt steam cleaned	
Chromium	0.011	0.005
Nickel	0.017	0.011
Fluoride	1.79	0.795

Table 3-44
Nickel-Cobalt
Dye Penetrant Testing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt tested with the dye penetrant method	
Chromium	0.079	0.032
Nickel	0.117	0.079
Fluoride	12.7	5.63

Table 3-45
Nickel-Cobalt
Electrocoating Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt electrocoated	
Chromium	1.25	0.506
Nickel	1.86	1.25
Fluoride	201	89.0

Table 3-46
Nickel-Cobalt
Miscellaneous Wastewater Streams

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.091	0.037
Nickel	0.136	0.091
Fluoride	14.7	6.50

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.034 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 3-47
Nickel-Cobalt
Rolling Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with emulsions	
Chromium	0.063	0.026
Nickel	0.094	0.063
Fluoride	10.1	4.49
Oil and grease	1.70	1.70
Total suspended solids	2.55	2.04
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-48
Nickel-Cobalt
Rolling Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt rolled with water	
Chromium	0.028	0.012
Nickel	0.042	0.028
Fluoride	4.49	1.99
Oil and grease	0.754	0.754
Total suspended solids	1.13	0.905
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-49
Nickel-Cobalt
Drawing Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt drawn with emulsions	
Chromium	0.036	0.015
Nickel	0.053	0.036
Fluoride	5.68	2.52
Oil and grease	0.954	0.954
Total suspended solids	1.43	1.15
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-50
Nickel-Cobalt
Extrusion Press or Solution Heat Treatment
Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt heat treated	
Chromium	0.031	0.013
Nickel	0.046	0.031
Fluoride	4.95	2.20
Oil and grease	0.832	0.832
Total suspended solids	1.25	0.999
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-51
Nickel-Cobalt
Extrusion Press Hydraulic Fluid Leakage

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt extruded	
Chromium	0.086	0.035
Nickel	0.128	0.086
Fluoride	13.8	6.13
Oil and grease	2.32	2.32
Total suspended solids	3.48	2.79
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-52
Nickel-Cobalt
Forging Equipment Cleaning Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.002	0.00006
Nickel	0.002	0.002
Fluoride	0.238	0.106
Oil and grease	0.040	0.040
Total suspended solids	0.060	0.048
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-53
Nickel-Cobalt
Forging Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged nickel-cobalt cooled with water	
Chromium	0.018	0.007
Nickel	0.026	0.018
Fluoride	2.82	1.25
Oil and grease	0.474	0.474
Total suspended solids	0.711	0.569
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-54
Nickel-Cobalt
Forging Press Hydraulic Fluid Leakage

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt forged	
Chromium	0.069	0.028
Nickel	0.103	0.069
Fluoride	11.2	4.94
Oil and grease	1.87	1.87
Total suspended solids	2.81	2.25
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-55
Nickel-Cobalt
Stationary Casting Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt cast by stationary methods	
Chromium	0.448	0.182
Nickel	0.666	0.448
Fluoride	72.0	32.0
Oil and grease	12.1	12.1
Total suspended solids	18.2	14.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-56
Nickel-Cobalt
Metal Powder Production Atomization Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt metal powder atomized	
Chromium	0.970	0.393
Nickel	1.44	0.970
Fluoride	156	69.2
Oil and grease	26.2	26.2
Total suspended solids	39.3	31.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-57
Nickel-Cobalt
Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.300	0.122
Nickel	0.450	0.300
Fluoride	48.2	21.1
Oil and grease	8.1	8.1
Total suspended solids	12.2	9.72
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-58
Nickel-Cobalt
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	0.346	0.141
Nickel	0.515	0.346
Fluoride	55.7	24.7
Oil and grease	9.35	9.35
Total suspended solids	14.1	11.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-59
Nickel-Cobalt
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt surface treated	
Chromium	0.874	0.354
Nickel	1.30	0.873
Fluoride	141	62.3
Oil and grease	23.6	23.6
Total suspended solids	35.4	28.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-60
Nickel-Cobalt
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	0.013	0.005
Nickel	0.019	0.013
Fluoride	2.02	0.895
Oil and grease	0.339	0.339
Total suspended solids	0.509	0.407
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-61
Nickel-Cobalt
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt alkaline cleaned	
Chromium	0.086	0.035
Nickel	0.128	0.086
Fluoride	13.9	6.15
Oil and grease	2.33	2.33
Total suspended solids	3.50	2.80
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-62
Nickel-Cobalt
Molten Salt Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with molten salt	
Chromium	0.312	0.127
Nickel	0.464	0.312
Fluoride	50.2	22.3
Oil and grease	8.44	8.44
Total suspended solids	12.7	10.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-63
Nickel-Cobalt
Ammonia Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt treated with ammonia solution	
Chromium	0.006	0.002
Nickel	0.008	0.006
Fluoride	0.881	0.391
Oil and grease	0.148	0.148
Total suspended solids	222	178
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-64
Nickel-Cobalt
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt sawed or ground with emulsions	
Chromium	0.015	0.006
Nickel	0.002	0.015
Fluoride	2.35	1.04
Oil and grease	0.394	0.394
Total suspended solids	591	473
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-65
Nickel-Cobalt
Sawing or Grinding Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground nickel-cobalt rinsed	
Chromium	0.067	0.027
Nickel	0.100	0.067
Fluoride	10.8	4.78
Oil and grease	1.61	1.81
Total suspended solids	272	217
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-66
Nickel-Cobalt
Steam Cleaning Condensate

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt steam cleaned	
Chromium	0.011	0.005
Nickel	0.017	0.011
Fluoride	1.79	0.795
Oil and grease	0.301	0.301
Total suspended solids	0.452	0.361
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-67
Nickel-Cobalt
Dye Penetrant Testing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt tested with the dye penetrant method	
Chromium	0.079	0.032
Nickel	0.117	0.079
Fluoride	12.7	5.63
Oil and grease	2.13	2.13
Total suspended solids	3.20	2.56
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-68
Nickel-Cobalt
Electrocoating Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt electrocoated	
Chromium	1.25	0.506
Nickel	1.86	1.25
Fluoride	201	89.0
Oil and grease	33.7	33.7
Total suspended solids	50.6	40.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 3-69
Nickel-Cobalt
Miscellaneous Wastewater Streams

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of nickel-cobalt formed	
Chromium	0.091	0.037
Nickel	0.136	0.091
Fluoride	14.7	6.50
Oil and grease	2.46	2.46
Total suspended solids	3.69	2.95
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.035 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.033.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.036 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.033.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter IV — Precious Metals

NR 273.04 Applicability; description of the precious metals subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from precious metals forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.041 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Rolling spent neat oils;

(2) Drawing spent neat oils;

(3) Stationary casting contact cooling water;

(4) Wet air pollution control scrubber blowdown;

(5) Sawing or grinding spent neat oils; and

(6) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.042 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 4-1
Precious Metals
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals rolled with emulsions	
Cadmium	0.026	0.012
Copper	0.147	0.077
Cyanide	0.023	0.010
Silver	0.032	0.013
Oil and grease	1.54	0.925
Total suspended solids	3.16	1.51
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-2
Precious Metals
Drawing Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with emulsions	
Cadmium	0.016	0.007
Copper	0.091	0.048
Cyanide	0.014	0.006
Silver	0.020	0.008
Oil and grease	0.950	0.570
Total suspended solids	1.95	0.926
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-3
Precious Metals
Drawing Spent Soap Solutions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with soap solutions	
Cadmium	0.001	0.0005
Copper	0.006	0.003
Cyanide	0.0009	0.0004
Silver	0.001	0.0006
Oil and grease	0.063	0.038
Total suspended solids	0.128	0.061
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-4
Precious Metals
Metal Powder Production
Wet Atomization Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals powder wet atomized	
Cadmium	2.27	1.00
Copper	12.7	6.70
Cyanide	1.94	0.802
Silver	2.70	1.14
Oil and grease	134	80.2
Total suspended solids	274	130
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-5
Precious Metals
Heat Treatment Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded precious metals heat treated	
Cadmium	1.42	0.626
Copper	7.93	4.17
Cyanide	1.21	0.501
Silver	1.71	0.709
Oil and grease	83.4	50.1
Total suspended solids	171	81.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-6
Precious Metals
Semi-Continuous or Continuous Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the semi-continuous or continuous method	
Cadmium	3.50	1.55
Copper	19.6	10.3
Cyanide	2.99	1.24
Silver	4.23	1.75
Oil and grease	206	124
Total suspended solids	423	209
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-7
Precious Metals
Direct Chill Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the direct chill method	
Cadmium	3.67	1.62
Copper	20.5	10.8
Cyanide	3.13	1.30x
Silver	4.43	1.84x
Oil and grease	216	130
Total suspended solids	443	211
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-8
Precious Metals
Shot Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals shot cast	
Cadmium	1.25	0.551
Copper	6.98	3.67
Cyanide	1.07	0.441
Silver	1.51	0.624
Oil and grease	73.4	44.1
Total suspended solids	151	71.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-9
Precious Metals
Pressure Bonding Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metal base metal pressure bonded	
Cadmium	0.029	0.013
Copper	0.159	0.084
Cyanide	0.024	0.010
Silver	0.034	0.014
Oil and grease	1.67	1.00
Total suspended solids	3.43	1.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-10
Precious Metals
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	0.033	0.015
Copper	0.183	0.097
Cyanide	0.028	0.012
Silver	0.040	0.017
Oil and grease	1.93	1.16
Total suspended solids	3.95	1.88
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-11
Precious Metals
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	2.10	0.924
Copper	11.7	5.16
Cyanide	1.79	0.739
Silver	2.53	1.05
Oil and grease	123	73.9
Total suspended solids	253	120
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-12
Precious Metals
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	0.021	0.009
Copper	0.114	0.060
Cyanide	0.018	0.007
Silver	0.025	0.010
Oil and grease	1.20	0.720
Total suspended solids	2.46	1.170
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-13
Precious Metals
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	3.81	1.68
Copper	21.3	11.2
Cyanide	3.25	1.35
Silver	4.59	1.91
Oil and grease	224	135
Total suspended solids	459	219
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-14
Precious Metals
Alkaline Cleaning Prebonding Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals and base metal cleaned prior to bonding	
Cadmium	3.95	1.74
Copper	22.1	11.6
Cyanide	3.37	1.39
Silver	4.76	1.97
Oil and grease	232	139
Total suspended solids	476	226
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-15
Precious Metals
Tumbling or Burnishing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals tumbled or burnished	
Cadmium	4.12	1.82
Copper	23.0	12.1
Cyanide	3.51	1.45
Silver	4.96	2.06
Oil and grease	242	145
Total suspended solids	496	236
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-16
Precious Metals
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals sawed or ground with emulsions	
Cadmium	0.032	0.014
Copper	0.178	0.094
Cyanide	0.027	0.011
Silver	0.039	0.016
Oil and grease	1.87	1.12
Total suspended solids	3.83	1.82
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.043 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 4-17
Precious Metals
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals rolled with emulsions	
Cadmium	0.026	0.012
Copper	0.147	0.077
Cyanide	0.023	0.010
Silver	0.032	0.013

