

**Environmental Protection Agency**

**§ 421.334**

**BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total) .....	0.292	0.118
Cyanide (total) .....	0.158	0.063
Lead .....	0.221	0.103
Nickel .....	0.434	0.292
Ammonia (as N) .....	105.200	46.240

**§ 421.334 Standards of performance for new sources.**

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

(a) Sand drying wet air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	0.210	0.085
Cyanide (total) .....	0.114	0.045
Lead .....	0.159	0.074
Nickel .....	0.312	0.210
Ammonia (as N) .....	75.710	33.280
Total suspended solids .....	8.520	6.816
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(b) Sand chlorination off-gas wet air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	16.080	6.521
Cyanide (total) .....	8.694	3.478
Lead .....	12.170	5.651
Nickel .....	23.910	16.080
Ammonia (as N) .....	5,795.000	2,547.000
Total suspended solids .....	652.100	521.000
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(c) Sand chlorination area-vent wet air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	3.154	1.279
Cyanide (total) .....	1.705	0.682
Lead .....	2.387	1.108
Nickel .....	4.688	3.154
Ammonia (as N) .....	1,136.000	499.500
Total suspended solids .....	127.900	102.300
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(d) SiC<sub>14</sub> purification wet air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	2.774	1.125
Cyanide (total) .....	1.500	0.600
Lead .....	2.099	0.975
Nickel .....	4.124	2.774
Ammonia (as N) .....	999.500	439.400
Total suspended solids .....	112.500	89.980
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(e) Feed makeup wet air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	2.103	0.852
Cyanide (total) .....	1.137	0.455
Lead .....	1.591	0.739
Nickel .....	3.126	2.103
Ammonia (as N) .....	757.500	333.000
Total suspended solids .....	85.250	68.200
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

§ 421.334

(f) Iron extraction (MIBK) steam stripper bottoms.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	0.830	0.337
Cyanide (total) .....	0.449	0.180
Lead .....	0.628	0.292
Nickel .....	1.234	0.830
Ammonia (as N) .....	299.100	131.500
Total suspended solids .....	33.660	26.930
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(g) Zirconium filtrate.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	14.350	5.819
Cyanide (total) .....	7.758	3.103
Lead .....	10.860	5.043
Nickel .....	21.330	14.350
Ammonia (as N) .....	5,171.000	2,273.000
Total suspended solids .....	581.900	465.500
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(h) Hafnium filtrate.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	0.000	0.000
Cyanide (total) .....	0.000	0.000
Lead .....	0.000	0.000
Nickel .....	0.000	0.000
Ammonia (as N) .....	0.000	0.000
Total suspended solids .....	0.000	0.000
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(i) Calcining caustic wet air pollution control.

40 CFR Ch. I (7-1-12 Edition)

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	3.329	1.350
Cyanide (total) .....	1.799	0.720
Lead .....	2.519	1.170
Nickel .....	4.948	3.329
Ammonia (as N) .....	1,199.000	527.200
Total suspended solids .....	135.000	108.000
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(j) Pure chlorination wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total) .....	14.180	5.748
Cyanide (total) .....	7.663	3.065
Lead .....	10.730	4.981
Nickel .....	21.070	14.180
Ammonia (as N) .....	5,108.000	2,245.000
Total suspended solids .....	574.800	459.800
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(k) Reduction area-vent wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total) .....	1.364	0.553
Cyanide (total) .....	0.737	0.295
Lead .....	1.032	0.479
Nickel .....	2.027	1.364
Ammonia (as N) .....	491.300	216.000
Total suspended solids .....	55.290	44.230
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(l) Magnesium recovery off-gas wet air pollution control.

**Environmental Protection Agency**

**§ 421.334**

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total) .....	7.671	3.110
Cyanide (total) .....	4.147	1.659
Lead .....	5.805	2.695
Nickel .....	11.400	7.671
Ammonia (as N) .....	2,764.000	1,215.000
Total suspended solids .....	404.300	248.800
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(m) Magnesium recovery area-vent wet air pollution control.

**NSPS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total) .....	4.262	1.728
Cyanide (total) .....	2.304	0.921
Lead .....	3.225	1.497
Nickel .....	6.335	4.262
Ammonia (as N) .....	1,535.000	675.000
Total suspended solids .....	172.800	138.200
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(n) Zirconium chip crushing west air pollution control.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total) .....	0.000	0.000
Cyanide (total) .....	0.000	0.000
Lead .....	0.000	0.000
Nickel .....	0.000	0.000
Ammonia (as N) .....	0.000	0.000
Total suspended solids .....	0.000	0.000
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(o) Acid leachate from zirconium metal production.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total) .....	10.900	4.420
Cyanide (total) .....	5.893	2.357
Lead .....	8.250	3.831
Nickel .....	16.210	10.900
Ammonia (as N) .....	3,928.000	1,674.000
Total suspended solids .....	442.000	353.600
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(p) Acid leachate from zirconium alloy production.

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total) .....	5.835	2.366
Cyanide (total) .....	3.154	1.262
Lead .....	4.416	2.050
Nickel .....	8.674	5.835
Ammonia (as N) .....	2,102.000	895.800
Total suspended solids .....	236.600	189.300
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(q) Leaching rinse water from zirconium metal production.

**NSPS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total) .....	21.810	8.840
Cyanide (total) .....	11.790	4.715
Lead .....	16.500	7.661
Nickel .....	32.410	21.810
Ammonia (as N) .....	7,856.000	3,453.000
Total suspended solids .....	884.000	707.200
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

(r) Leaching rinse water from zirconium alloy production.

**§ 421.335**

**NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total) .....	0.292	0.118
Cyanide (total) .....	0.158	0.063
Lead .....	0.221	0.103
Nickel .....	0.434	0.292
Ammonia (as N) .....	105.200	46.240
Total suspended solids .....	11.840	9.468
pH .....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

**§ 421.335 [Reserved]**

**§ 421.336 Pretreatment standards for new sources.**

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary zirconium and hafnium process wastewater introduced into a POTW shall not exceed the following values:

(a) Sand drying wet air pollution control.

**PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

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Chromium (total) .....	0.210	0.085
Cyanide (total) .....	0.114	0.045
Lead .....	0.159	0.074
Nickel .....	0.312	0.210
Ammonia (as N) .....	75.710	33.280

(b) Sand chlorination off-gas wet air pollution control.

**40 CFR Ch. I (7-1-12 Edition)**

**PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

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Chromium (total) .....	16.080	6.521
Cyanide (total) .....	8.690	3.478
Lead .....	12.170	5.651
Nickel .....	23.910	16.080
Ammonia (as N) .....	5,795.000	2,547.000

(c) Sand chlorination area vent wet air pollution control.

**PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

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	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	3.154	1.279
Cyanide (total) .....	1.705	0.682
Lead .....	2.387	1.108
Nickel .....	4.688	3.154
Ammonia (as N) .....	1,136.000	499.500

(d) SiCl<sub>4</sub> purification wet air pollution control.

**PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total) .....	2.774	1.125
Cyanide (total) .....	1.500	0.600
Lead .....	2.099	0.975
Nickel .....	4.124	2.774
Ammonia (as N) .....	999.500	439.400

(e) Feed makeup wet air pollution control.