Table 4-18
Precious Metals
Drawing Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with emulsions	
Cadmium	0.016	0.007
Copper	0.091	0.048
Cyanide	0.014	0.006
Silver	0.020	0.008

Table 4-19
Precious Metals
Drawing Spent Soap Solutions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with soap solutions	
Cadmium	0.001	0.0005
Copper	0.006	0.003
Cyanide	0.0009	0.0004
Silver	0.002	0.0006

Table 4-20
Precious Metals
Metal Powder Production
Wet Atomization Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals powder wet atomized	
Cadmium	2.27	1.0
Copper	12.7	6.68
Cyanide	1.94	0.802
Silver	2.74	1.14

Table 4-21
Precious Metals
Heat Treatment Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded precious metals heat treated	
Cadmium	0.142	0.063
Copper	0.793	0.417
Cyanide	0.121	0.050
Silver	0.171	0.071

Table 4-22
Precious Metals
Semi-Continuous or Continuous Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the semi-continuous or continuous method	
Cadmium	0.350	0.155
Copper	1.96	1.03
Cyanide	0.299	0.124
Silver	0.430	0.175

Table 4-23
Precious Metals
Direct Chill Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the direct chill method	
Cadmium	0.3676	0.162
Copper	2.05	1.08
Cyanide	0.313	0.130
Silver	0.443	0.184

Table 4-24
Precious Metals
Shot Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals shot cast	
Cadmium	0.125	0.055
Copper	0.698	0.367
Cyanide	0.107	0.044
Silver	0.151	0.063

Table 4-25
Precious Metals
Pressure Bonding Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals base metal pressure bonded	
Cadmium	0.0297	0.013
Copper	0.159	0.084
Cyanide	0.0247	0.010
Silver	0.0342	0.014

Table 4-26
Precious Metals
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	0.033	0.015
Copper	0.183	0.097
Cyanide	0.028	0.012
Silver	0.040	0.017

Table 4-27
Precious Metals
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	0.210	0.093
Copper	1.17	0.616
Cyanide	0.179	0.074
Silver	0.253	0.105

Table 4-28
Precious Metals
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	0.021	0.009
Copper	0.114	0.060
Cyanide	0.018	0.007
Silver	0.025	0.010

Table 4-29
Precious Metals
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	0.381	0.168
Copper	2.13	1.12
Cyanide	0.325	0.135
Silver	0.459	0.191

Table 4-30
Precious Metals
Alkaline Cleaning Prebonding Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals and base metal cleaned prior to bonding	
Cadmium	0.400	0.174
Copper	2.210	1.16
Cyanide	0.337	0.139
Silver	0.476	0.197

Table 4-31
Precious Metals
Tumbling or Burnishing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals tumbled or burnished	
Cadmium	0.412	0.182
Copper	2.300	1.21
Cyanide	0.351	0.145
Silver	0.496	0.206

Table 4-32
Precious Metals
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals sawed or ground with emulsions	
Cadmium	0.0327	0.014
Copper	0.178	0.094
Cyanide	0.0277	0.011
Silver	0.0381	0.016

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.044 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 4-33
Precious Metals
Rolling Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals rolled with emulsions	
Cadmium	0.026	0.012
Copper	0.147	0.077
Cyanide	0.023	0.010
Silver	0.032	0.013
Oil and grease	1.54	0.925
Total suspended solids	3.16	1.51
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-34
Precious Metals
Drawing Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with emulsions	
Cadmium	0.017	0.007
Copper	0.091	0.048
Cyanide	0.014	0.006
Silver	0.020	0.008
Oil and grease	0.950	0.570
Total suspended solids	1.95	0.927
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-35
Precious Metals
Drawing Spent Soap Solutions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals drawn with soap solutions	
Cadmium	0.001	0.0005
Copper	0.006	0.003
Cyanide	0.0009	0.0004
Silver	0.002	0.0006
Oil and grease	0.063	0.038
Total suspended solids	0.128	0.061
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-36
Precious Metals
Metal Powder Production
Wet Atomization Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals powder wet atomized	
Cadmium	2.27	1.00
Copper	12.7	6.68
Cyanide	1.94	0.802
Silver	2.74	1.14
Oil and grease	134	80.2
Total suspended solids	274	131
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-37
Precious Metals
Heat Treatment Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded precious metals heat treated	
Cadmium	0.142	0.063
Copper	0.793	0.417
Cyanide	0.121	0.050
Silver	0.171	0.071
Oil and grease	8.34	5.01
Total suspended solids	17.1	8.13
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-38
Precious Metals
Semi-Continuous or Continuous Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the semi-continuous or continuous method	
Cadmium	0.350	0.155
Copper	1.96	1.03
Cyanide	0.299	0.124
Silver	0.423	0.175
Oil and grease	20.6	12.4
Total suspended solids	42.3	20.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-39
Precious Metals
Direct Chill Casting Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals cast by the direct chill method	
Cadmium	0.367	0.162
Copper	2.05	1.08
Cyanide	0.313	0.130
Silver	0.443	0.184
Oil and grease	21.6	13.0
Total suspended solids	44.3	21.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-40
Precious Metals
Shot Casting Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals shot cast	
Cadmium	0.125	0.055
Copper	0.698	0.367
Cyanide	0.107	0.044
Silver	0.151	0.063
Oil and grease	7.34	4.41
Total suspended solids	15.1	7.16
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-41
Precious Metals
Pressure Bonding Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals base metal pressure bonded	
Cadmium	0.029	0.013
Copper	0.159	0.084
Cyanide	0.024	0.010
Silver	0.034	0.014
Oil and grease	1.67	1.00
Total suspended solids	3.43	1.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-42
Precious Metals
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	0.033	0.015
Copper	0.183	0.097
Cyanide	0.028	0.012
Silver	0.040	0.017
Oil and grease	1.93	1.16
Total suspended solids	3.95	1.88
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-43
Precious Metals
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals surface treated	
Cadmium	0.210	0.093
Copper	1.17	0.616
Cyanide	0.179	0.074
Silver	0.253	0.105
Oil and grease	12.3	7.39
Total suspended solids	25.3	12.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-44
Precious Metals
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	0.021	0.009
Copper	0.114	0.060
Cyanide	0.018	0.007
Silver	0.025	0.010
Oil and grease	1.20	0.720
Total suspended solids	2.46	1.17
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-45
Precious Metals
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals alkaline cleaned	
Cadmium	0.381	0.168
Copper	2.13	1.112
Cyanide	0.325	0.135
Silver	0.459	0.191
Oil and grease	22.4	13.5
Total suspended solids	45.9	21.9
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-46
Precious Metals
Alkaline Cleaning Prebonding Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals and base metal cleaned prior to bonding	
Cadmium	0.400	0.174
Copper	2.21	1.16
Cyanide	0.337	0.139
Silver	0.476	0.197
Oil and grease	23.2	13.9
Total suspended solids	47.6	22.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-47
Precious Metals
Tumbling or Burnishing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals tumbled or burnished	
Cadmium	0.412	0.182
Copper	2.300	1.21
Cyanide	0.351	0.145
Silver	0.496	0.206
Oil and grease	24.2	14.5
Total suspended solids	49.6	23.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 4-48
Precious Metals
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of precious metals sawed or ground with emulsions	
Cadmium	0.032	0.014
Copper	0.178	0.094
Cyanide	0.027	0.011
Silver	0.038	0.016
Oil and grease	1.87	1.12
Total suspended solids	3.83	1.82
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.045 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.043.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.046 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.043.

Subchapter V — Refractory Metals

NR 273.05 Applicability; description of the refractory metals subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from refractory metals forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.051 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Rolling spent neat oils and graphite based lubricants;

(2) Drawing spent lubricants;

(3) Extrusion spent lubricants;

(4) Forging spent lubricants;

(5) Metal powder production floor wash wastewater;

(6) Metal powder pressing spent lubricants;

(7) Sawing and grinding spent neat oils; and

(8) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.052 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 5-1
Refractory Metals
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals rolled with emulsions	
Copper	0.815	0.429
Nickel	0.824	0.545
Fluoride	25.5	11.3
Molybdenum	2.84	1.47
Oil and grease	8.58	5.15
Total suspended solids	17.6	8.37
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-2
Refractory Metals
Extrusion Press Hydraulic Fuel Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals extruded	
Copper	2.26	1.19
Nickel	2.29	1.51
Fluoride	70.8	31.4
Molybdenum	7.87	4.07
Oil and grease	23.8	14.3
Total suspended solids	48.8	23.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-3
Refractory Metals
Forging Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged refractory metals cooled with water	
Copper	0.614	0.323
Nickel	0.620	0.410
Fluoride	19.2	8.53
Molybdenum	2.14	1.11
Oil and grease	6.46	3.88
Total suspended solids	13.3	6.30
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-4
Refractory Metals
Equipment Cleaning Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	2.59	1.36
Nickel	2.61	1.73
Fluoride	80.9	35.9
Molybdenum	8.99	4.65
Oil and grease	27.2	16.3
Total suspended solids	55.8	26.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-5
Refractory Metals
Metal Powder Production Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals powder produced	
Copper	0.534	0.281
Nickel	0.540	0.357
Fluoride	16.70	7.42
Molybdenum	1.86	0.961
Oil and grease	5.62	3.37
Total suspended solids	11.5	5.48
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-6
Refractory Metals
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	0.739	0.389
Nickel	0.747	0.494
Fluoride	23.2	10.3
Molybdenum	2.57	1.33
Oil and grease	7.78	4.68
Total suspended solids	16.0	7.59
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-7
Refractory Metals
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	230	121
Nickel	232	154
Fluoride	7,200	3,200
Molybdenum	800	414
Oil and grease	2,420	1,450
Total suspended solids	4,960	2,360
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-8
Refractory Metals
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	0.635	0.334
Nickel	0.641	0.424
Fluoride	19.9	8.82
Molybdenum	2.21	1.14
Oil and grease	6.68	4.01
Total suspended solids	13.7	6.51
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-9
Refractory Metals
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	1,550	816
Nickel	1,570	1,040
Fluoride	48,600	21,600
Molybdenum	5,400	2,790
Oil and grease	16,300	9,790
Total suspended solids	33,500	15,900
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-10
Refractory Metals
Molten Salt Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals treated with molten salt	
Copper	12.1	6.33
Nickel	12.2	8.04
Fluoride	377	167
Molybdenum	41.9	21.7
Oil and grease	127	76.0
Total suspended solids	260	124
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-11
Refractory Metals
Tumbling or Burnishing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tumbled or burnished	
Copper	23.8	12.5
Nickel	24.0	15.9
Fluoride	744	330
Molybdenum	82.7	42.8
Oil and grease	250	150
Total suspended solids	513	244
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-12
Refractory Metals
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with emulsions	
Copper	0.565	0.297
Nickel	0.570	0.377
Fluoride	17.7	7.84
Molybdenum	1.97	1.02
Oil and grease	5.94	3.57
Total suspended solids	12.2	5.79
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-13
Refractory Metals
Sawing or Grinding Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with contact cooling water	
Copper	46.2	24.3
Nickel	46.7	30.9
Fluoride	1450	642
Molybdenum	161	83.1
Oil and grease	486	292
Total suspended solids	997	474
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-14
Refractory Metals
Sawing or Grinding Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground refractory metals rinsed	
Copper	0.257	0.135
Nickel	0.259	0.172
Fluoride	8.03	3.57
Molybdenum	0.893	0.462
Oil and grease	2.70	1.62
Total suspended solids	5.54	2.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-15
Refractory Metals
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed, ground, surface coated, or surface treated	
Copper	1.50	0.787
Nickel	1.51	1.00
Fluoride	46.8	20.8
Molybdenum	5.20	2.69
Oil and grease	15.8	9.45
Total suspended solids	32.3	15.4
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-16
Refractory Metals
Miscellaneous Wastewater Sources

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	0.656	0.345
Nickel	0.663	0.438
Fluoride	20.6	9.11
Molybdenum	2.28	1.18
Oil and grease	6.9	4.14
Total suspended solids	14.2	6.73
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-17
Refractory Metals
Dye Penetrant Testing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tested	
Copper	0.150	0.078
Nickel	0.150	0.099
Fluoride	4.60	2.00
Molybdenum	0.513	0.266
Oil and grease	1.60	0.930
Total suspended solids	3.20	1.50
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.053 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 5-18
Refractory Metals
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals rolled with emulsions	
Copper	0.549	0.262
Nickel	0.236	0.157
Fluoride	25.5	11.3
Molybdenum	2.16	0.957

Table 5-19
Refractory Metals
Extrusion Press Hydraulic Fuel Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals extruded	
Copper	1.5	0.730
Nickel	0.650	0.440
Fluoride	71.000	31.0
Molybdenum	5.99	2.66

Table 5-20
Refractory Metals
Forging Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged refractory metals cooled with water	
Copper	0.041	0.020
Nickel	0.018	0.012
Fluoride	1.92	0.853
Molybdenum	0.163	0.072

Table 5-21
Refractory Metals
Equipment Cleaning Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	0.174	0.083
Nickel	0.075	0.051
Fluoride	8.09	3.59
Molybdenum	0.684	0.303

Table 5-22
Refractory Metals
Metal Powder Production Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals powder produced	
Copper	0.360	0.172
Nickel	0.155	0.104
Fluoride	16.7	7.42
Molybdenum	1.42	0.627

Table 5-23
Refractory Metals
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	0.498	0.237
Nickel	0.214	0.144
Fluoride	23.2	10.3
Molybdenum	1.96	0.868

Table 5-24
Refractory Metals
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	15.5	7.38
Nickel	6.66	4.48
Fluoride	720	320
Molybdenum	60.9	27.0

Table 5-25
Refractory Metals
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	0.428	0.204
Nickel	0.184	0.124
Fluoride	19.9	8.82
Molybdenum	1.68	0.745

Table 5-26
Refractory Metals
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	10.5	4.98
Nickel	4.49	3.02
Fluoride	486	216
Molybdenum	41.1	18.2

Table 5-27
Refractory Metals
Molten Salt Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals treated with molten salt	
Copper	0.810	0.386
Nickel	0.348	0.234
Fluoride	37.7	16.7
Molybdenum	3.19	1.41

Table 5-28
Refractory Metals
Tumbling or Burnishing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tumbled or burnished	
Copper	1.60	0.763
Nickel	0.688	0.463
Fluoride	74.4	33.0
Molybdenum	6.29	2.79

Table 5-29
Refractory Metals
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with emulsions	
Copper	0.380	0.181
Nickel	0.164	0.110
Fluoride	17.7	7.84
Molybdenum	1.50	0.663

Table 5-30
Refractory Metals
Sawing or Grinding
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with contact cooling water	
Copper	3.11	1.48
Nickel	1.34	0.899
Fluoride	145.0	64.2
Molybdenum	12.2	5.42

Table 5-31
Refractory Metals
Sawing or Grinding Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground refractory metals rinsed	
Copper	0.018	0.009
Nickel	0.008	0.005
Fluoride	0.803	0.357
Molybdenum	0.068	0.030

Table 5-32
Refractory Metals
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed, ground, surface coated, or surface treated	
Copper	1.01	0.480
Nickel	0.433	0.291
Fluoride	46.8	20.8
Molybdenum	3.96	1.76

Table 5-33
Refractory Metals
Miscellaneous Wastewater Sources

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	0.442	0.211
Nickel	0.190	0.128
Fluoride	20.6	9.11
Molybdenum	1.74	0.770

Table 5-34
Refractory Metals
Dye Penetrant Testing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tested	
Copper	0.100	0.048
Nickel	0.043	0.029
Fluoride	4.62	2.05
Molybdenum	0.391	0.173

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.054 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 5-35
Refractory Metals
Rolling Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals rolled with emulsions	
Copper	0.549	0.262
Nickel	0.236	0.159
Fluoride	25.5	11.3
Molybdenum	2.16	0.957
Oil and grease	4.29	4.29
Total suspended solids	6.44	5.15
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-36
Refractory Metals
Extrusion Press Hydraulic Fuel Leakage

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals extruded	
Copper	1.53	0.726
Nickel	0.655	0.441
Fluoride	70.8	31.4
Molybdenum	5.99	2.66
Oil and grease	11.9	11.9
Total suspended solids	17.9	14.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-37
Refractory Metals
Forging Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged refractory metals cooled with water	
Copper	0.041	0.020
Nickel	0.018	0.012
Fluoride	1.92	0.853
Molybdenum	0.163	0.072
Oil and grease	0.323	0.323
Total suspended solids	0.485	0.388
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-38
Refractory Metals
Equipment Cleaning Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	0.174	0.083
Nickel	0.075	0.051
Fluoride	8.09	3.59
Molybdenum	0.684	0.303
Oil and grease	1.36	1.36
Total suspended solids	2.04	1.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-39
Refractory Metals
Metal Powder Production Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals powder produced	
Copper	0.360	0.172
Nickel	0.155	0.104
Fluoride	16.7	7.42
Molybdenum	1.42	0.627
Oil and grease	2.81	2.81
Total suspended solids	4.22	3.37
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-40
Refractory Metals
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	0.498	0.237
Nickel	0.214	0.144
Fluoride	23.2	10.3
Molybdenum	1.96	0.868
Oil and grease	3.89	3.89
Total suspended solids	5.84	4.67
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-41
Refractory Metals
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals surface treated	
Copper	15.5	7.38
Nickel	6.66	4.48
Fluoride	720	320
Molybdenum	69.9	27.0
Oil and grease	121	121
Total suspended solids	182	145
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-42
Refractory Metals
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	0.428	0.204
Nickel	0.184	0.124
Fluoride	19.9	8.82
Molybdenum	1.68	0.745
Oil and grease	3.34	3.34
Total suspended solids	5.01	4.01
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-43
Refractory Metals
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals alkaline cleaned	
Copper	10.5	4.98
Nickel	4.49	3.02
Fluoride	486	216
Molybdenum	41.1	18.2
Oil and grease	81.6	81.6
Total suspended solids	123	97.9
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-44
Refractory Metals
Molten Salt Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals treated with molten salt	
Copper	0.810	0.386
Nickel	0.348	0.234
Fluoride	37.7	16.7
Molybdenum	3.19	1.41
Oil and grease	6.33	6.33
Total suspended solids	9.5	7.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-45
Refractory Metals
Tumbling or Burnishing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tumbled or burnished	
Copper	1.60	0.763
Nickel	0.688	0.463
Fluoride	74.4	33.0
Molybdenum	6.29	2.79
Oil and grease	12.5	12.5
Total suspended solids	18.8	15.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-46
Refractory Metals
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with emulsions	
Copper	0.380	0.181
Nickel	0.164	0.110
Fluoride	17.7	7.84
Molybdenum	1.5	0.663
Oil and grease	2.97	2.97
Total suspended solids	4.46	3.57
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-47
Refractory Metals
Sawing or Grinding Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed or ground with contact cooling water	
Copper	3.11	1.48
Nickel	1.34	0.899
Fluoride	145.0	64.2
Molybdenum	12.2	5.42
Oil and grease	24.3	24.3
Total suspended solids	36.5	29.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-48
Refractory Metals
Sawing or Grinding Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground refractory metals rinsed	
Copper	0.018	0.009
Nickel	0.008	0.005
Fluoride	0.803	0.357
Molybdenum	0.068	0.030
Oil and grease	0.135	0.135
Total suspended solids	0.203	0.162
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-49
Refractory Metals
Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals sawed, ground, surface coated, or surface treated	
Copper	1.01	0.480
Nickel	0.433	0.291
Fluoride	46.8	20.8
Molybdenum	3.96	1.76
Oil and grease	7.87	7.87
Total suspended solids	11.8	9.45
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-50
Refractory Metals
Miscellaneous Wastewater Sources

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals formed	
Copper	0.442	0.211
Nickel	0.190	0.128
Fluoride	20.6	9.11
Molybdenum	1.74	0.770
Oil and grease	3.45	3.45
Total suspended solids	5.18	4.14
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 5-51
Refractory Metals
Dye Penetrant Testing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of refractory metals tested	
Copper	0.100	0.048
Nickel	0.043	0.029
Fluoride	4.62	2.05
Molybdenum	0.391	0.173
Oil and grease	0.776	0.776
Total suspended solids	1.17	0.931
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.055 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.053.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.056 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.053.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter VI — Titanium

NR 273.06 Applicability; description of the titanium subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from titanium forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.061 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Rolling spent neat oils;

(2) Drawing spent neat oils;

(3) Extrusion spent neat oils;

(4) Forging spent lubricants;

(5) Tube reducing spent lubricants;

(6) Heat treatment contact cooling water;

(7) Sawing or grinding spent neat oils; and

(8) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.062 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 6-1
Titanium
Rolling Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium rolled with contact cooling water	
Cyanide	1.4	0.586
Lead	2.05	0.976
Zinc	7.13	2.98
Ammonia	651	286
Fluoride	291	129
Oil and grease	97.0	58.0
Total suspended solids	200.0	95.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-2
Titanium
Extrusion Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.021	0.009
Lead	0.030	0.015
Zinc	0.105	0.044
Ammonia	9.59	4.22
Fluoride	4.28	1.9
Oil and grease	1.44	0.863
Total suspended solids	2.95	1.4
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-3
Titanium
Extrusion Press Hydraulic Fuel Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.052	0.022
Lead	0.075	0.036
Zinc	0.260	0.109
Ammonia	23.7	10.5
Fluoride	10.6	4.70
Oil and grease	3.56	2.14
Total suspended solids	7.30	3.47
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-4
Titanium
Forging Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium cooled with water	
Cyanide	0.580	0.240
Lead	0.840	0.400
Zinc	2.92	1.22
Ammonia	267	117
Fluoride	119	52.8
Oil and grease	40.0	24.0
Total suspended solids	82.0	39.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-5
Titanium
Forging Equipment Cleaning Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.012	0.005
Lead	0.017	0.008
Zinc	0.059	0.025
Ammonia	5.33	2.35
Fluoride	2.38	1.06
Oil and grease	0.800	0.480
Total suspended solids	1.64	0.780
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-6
Titanium
Forging Press Hydraulic Fluid Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.293	0.121
Lead	0.424	0.202
Zinc	1.48	0.616
Ammonia	135	59.2
Fluoride	60.1	26.7
Oil and grease	20.2	12.1
Total suspended solids	41.4	19.7
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-7
Titanium
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	0.061	0.025
Lead	0.088	0.042
Zinc	0.304	0.127
Ammonia	27.7	12.2
Fluoride	12.4	5.49
Oil and grease	4.16	2.50
Total suspended solids	8.53	4.06
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-8
Titanium
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	8.47	3.51
Lead	12.3	5.84
Zinc	42.7	17.8
Ammonia	3,890	1,710
Fluoride	1,740	771
Oil and grease	584	351
Total suspended solids	1,200	570
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-9
Titanium
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated or forged	
Cyanide	0.621	0.257
Lead	0.899	0.428
Zinc	3.13	1.31
Ammonia	285	126
Fluoride	128	56.5
Oil and grease	42.8	25.7
Total suspended solids	87.8	41.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-10
Titanium
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.070	0.029
Lead	0.101	0.048
Zinc	0.351	0.147
Ammonia	32.0	14.1
Fluoride	14.3	6.34
Oil and grease	4.80	2.88
Total suspended solids	9.84	4.68
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-11
Titanium
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.801	0.331
Lead	1.16	0.552
Zinc	4.03	1.69
Ammonia	370	160
Fluoride	164	72.9
Oil and grease	55.2	33.1
Total suspended solids	113	53.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-12
Titanium
Molten Salt Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium treated with molten salt	
Cyanide	0.277	0.115
Lead	0.401	0.191
Zinc	1.40	0.583
Ammonia	128	56.0
Fluoride	56.8	25.2
Oil and grease	19.1	11.5
Total suspended solids	39.2	18.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-13
Titanium
Tumbling Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tumbled	
Cyanide	0.229	0.095
Lead	0.332	0.158
Zinc	1.16	0.482
Ammonia	110	46
Fluoride	47.0	20.9
Oil and grease	15.8	9.48
Total suspended solids	32.4	15.4
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-14
Titanium
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with an emulsion	
Cyanide	0.053	0.022
Lead	0.077	0.037
Zinc	0.267	0.112
Ammonia	24.4	10.7
Fluoride	10.9	4.83
Oil and grease	3.66	2.20
Total suspended solids	7.51	3.57
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-15
Titanium
Sawing or Grinding Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with contact cooling water	
Cyanide	1.38	0.571
Lead	2.00	0.952
Zinc	6.95	2.91
Ammonia	635	279
Fluoride	283	126
Oil and grease	95.2	57.1
Total suspended solids	195	92.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-16
Titanium
Dye Penetrant Testing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tested with dye penetrant methods	
Cyanide	0.325	0.135
Lead	0.471	0.224
Zinc	1.64	0.683
Ammonia	149	65.7
Fluoride	66.7	29.6
Oil and grease	22.4	13.5
Total suspended solids	45.9	21.9
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-17
Titanium
Miscellaneous Wastewater Sources

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium formed	
Cyanide	0.010	0.004
Lead	0.014	0.007
Zinc	0.048	0.020
Ammonia	4.32	1.90
Fluoride	1.93	0.856
Oil and grease	0.648	0.389
Total suspended solids	1.33	0.632
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.063 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 6-18
Titanium
Rolling Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium rolled with contact cooling water	
Cyanide	0.142	0.059
Lead	0.205	0.098
Zinc	0.713	0.298
Ammonia	65.1	28.6
Fluoride	29.1	12.90

Table 6-19
Titanium
Extrusion Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.021	0.009
Lead	0.030	0.015
Zinc	0.105	0.044
Ammonia	9.59	4.22
Fluoride	4.28	1.90

Table 6-20
Titanium
Extrusion Press Hydraulic Fuel Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.052	0.022
Lead	0.075	0.036
Zinc	0.260	0.109
Ammonia	23.7	10.5
Fluoride	10.6	4.70

Table 6-21
Titanium
Forging Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium cooled with water	
Cyanide	0.029	0.012
Lead	0.042	0.020
Zinc	0.146	0.061
Ammonia	13.3	5.86
Fluoride	5.95	2.64

Table 6-22
Titanium
Forging Equipment Cleaning Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.012	0.005
Lead	0.017	0.008
Zinc	0.059	0.025
Ammonia	5.33	2.35
Fluoride	2.38	1.06

Table 6-23
Titanium
Forging Press Hydraulic Fluid Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.293	0.121
Lead	0.424	0.202
Zinc	1.48	0.616
Ammonia	135	59.2
Fluoride	60.1	26.7

Table 6-24
Titanium
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	0.061	0.025
Lead	0.088	0.042
Zinc	0.304	0.127
Ammonia	27.7	12.2
Fluoride	12.4	5.49

Table 6-25
Titanium
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	0.847	0.351
Lead	1.23	0.584
Zinc	4.27	1.78
Ammonia	389	171
Fluoride	174	77.1

Table 6-26
Titanium
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated or forged	
Cyanide	0.062	0.026
Lead	0.090	0.043
Zinc	0.313	0.131
Ammonia	28.5	12.6
Fluoride	12.8	5.68

Table 6-27
Titanium
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.070	0.029
Lead	0.101	0.048
Zinc	0.351	0.147
Ammonia	32.0	14.1
Fluoride	14.3	6.34

Table 6-28
Titanium
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.080	0.033
Lead	0.116	0.055
Zinc	0.403	0.169
Ammonia	36.8	16.2
Fluoride	16.4	7.29

Table 6-29
Titanium
Molten Salt Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium treated with molten salt	
Cyanide	0.277	0.115
Lead	0.401	0.191
Zinc	1.40	0.583
Ammonia	128	56.0
Fluoride	56.8	25.2

Table 6-30
Titanium
Tumbling Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tumbled	
Cyanide	0.022	0.010
Lead	0.033	0.016
Zinc	0.116	0.048
Ammonia	11.0	4.60
Fluoride	4.70	2.09

Table 6-31
Titanium
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with an emulsion	
Cyanide	0.053	0.022
Lead	0.077	0.037
Zinc	0.267	0.112
Ammonia	24.4	10.7
Fluoride	10.9	4.83

Table 6-32
Titanium
Sawing or Grinding
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with contact cooling water	
Cyanide	0.138	0.057
Lead	0.200	0.095
Zinc	0.695	0.291
Ammonia	63.5	27.9
Fluoride	28.3	12.6

Table 6-33
Titanium
Dye Penetrant Testing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tested with dye penetrant methods	
Cyanide	0.325	0.135
Lead	0.471	0.224
Zinc	1.64	0.683
Ammonia	149	65.7
Fluoride	66.7	29.6

Table 6-34
Titanium
Miscellaneous Wastewater Sources

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium formed	
Cyanide	0.010	0.004
Lead	0.014	0.007
Zinc	0.048	0.020
Ammonia	4.32	1.90
Fluoride	1.93	0.856

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.064 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 6-35
Titanium
Rolling Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium rolled with contact cooling water	
Cyanide	0.142	0.059
Lead	0.205	0.098
Zinc	0.713	0.298
Ammonia	65.1	28.6
Fluoride	29.1	12.90
Oil and grease	9.76	5.86
Total suspended solids	20.0	9.52
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-36
Titanium
Extrusion Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.021	0.009
Lead	0.030	0.015
Zinc	0.105	0.044
Ammonia	9.59	4.22
Fluoride	4.28	1.90
Oil and grease	1.44	0.863
Total suspended solids	2.95	1.40
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-37
Titanium
Extrusion Press Hydraulic Fuel Leakage

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium extruded	
Cyanide	0.052	0.022
Lead	0.075	0.036
Zinc	0.260	0.109
Ammonia	23.7	10.5
Fluoride	10.6	4.70
Oil and grease	3.56	2.14
Total suspended solids	7.30	3.47
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-38
Titanium
Forging Contact Cooling Water

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium cooled with water	
Cyanide	0.029	0.012
Lead	0.042	0.020
Zinc	0.146	0.061
Ammonia	13.3	5.86
Fluoride	5.95	2.64
Oil and grease	2.00	1.20
Total suspended solids	4.10	1.95
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-39
Titanium
Forging Equipment Cleaning Wastewater

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.012	0.005
Lead	0.017	0.008
Zinc	0.059	0.025
Ammonia	5.33	2.35
Fluoride	2.38	1.06
Oil and grease	0.800	0.490
Total suspended solids	1.64	0.780
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-40
Titanium
Forging Press Hydraulic Fluid Leakage

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of forged titanium	
Cyanide	0.293	0.121
Lead	0.424	0.202
Zinc	1.48	0.616
Ammonia	135	59.2
Fluoride	60.1	26.7
Oil and grease	20.2	12.1
Total suspended solids	41.4	19.7
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-41
Titanium
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	0.061	0.025
Lead	0.088	0.042
Zinc	0.304	0.127
Ammonia	27.7	12.2
Fluoride	12.4	5.49
Oil and grease	4.16	2.50
Total suspended solids	8.53	4.06
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-42
Titanium
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated	
Cyanide	0.847	0.351
Lead	1.23	0.584
Zinc	4.27	1.78
Ammonia	389	171
Fluoride	174	77.1
Oil and grease	58.4	35.1
Total suspended solids	120	57.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-43
Titanium
Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium surface treated or forged	
Cyanide	0.062	0.026
Lead	0.090	0.043
Zinc	0.313	0.131
Ammonia	28.5	12.6
Fluoride	12.8	5.65
Oil and grease	4.28	2.57
Total suspended solids	8.78	4.18
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-44
Titanium
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.070	0.029
Lead	0.101	0.048
Zinc	0.351	0.147
Ammonia	32.0	14.1
Fluoride	14.3	6.34
Oil and grease	4.80	2.88
Total suspended solids	9.84	4.68
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-45
Titanium
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium alkaline cleaned	
Cyanide	0.080	0.033
Lead	0.116	0.055
Zinc	0.403	0.169
Ammonia	36.8	16.2
Fluoride	16.4	7.29
Oil and grease	5.52	3.31
Total suspended solids	11.3	5.38
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-46
Titanium
Molten Salt Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium treated with molten salt	
Cyanide	0.277	0.115
Lead	0.401	0.191
Zinc	1.40	0.583
Ammonia	128	56.0
Fluoride	56.8	25.2
Oil and grease	19.1	11.5
Total suspended solids	39.2	18.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-47
Titanium
Tumbling Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tumbled	
Cyanide	0.023	0.010
Lead	0.033	0.016
Zinc	0.116	0.048
Ammonia	10.6	4.63
Fluoride	4.70	2.09
Oil and grease	1.58	0.948
Total suspended solids	3.24	1.54
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-48
Titanium
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with an emulsion	
Cyanide	0.053	0.022
Lead	0.077	0.037
Zinc	0.267	0.112
Ammonia	24.4	10.7
Fluoride	10.9	4.83
Oil and grease	3.66	2.20
Total suspended solids	7.51	3.57
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-49
Titanium
Sawing or Grinding Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium sawed or ground with contact cooling water	
Cyanide	0.138	0.057
Lead	0.200	0.095
Zinc	0.695	0.291
Ammonia	63.5	27.9
Fluoride	28.3	12.6
Oil and grease	9.52	5.71
Total suspended solids	19.5	9.28
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-50
Titanium
Dye Penetrant Testing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of titanium tested with dye penetrant methods	
Cyanide	0.325	0.135
Lead	0.471	0.224
Zinc	1.64	0.683
Ammonia	149	65.7
Fluoride	66.7	29.6
Oil and grease	22.4	13.5
Total suspended solids	45.9	21.9
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 6-51
Titanium
Miscellaneous Wastewater Sources

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg(pounds per million off-pounds) of titanium formed	
Cyanide	0.010	0.004
Lead	0.014	0.007
Zinc	0.048	0.020
Ammonia	4.32	1.90
Fluoride	1.93	0.856
Oil and grease	0.648	0.389
Total suspended solids	1.33	0.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.065 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.063.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.066 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.063.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter VII — Uranium

NR 273.07 Applicability; description of the uranium subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from uranium forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.071 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Extrusion spent lubricants;

(2) Forging spent lubricants; and

(3) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.072 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 7-1
Uranium
Extrusion Tool Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium extruded	
Cadmium	0.117	0.052
Chromium	0.152	0.062
Copper	0.654	0.344
Lead	0.145	0.069
Nickel	0.661	0.437
Fluoride	20.5	9.08
Molybdenum	2.28	1.18
Oil and grease	6.88	4.13
Total suspended solids	14.1	6.71
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-2
Uranium
Heat Treatment Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded or forged uranium heat treated	
Cadmium	0.646	0.285
Chromium	0.836	0.342
Copper	3.61	1.90
Lead	0.798	0.380
Nickel	3.65	2.42
Fluoride	113	50.2
Molybdenum	12.6	6.5
Oil and grease	38	22.8
Total suspended solids	77.9	37.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-3
Uranium
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.010	0.004
Chromium	0.012	0.005
Copper	0.052	0.027
Lead	0.012	0.006
Nickel	0.052	0.035
Fluoride	1.62	0.718
Molybdenum	0.180	0.093
Oil and grease	0.544	0.327
Total suspended solids	1.12	0.531
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-4
Uranium
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.115	0.050
Chromium	0.149	0.061
Copper	0.641	0.337
Lead	0.142	0.068
Nickel	0.647	0.428
Fluoride	20.1	8.90
Molybdenum	2.23	1.16
Oil and grease	6.74	4.05
Total suspended solids	13.8	6.57
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-5
Uranium
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.0012	0.0006
Chromium	0.002	0.0007
Copper	0.007	0.004
Lead	0.002	0.0007
Nickel	0.007	0.005
Fluoride	0.208	0.092
Molybdenum	0.023	0.012
Oil and grease	0.070	0.042
Total suspended solids	0.143	0.068
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-6
Uranium
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with emulsions	
Cadmium	0.002	0.0009
Chromium	0.003	0.001
Copper	0.011	0.006
Lead	0.003	0.001
Nickel	0.011	0.007
Fluoride	0.338	0.150
Molybdenum	0.038	0.020
Oil and grease	0.114	0.068
Total suspended solids	0.233	0.111
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-7
Uranium
Sawing or Grinding Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with contact cooling water	
Cadmium	0.561	0.248
Chromium	0.726	0.297
Copper	3.14	1.65
Lead	0.693	0.330
Nickel	3.17	2.1
Fluoride	98.2	43.6
Molybdenum	10.9	5.65
Oil and grease	33.0	19.8
Total suspended solids	67.7	32.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-8
Uranium
Sawing or Grinding Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground uranium rinsed	
Cadmium	0.002	0.0007
Chromium	0.002	0.0009
Copper	0.009	0.005
Lead	0.002	0.001
Nickel	0.009	0.006
Fluoride	0.277	0.123
Molybdenum	0.031	0.016
Oil and grease	0.093	0.056
Total suspended solids	0.191	0.091
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-9
Uranium
Area Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.015	0.007
Chromium	0.019	0.008
Copper	0.082	0.043
Lead	0.018	0.009
Nickel	0.083	0.055
Fluoride	2.56	1.14
Molybdenum	0.284	0.147
Oil and grease	0.858	0.515
Total suspended solids	1.76	0.837
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-10
Uranium
Drum Washwater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.015	0.007
Chromium	0.020	0.008
Copper	0.084	0.045
Lead	0.019	0.009
Nickel	0.085	0.057
Fluoride	2.64	1.17
Molybdenum	0.293	0.152
Oil and grease	0.886	0.532
Total suspended solids	1.82	0.864
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-11
Uranium
Laundry Washwater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/employe-day	
Cadmium	17.8	7.86
Chromium	23.1	9.43
Copper	99.6	52.4
Lead	22.0	10.5
Nickel	101	66.6
Fluoride	3,120	1,390
Molybdenum	347	179
Oil and grease	1,050	629
Total suspended solids	2,150	1,020
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.073 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 7-12
Uranium
Extrusion Tool Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium extruded	
Cadmium	0.007	0.003
Chromium	0.013	0.005
Copper	0.044	0.021
Lead	0.010	0.005
Nickel	0.019	0.013
Fluoride	2.05	0.908
Molybdenum	0.173	0.077

Table 7-13
Uranium
Heat Treatment Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded or forged uranium heat treated	
Cadmium	0.006	0.003
Chromium	0.012	0.005
Copper	0.040	0.019
Lead	0.009	0.004
Nickel	0.017	0.012
Fluoride	1.86	0.827
Molybdenum	0.158	0.070

Table 7-14
Uranium
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.006	0.002
Chromium	0.010	0.004
Copper	0.035	0.017
Lead	0.008	0.004
Nickel	0.015	0.010
Fluoride	1.62	0.718
Molybdenum	0.137	0.061

Table 7-15
Uranium
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.068	0.027
Chromium	0.125	0.051
Copper	0.432	0.260
Lead	0.095	0.044
Nickel	0.186	0.125
Fluoride	20.1	8.90
Molybdenum	1.70	0.752

Table 7-16
Uranium
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.0007	0.0003
Chromium	0.001	0.0005
Copper	0.005	0.002
Lead	0.001	0.0005
Nickel	0.002	0.001
Fluoride	0.208	0.092
Molybdenum	0.018	0.008

Table 7-17
Uranium
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with emulsions	
Cadmium	0.001	0.0005
Chromium	0.002	0.0009
Copper	0.007	0.004
Lead	0.002	0.001
Nickel	0.003	0.002
Fluoride	0.338	0.150
Molybdenum	0.029	0.013

Table 7-18
Uranium
Sawing or Grinding Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with contact cooling water	
Cadmium	0.033	0.013
Chromium	0.061	0.025
Copper	0.211	0.101
Lead	0.046	0.022
Nickel	0.091	0.061
Fluoride	9.82	4.36
Molybdenum	0.830	0.368

Table 7-19
Uranium
Sawing or Grinding Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground uranium rinsed	
Cadmium	0.001	0.0004
Chromium	0.002	0.0007
Copper	0.006	0.003
Lead	0.002	0.0006
Nickel	0.003	0.002
Fluoride	0.277	0.123
Molybdenum	0.024	0.011

Table 7-20
Uranium
Area Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.009	0.004
Chromium	0.016	0.007
Copper	0.055	0.026
Lead	0.012	0.006
Nickel	0.024	0.016
Fluoride	2.56	1.14
Molybdenum	0.216	0.096

Table 7-21
Uranium
Drum Washwater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.009	0.004
Chromium	0.017	0.007
Copper	0.057	0.027
Lead	0.013	0.006
Nickel	0.025	0.017
Fluoride	2.64	1.17
Molybdenum	0.223	0.099

Table 7-22
Uranium
Laundry Washwater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/employe-day	
Cadmium	5.24	2.10
Chromium	9.70	3.93
Copper	33.6	16.0
Lead	7.34	3.41
Nickel	14.4	9.70
Fluoride	1.560	692
Molybdenum	132	58.4

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.074 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 7-23
Uranium
Extrusion Tool Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds of uranium extruded	
Cadmium	0.007	0.003
Chromium	0.013	0.005
Copper	0.044	0.021
Lead	0.010	0.005
Nickel	0.019	0.013
Fluoride	2.05	0.908
Molybdenum	0.173	0.077
Oil and grease	0.344	0.344
Total suspended solids	0.516	0.413
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-24
Uranium
Heat Treatment Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of extruded or forged uranium heat treated	
Cadmium	0.006	0.003
Chromium	0.012	0.005
Copper	0.040	0.019
Lead	0.009	0.004
Nickel	0.017	0.012
Fluoride	1.86	0.827
Molybdenum	0.158	0.070
Oil and grease	0.313	0.313
Total suspended solids	0.470	0.376
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-25
Uranium
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.006	0.002
Chromium	0.010	0.004
Copper	0.035	0.017
Lead	0.008	0.004
Nickel	0.015	0.010
Fluoride	1.62	0.718
Molybdenum	0.137	0.061
Oil and grease	0.272	0.272
Total suspended solids	0.408	0.327
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-26
Uranium
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.068	0.027
Chromium	0.125	0.051
Copper	0.432	0.260
Lead	0.095	0.044
Nickel	0.186	0.125
Fluoride	20.1	8.90
Molybdenum	1.70	0.752
Oil and grease	3.37	3.37
Total suspended solids	5.06	4.05
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-27
Uranium
Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium surface treated	
Cadmium	0.0007	0.0003
Chromium	0.001	0.0005
Copper	0.005	0.002
Lead	0.001	0.0005
Nickel	0.002	0.001
Fluoride	0.208	0.092
Molybdenum	0.018	0.008
Oil and grease	0.035	0.035
Total suspended solids	0.053	0.042
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-28
Uranium
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with emulsions	
Cadmium	0.001	0.0005
Chromium	0.002	0.0009
Copper	0.007	0.004
Lead	0.002	0.0008
Nickel	0.003	0.002
Fluoride	0.338	0.150
Molybdenum	0.029	0.013
Oil and grease	0.057	0.057
Total suspended solids	0.085	0.068
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-29
Uranium
Sawing or Grinding Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium sawed or ground with contact cooling water	
Cadmium	0.033	0.013
Chromium	0.061	0.025
Copper	0.211	0.101
Lead	0.046	0.022
Nickel	0.091	0.061
Fluoride	9.82	4.36
Molybdenum	0.830	0.368
Oil and grease	1.65	1.65
Total suspended solids	2.48	1.98
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-30
Uranium
Sawing or Grinding Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground uranium rinsed	
Cadmium	0.001	0.0004
Chromium	0.002	0.0007
Copper	0.006	0.003
Lead	0.002	0.0006
Nickel	0.003	0.002
Fluoride	0.277	0.123
Molybdenum	0.024	0.011
Oil and grease	0.047	0.047
Total suspended solids	0.070	0.056
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-31
Uranium
Area Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.009	0.004
Chromium	0.016	0.007
Copper	0.055	0.026
Lead	0.012	0.006
Nickel	0.024	0.016
Fluoride	2.56	1.14
Molybdenum	0.216	0.096
Oil and grease	0.429	0.429
Total suspended solids	0.644	0.515
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-32
Uranium
Drum Washwater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of uranium formed	
Cadmium	0.009	0.004
Chromium	0.017	0.007
Copper	0.057	0.027
Lead	0.013	0.006
Nickel	0.025	0.017
Fluoride	2.64	1.17
Molybdenum	0.223	0.099
Oil and grease	0.443	0.443
Total suspended solids	0.665	0.532
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 7-33
Uranium
Laundry Washwater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/employe-day	
Cadmium	5.24	2.10
Chromium	9.70	3.93
Copper	33.6	16.0
Lead	7.34	3.41
Nickel	14.4	9.70
Fluoride	1,560	692
Molybdenum	132	58.4
Oil and grease	262	262
Total suspended solids	393	315
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.076 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.073.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter VIII — Zinc

NR 273.08 Applicability; description of the zinc subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from zinc forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.081 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Rolling spent neat oils;

(2) Stationary casting contact cooling water; and

(3) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.082 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 8-1
Zinc
Rolling Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with emulsions	
Chromium	0.0006	0.0003
Copper	0.003	0.002
Cyanide	0.0004	0.0002
Zinc	0.002	0.0009
Oil and grease	0.028	0.017
Total suspended solids	0.057	0.027
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-2
Zinc
Rolling Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with contact cooling water	
Chromium	0.236	0.0097
Copper	1.02	0.536
Cyanide	0.156	0.065
Zinc	0.783	0.327
Oil and grease	10.7	6.43
Total suspended solids	22.0	10.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-3
Zinc
Drawing Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc drawn with emulsions	
Chromium	0.003	0.001
Copper	0.011	0.006
Cyanide	0.002	0.0007
Zinc	0.009	0.004
Oil and grease	0.116	0.070
Total suspended solids	0.238	0.113
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-4
Zinc
Direct Chill Casting Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc cast by the direct chill method	
Chromium	0.222	0.091
Copper	0.960	0.505
Cyanide	0.147	0.061
Zinc	0.738	0.308
Oil and grease	10.1	6.06
Total suspended solids	20.7	9.85
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-5
Zinc
Heat Treatment Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc heat treated	
Chromium	0.336	0.138
Copper	1.45	0.763
Cyanide	0.221	0.092
Zinc	1.12	0.466
Oil and grease	15.3	9.16
Total suspended solids	31.3	14.9
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-6
Zinc
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	0.039	0.016
Copper	0.169	0.089
Cyanide	0.026	0.011
Zinc	0.130	0.054
Oil and grease	1.78	1.07
Total suspended solids	3.64	1.73
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-7
Zinc
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	1.58	0.645
Copper	6.80	3.58
Cyanide	1.04	0.430
Zinc	5.23	2.19
Oil and grease	71.6	43.0
Total suspended solids	147	69.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-8
Zinc
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.002	0.0007
Copper	0.007	0.004
Cyanide	0.001	0.0004
Zinc	0.005	0.002
Oil and grease	0.071	0.043
Total suspended solids	0.146	0.069
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-9
Zinc
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.744	0.304
Copper	3.21	1.69
Cyanide	0.490	0.203
Zinc	2.47	1.03
Oil and grease	33.8	20.3
Total suspended solids	69.3	33.0
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-10
Zinc
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc sawed or ground with emulsions	
Chromium	0.011	0.005
Copper	0.045	0.024
Cyanide	0.007	0.003
Zinc	0.035	0.015
Oil and grease	0.476	0.286
Total suspended solids	0.976	0.464
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-11
Zinc
Electrocoating Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc electrocoated	
Chromium	1.01	0.412
Copper	4.35	2.29
Cyanide	0.664	0.275
Zinc	3.35	1.40
Oil and grease	45.8	27.5
Total suspended solids	93.9	44.7
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.083 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 8-12
Zinc
Rolling Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with emulsions	
Chromium	0.0005	0.0002
Copper	0.002	0.0009
Cyanide	0.0003	0.0001
Zinc	0.002	0.0006

Table 8-13
Zinc
Rolling Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with contact cooling water	
Chromium	0.020	0.009
Copper	0.069	0.033
Cyanide	0.011	0.004
Zinc	0.055	0.023

Table 8-14
Zinc
Drawing Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc drawn with emulsions	
Chromium	0.002	0.0009
Copper	0.008	0.004
Cyanide	0.001	0.0005
Zinc	0.006	0.003

Table 8-15
Zinc
Direct Chill Casting Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc cast by the direct chill method	
Chromium	0.019	0.008
Copper	0.065	0.031
Cyanide	0.010	0.004
Zinc	0.052	0.021

Table 8-16
Zinc
Heat Treatment Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc heat treated	
Chromium	0.029	0.012
Copper	0.098	0.047
Cyanide	0.016	0.006
Zinc	0.078	0.032

Table 8-17
Zinc
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	0.033	0.014
Copper	0.114	0.054
Cyanide	0.018	0.007
Zinc	0.091	0.038

Table 8-18
Zinc
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	0.133	0.054
Copper	0.457	0.219
Cyanide	0.072	0.029
Zinc	0.365	0.151

Table 8-19
Zinc
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.002	0.0006
Copper	0.005	0.002
Cyanide	0.0007	0.0003
Zinc	0.004	0.002

Table 8-20
Zinc
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.626	0.254
Copper	2.17	1.03
Cyanide	0.338	0.135
Zinc	1.73	0.710

Table 8-21
Zinc
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc sawed or ground with emulsions	
Chromium	0.009	0.004
Copper	0.031	0.015
Cyanide	0.005	0.002
Zinc	0.025	0.010

Table 8-22
Zinc
Electrocoating Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc electrocoated	
Chromium	0.085	0.035
Copper	0.293	0.140
Cyanide	0.046	0.019
Zinc	0.234	0.096

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.084 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 8-23
Zinc
Rolling Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with emulsions	
Chromium	0.0005	0.0002
Copper	0.002	0.0009
Cyanide	0.0003	0.0001
Zinc	0.002	0.0006
Oil and grease	0.014	0.014
Total suspended solids	0.021	0.017
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-24
Zinc
Rolling Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc rolled with contact cooling water	
Chromium	0.020	0.009
Copper	0.069	0.037
Cyanide	0.011	0.004
Zinc	0.055	0.023
Oil and grease	0.536	0.536
Total suspended solids	0.804	0.643
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-25
Zinc
Drawing Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc drawn with emulsions	
Chromium	0.002	0.0009
Copper	0.008	0.004
Cyanide	0.001	0.0005
Zinc	0.006	0.003
Oil and grease	0.058	0.058
Total suspended solids	0.087	0.070
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-26
Zinc
Direct Chill Casting Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc cast by the direct chill method	
Chromium	0.019	0.008
Copper	0.065	0.031
Cyanide	0.010	0.004
Zinc	0.052	0.021
Oil and grease	0.505	0.505
Total suspended solids	0.758	0.606
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-27
Zinc
Heat Treatment Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc heat treated	
Chromium	0.029	0.012
Copper	0.098	0.047
Cyanide	0.016	0.006
Zinc	0.078	0.032
Oil and grease	0.763	0.763
Total suspended solids	1.15	0.916
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-28
Zinc
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	0.033	0.014
Copper	0.114	0.054
Cyanide	0.018	0.007
Zinc	0.091	0.038
Oil and grease	0.887	0.887
Total suspended solids	1.33	1.07
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-29
Zinc
Surface Treatment Rinse

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc surface treated	
Chromium	0.133	0.054
Copper	0.459	0.219
Cyanide	0.072	0.029
Zinc	0.365	0.151
Oil and grease	3.58	3.58
Total suspended solids	5.37	4.30
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-30
Zinc
Alkaline Cleaning Spent Baths

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.002	0.0006
Copper	0.005	0.002
Cyanide	0.0007	0.0003
Zinc	0.004	0.002
Oil and grease	0.036	0.036
Total suspended solids	0.054	0.043
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-31
Zinc
Alkaline Cleaning Rinse

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc alkaline cleaned	
Chromium	0.626	0.254
Copper	2.17	1.03
Cyanide	0.338	0.135
Zinc	1.73	0.710
Oil and grease	16.9	16.9
Total suspended solids	25.4	20.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-32
Zinc
Sawing or Grinding Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc sawed or ground with emulsions	
Chromium	0.009	0.004
Copper	0.031	0.015
Cyanide	0.005	0.002
Zinc	0.025	0.010
Oil and grease	0.235	0.235
Total suspended solids	0.357	0.286
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 8-33
Zinc
Electrocoating Rinse

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zinc electrocoated	
Chromium	0.085	0.035
Copper	0.293	0.140
Cyanide	0.046	0.019
Zinc	0.234	0.096
Oil and grease	2.29	2.29
Total suspended solids	3.44	2.75
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.086 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.083.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter IX — Zirconium-Hafnium

NR 273.09 Applicability; description of the zirconium-hafnium subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from zirconium-hafnium forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.091 Discharge prohibitions. (1) Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(a) Rolling spent neat oils;

(b) Drawing spent lubricants;

(c) Extrusion spent emulsions;

(d) Swaging spent neat oils;

(e) Wet air pollution control scrubber blowdown;

(f) Degreasing spent solvents;

(g) Degreasing rinse; and

(h) Swaging or grinding spent neat oils.

(2) TUBE REDUCING SPENT LUBRICANTS. (a) Tube reducing spent lubricant process wastewater pollutants may not be discharged, except as provided in par. (b).

(b) Tube reducing spent lubricant process wastewater pollutants may be discharged, with no allowance for any pollutants discharged, if the facility owner or operator demonstrates according to pars. (c), (d), (e), and (f) that the concentrations of nitrosamine compounds in the discharged wastewater do not exceed the following levels:

Nitrosamine	Maximum Concentration
N-nitrosodimethylamine	0.050 mg/l
N-nitrosodiphenylamine	0.020 mg/l
N-nitrosodi-n-propylamine	0.020 mg/l

(c) For the demonstration required by par. (b), the facility owner or operator shall use the analytical methods approved by ch. NR 219, Table C.

(d) The demonstration required by par. (b) shall be made once per month until the demonstration has been made for all 3 nitrosamine compounds for 6 consecutive months. After this time, the demonstration may be made once per quarter. If a sample is found to contain any of the 3 nitrosamine compounds at concentrations greater than those specified in par. (b), the actions set forth in par. (e) shall be taken and the demonstration required by par. (b) shall be made once per month until it has been made for all 3 nitrosamine compounds for 6 consecutive months.

(e) If sampling results show that any of the 3 nitrosamine compounds is present in the process wastewater at concentrations greater than those set forth in par. (b), the facility owner or operator shall ensure that starting within 30 days of receiving written notification of the sampling results no tube reducing spent lubricant wastewater is discharged until one of the following conditions is met:

1. The owner or operator performs a subsequent analysis which demonstrates that the concentrations of 3 regulated nitrosamine compounds do not exceed the levels set forth in par. (b); or

2. The owner or operator substitutes a new tube reducing lubricant and thereafter complies with the requirements of par. (d); or

3. Determines the source of the pollutants whose concentration exceeded the level set forth in par. (b) and demonstrates to the satisfaction of the permit issuing authority that the source has been eliminated.

(f) The concentration limits specified in par. (b) apply at the point of discharge from the tube reducing process. However, sampling after the tube reducing wastewater has been commingled with other wastewaters is permitted if 2 conditions are met:

1. Any dilution caused by the other wastewaters is accounted for when determining the appropriate allowable discharge concentration; and

2. An analytical method of sufficient sensitivity is used to measure the levels of each of the 3 nitrosamine compounds in the wastewater being sampled.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.092 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 9-1
Zirconium-Hafnium
Extrusion Press Hydraulic Fluid Leakage

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium extruded	
Chromium	0.104	0.043
Cyanide	0.069	0.029
Nickel	0.455	0.301
Ammonia	31.6	13.9
Fluoride	14.1	6.26
Oil and grease	4.74	2.85
Total suspended solids	9.72	4.62
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-2
Zirconium-Hafnium
Heat Treatment Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium heat treated	
Chromium	0.151	0.062
Cyanide	0.100	0.041
Nickel	0.659	0.436
Ammonia	45.7	20.1
Fluoride	20.4	9.06
Oil and grease	6.86	4.12
Total suspended solids	14.1	6.69
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-3
Zirconium-Hafnium
Surface Treatment Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	0.150	0.061
Cyanide	0.099	0.041
Nickel	0.653	0.432
Ammonia	45.3	20
Fluoride	20.3	8.98
Oil and grease	6.80	4.08
Total suspended solids	14	6.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-4
Zirconium-Hafnium
Surface Treatment Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	3.91	1.60
Cyanide	2.58	1.07
Nickel	17.1	11.3
Ammonia	1,190	521
Fluoride	529	235
Oil and grease	178	107
Total suspended solids	364	173
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-5
Zirconium-Hafnium
Alkaline Cleaning Spent Baths

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	0.704	0.288
Cyanide	0.464	0.192
Nickel	3.07	2.03
Ammonia	214	93.8
Fluoride	95.2	42.3
Oil and grease	32	19.2
Total suspended solids	65.6	31.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-6
Zirconium-Hafnium
Alkaline Cleaning Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	13.8	5.65
Cyanide	9.11	3.77
Nickel	60.3	39.9
Ammonia	4,190	1,840
Fluoride	1,870	829
Oil and grease	628	377
Total suspended solids	1,290	613
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-7
Zirconium-Hafnium
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with emulsions	
Chromium	0.124	0.051
Cyanide	0.082	0.034
Nickel	0.540	0.357
Ammonia	37.5	16.5
Fluoride	16.7	7.42
Oil and grease	5.62	3.37
Total suspended solids	11.5	5.48
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-8
Zirconium-Hafnium
Molten Salt Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium treated with molten salt	
Chromium	3.33	1.360
Cyanide	2.20	0.907
Nickel	14.5	9.60
Ammonia	1,010	443
Fluoride	450	200
Oil and grease	151	90.7
Total suspended solids	310	148
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-9
Zirconium-Hafnium
Sawing or Grinding Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with contact cooling water	
Chromium	0.142	0.058
Cyanide	0.093	0.039
Nickel	0.617	0.408
Ammonia	42.8	18.8
Fluoride	6.42	8.48
Oil and grease	13.2	3.85
Total suspended solids	9.72	6.26
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-10
Zirconium-Hafnium
Sawing or Grinding Rinse

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground zirconium-hafnium rinsed	
Chromium	0.792	0.324
Cyanide	0.522	0.216
Nickel	3.46	2.29
Ammonia	240	106
Fluoride	107	47.5
Oil and grease	36	21.6
Total suspended solids	73.8	35.1
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-11
Zirconium-Hafnium
Inspection and Testing Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium tested	
Chromium	0.007	0.003
Cyanide	0.005	0.002
Nickel	0.030	0.020
Ammonia	2.06	0.903
Fluoride	0.917	0.407
Oil and grease	0.308	0.185
Total suspended solids	0.632	0.301
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.093 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 9-12
Zirconium-Hafnium
Extrusion Press Hydraulic Fluid Leakage

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium extruded	
Chromium	0.104	0.043
Cyanide	0.069	0.029
Nickel	0.455	0.301
Ammonia	31.6	13.9
Fluoride	14.1	6.26

Table 9-13
Zirconium-Hafnium
Heat Treatment Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium heat treated	
Chromium	0.015	0.006
Cyanide	0.010	0.004
Nickel	0.066	0.044
Ammonia	4.57	2.01
Fluoride	2.04	0.906

Table 9-14
Zirconium-Hafnium
Surface Treatment Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	0.150	0.061
Cyanide	0.099	0.041
Nickel	0.653	0.432
Ammonia	45.3	20.0
Fluoride	20.3	8.98

Table 9-15
Zirconium-Hafnium
Surface Treatment Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	0.391	0.160
Cyanide	0.258	0.107
Nickel	1.71	1.13
Ammonia	119	52.1
Fluoride	52.9	23.5

Table 9-16
Zirconium-Hafnium
Alkaline Cleaning Spent Baths

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	0.704	0.288
Cyanide	0.464	0.192
Nickel	3.07	2.03
Ammonia	214	93.8
Fluoride	95.2	42.3

Table 9-17
Zirconium-Hafnium
Alkaline Cleaning Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	1.38	0.565
Cyanide	0.911	0.377
Nickel	6.03	3.99
Ammonia	419	184
Fluoride	187	82.9

Table 9-18
Zirconium-Hafnium
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with emulsions	
Chromium	0.124	0.051
Cyanide	0.082	0.034
Nickel	0.540	0.357
Ammonia	37.5	16.50
Fluoride	16.7	7.42

Table 9-19
Zirconium-Hafnium
Molten Salt Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium treated with molten salt	
Chromium	0.333	0.136
Cyanide	0.220	0.091
Nickel	1.45	0.960
Ammonia	101	44.3
Fluoride	45.0	20.0

Table 9-20
Zirconium-Hafnium
Sawing or Grinding Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with contact cooling water	
Chromium	0.142	0.058
Cyanide	0.093	0.039
Nickel	0.617	0.408
Ammonia	42.8	18.8
Fluoride	19.1	8.48

Table 9-21
Zirconium-Hafnium
Sawing or Grinding Rinse

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground zirconium-hafnium rinsed	
Chromium	0.079	0.033
Cyanide	0.052	0.022
Nickel	0.346	0.229
Ammonia	24.0	10.6
Fluoride	10.7	4.75

Table 9-22
Zirconium-Hafnium
Inspection Testing Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium tested	
Chromium	0.007	0.003
Cyanide	0.005	0.002
Nickel	0.030	0.020
Ammonia	2.06	0.903
Fluoride	0.917	0.407

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.094 New source performance standards.

Any new source subject to this subchapter shall achieve the following standards:

Table 9-23
Zirconium-Hafnium
Extrusion Press Hydraulic Fluid Leakage

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium extruded	
Chromium	0.104	0.043
Cyanide	0.069	0.029
Nickel	0.455	0.301
Ammonia	31.6	13.9
Fluoride	14.1	6.26
Oil and grease	4.74	2.85
Total suspended solids	9.72	4.62
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-24
Zirconium-Hafnium
Heat Treatment Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium heat treated	
Chromium	0.015	0.006
Cyanide	0.010	0.004
Nickel	0.066	0.044
Ammonia	4.57	2.01
Fluoride	2.04	0.906
Oil and grease	0.686	0.412
Total suspended solids	1.41	0.669
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-25
Zirconium-Hafnium
Surface Treatment Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	0.150	0.061
Cyanide	0.099	0.041
Nickel	0.653	0.432
Ammonia	45.3	20.0
Fluoride	20.0	8.98
Oil and grease	6.80	4.08
Total suspended solids	14.0	6.63
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-26
Zirconium-Hafnium
Surface Treatment Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium surface treated	
Chromium	0.391	0.160
Cyanide	0.258	0.107
Nickel	1.71	1.13
Ammonia	119	52.1
Fluoride	52.9	23.5
Oil and grease	17.8	10.7
Total suspended solids	36.4	17.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-27
Zirconium-Hafnium
Alkaline Cleaning Spent Baths

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	0.704	0.288
Cyanide	0.464	0.192
Nickel	3.07	2.03
Ammonia	214	93.8
Fluoride	95.2	42.3
Oil and grease	32.0	19.2
Total suspended solids	65.6	31.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-28
Zirconium-Hafnium
Alkaline Cleaning Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium alkaline cleaned	
Chromium	1.38	0.565
Cyanide	0.911	0.377
Nickel	6.03	3.99
Ammonia	419	184
Fluoride	187	82.9
Oil and grease	62.8	37.7
Total suspended solids	129	61.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-29
Zirconium-Hafnium
Sawing or Grinding Spent Emulsions

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with emulsions	
Chromium	0.124	0.051
Cyanide	0.082	0.034
Nickel	0.540	0.357
Ammonia	37.5	16.50
Fluoride	16.7	7.42
Oil and grease	5.62	3.37
Total suspended solids	11.5	5.48
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-30
Zirconium-Hafnium
Molten Salt Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium treated with molten salt	
Chromium	0.333	0.136
Cyanide	0.220	0.091
Nickel	1.45	0.960
Ammonia	101	44.3
Fluoride	45.0	20.0
Oil and grease	15.1	9.07
Total suspended solids	31.0	14.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-31
Zirconium-Hafnium
Sawing or Grinding Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium sawed or ground with contact cooling water	
Chromium	0.142	0.058
Cyanide	0.093	0.039
Nickel	0.617	0.408
Ammonia	42.8	18.8
Fluoride	19.1	8.48
Oil and grease	6.42	3.85
Total suspended solids	13.2	6.26
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-32
Zirconium-Hafnium
Sawing or Grinding Rinse

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of sawed or ground zirconium-hafnium rinsed	
Chromium	0.079	0.033
Cyanide	0.052	0.022
Nickel	0.346	0.229
Ammonia	24.0	10.6
Fluoride	10.7	4.75
Oil and grease	3.60	2.16
Total suspended solids	7.38	3.51
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 9-33
Zirconium-Hafnium
Inspection Testing Wastewater

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of zirconium-hafnium tested	
Chromium	0.007	0.003
Cyanide	0.005	0.002
Nickel	0.030	0.020
Ammonia	2.06	0.903
Fluoride	0.917	0.407
Oil and grease	0.308	0.185
Total suspended solids	0.632	0.301
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.095 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.093.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.096 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.093.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Subchapter X — Metal Powders

NR 273.10 Applicability; description of the metal powders subcategory. This subchapter applies to the discharge of pollutants to waters of the state and the introduction of pollutants into POTWs from metal powders forming.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.101 Discharge prohibitions. Any facility subject to this subchapter may not discharge process wastewater pollutants from the following sources:

(1) Oil-resin impregnation wastewater;

(2) Sawing or grinding spent neat oils; and

(3) Degreasing spent solvents.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BPT:

Table 10-1
Metal Powders
Metal Powder Production Atomization Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder wet atomized	
Copper	9.58	5.04
Cyanide	1.46	0.605
Lead	2.12	1.01
Oil and grease	101	60.5
Total suspended solids	207	98.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-2
Metal Powders
Sizing Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder sized	
Copper	0.028	0.015
Cyanide	0.004	0.002
Lead	0.006	0.003
Oil and grease	0.292	0.175
Total suspended solids	0.599	0.285
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-3
Metal Powders
Steam Treatment
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts steam treated	
Copper	1.51	0.792
Cyanide	0.230	0.095
Lead	0.333	0.159
Oil and grease	15.9	9.51
Total suspended solids	32.5	15.5
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-4
Metal Powders
Tumbling, Burnishing, and Cleaning Wastewater

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts tumbled, burnished, or cleaned	
Copper	8.36	4.40
Cyanide	1.28	0.528
Lead	1.85	0.880
Oil and grease	88.0	52.800
Total suspended solids	181	85.8
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-5
Metal Powders
Sawing or Grinding Spent Emulsions

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with emulsion	
Copper	0.035	0.018
Cyanide	0.005	0.002
Lead	0.008	0.004
Oil and grease	0.362	0.217
Total suspended solids	0.742	0.353
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-6
Metal Powders
Sawing or Grinding
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with contact cooling water	
Copper	3.08	1.62
Cyanide	0.470	0.195
Lead	0.681	0.324
Oil and grease	32.4	19.5
Total suspended solids	66.4	31.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-7
Metal Powders
Hot Pressing
Contact Cooling Water

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder cooled after pressing	
Copper	16.7	8.80
Cyanide	2.55	1.06
Lead	3.70	1.76
Oil and grease	176	106
Total suspended solids	361	172
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-8
Metal Powders
Mixing
Wet Air Pollution Control Scrubber Blowdown

BPT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder mixed	
Copper	15.0	7.90
Cyanide	2.29	0.948
Lead	3.32	1.58
Oil and grease	158	94.8
Total suspended solids	324	154
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable. Except as provided in 40 CFR 125.30 to 125.32, any existing point source subject to this subchapter shall achieve the following effluent limitations representing the degree of effluent reduction attainable by application of BAT:

Table 10-9
Metal Powders
Metal Powder Production Atomization Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder wet atomized	
Copper	9.58	5.04
Cyanide	1.46	0.605
Lead	2.12	1.01

Table 10-10
Metal Powders
Sizing Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder sized	
Copper	0.028	0.015
Cyanide	0.004	0.002
Lead	0.006	0.003

Table 10-11
Metal Powders
Steam Treatment
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts steam treated	
Copper	1.51	0.792
Cyanide	0.230	0.095
Lead	0.333	0.159

Table 10-12
Metal Powders
Tumbling, Burnishing, and Cleaning Wastewater

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts tumbled, burnished, or cleaned	
Copper	8.36	4.40
Cyanide	1.28	0.528
Lead	1.85	0.880

Table 10-13
Metal Powders
Sawing or Grinding Spent Emulsions

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with emulsion	
Copper	0.035	0.018
Cyanide	0.005	0.002
Lead	0.008	0.004

Table 10-14
Metal Powders
Sawing or Grinding
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with contact cooling water	
Copper	3.08	1.62
Cyanide	0.470	0.195
Lead	0.681	0.324

Table 10-15
Metal Powders
Hot Pressing
Contact Cooling Water

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder cooled after pressing	
Copper	16.7	8.80
Cyanide	2.55	1.06
Lead	3.70	1.76

Table 10-16
Metal Powders
Mixing
Wet Air Pollution Control Scrubber Blowdown

BAT Effluent Limitations		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder mixed	
Copper	15.0	7.90
Cyanide	2.29	0.948
Lead	3.32	1.58

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.104 New source performance standards. Any new source subject to this subchapter shall achieve the following standards:

Table 10-17
Metal Powders
Metal Powder Production Atomization Wastewater

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder wet atomized	
Copper	9.58	5.04
Cyanide	1.46	0.605
Lead	2.12	1.01
Oil and grease	101	60.5
Total suspended solids	207	98.3
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-18
Metal Powders
Sizing Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder sized	
Copper	0.028	0.015
Cyanide	0.004	0.002
Lead	0.006	0.003
Oil and grease	0.292	0.175
Total suspended solids	0.599	0.285
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-19
Metal Powders
Steam Treatment
Wet Air Pollution Control Scrubber Blowdown

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts steam treated	
Copper	0.151	0.079
Cyanide	0.023	0.010
Lead	0.033	0.016
Oil and grease	1.59	0.951
Total suspended solids	3.25	1.55
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-20
Metal Powders
Tumbling, Burnishing, and Cleaning Wastewater

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts tumbled, burnished, or cleaned	
Copper	0.836	0.440
Cyanide	0.128	0.053
Lead	0.185	0.088
Oil and grease	8.80	5.28
Total suspended solids	18.1	8.58
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-21
Metal Powders
Sawing or Grinding Spent Emulsions

NSPS		
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with emulsion	
Copper	0.035	0.018
Cyanide	0.005	0.002
Lead	0.008	0.004
Oil and grease	0.362	0.217
Total suspended solids	0.742	0.353
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-22
Metal Powders
Sawing or Grinding
Contact Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder metallurgy parts sawed or ground with contact cooling water	
Copper	3.08	1.62
Cyanide	0.470	0.195
Lead	0.681	0.324
Oil and grease	32.4	19.5
Total suspended solids	66.4	31.6
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-23
Metal Powders
Hot Pressing Contact
Cooling Water

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder cooled after pressing	
Copper	1.67	0.880
Cyanide	0.255	0.106
Lead	0.370	0.176
Oil and grease	17.6	10.6
Total suspended solids	36.1	17.2
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

Table 10-24
Metal Powders
Mixing Wet Air Pollution Control Scrubber Blowdown

	NSPS	
	Maximum for any 1 day	Maximum for monthly average
Pollutant or pollutant property	mg/off-kg (pounds per million off-pounds) of powder mixed	
Copper	15.0	7.90
Cyanide	2.29	0.948
Lead	3.32	1.58
Oil and grease	158	94.8
Total suspended solids	324	154
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.105 Pretreatment standards for existing sources. Except as provided in ss. NR 211.13 and 211.14, any existing source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.103.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

NR 273.106 Pretreatment standards for new sources. Except as provided in s. NR 211.13, any new source subject to this subchapter which introduces pollutants into a POTW shall comply with ch. NR 211 and achieve the limitations set forth in s. NR 273.103.

History: Cr. Register, September, 1990, No. 417, eff. 10-1-90.

Note: The Wisconsin administrative code corresponds to the code of federal regulations as cross referenced in the following table:

State Code	Corresponding Federal Regulation
s. NR 205.03	40 CFR 401.11
s. NR 205.04	40 CFR 401.11
ch. NR 211	40 CFR Part 403
s. NR 211.03	40 CFR 403.3
s. NR 211.13	40 CFR 403.7
s. NR 211.14	40 CFR 403.13
ch. NR 219	40 CFR Part 136
ch. NR 256	40 CFR Part 464
ch. NR 260	40 CFR Part 413
ch. NR 261	40 CFR Part 433
ch. NR 273	40 CFR Part 471
ch. NR 274	40 CFR Part 421