

Table 1
Industrial Byproducts Sampling Results - Metals
(September 16, 2016)

RMG - 1401 Perkins Avenue, Waukesha

NR 538 Total Metals Limits (mg/kg) for Ferrous Foundry Excess System Sand Beneficial Reuse

Analyte	NR538 Total Metals Limits (mg/Kg)				September-2016	
	Existing Categorical Limits ¹				H1/H2 Core Sand Composite ^{2,3}	H1/H2 Mold Sand Composite ^{2,3}
	Cat 1 (Table 1A)	Cat 2 (Table 2A)	Cat 3 (Table 2A)	Cat 4 (Table 3)		
Collection Date					9/16/2016	9/16/2016
Antimony	6.3	--	--	--	--	--
Arsenic	0.042	21	21	--	<0.57	2.0
Barium	1100	--	--	--	--	--
Beryllium	0.014	7	7	--	<0.033	0.23 J
Boron	1400	--	--	--	--	--
Cadmium	7.8	--	--	--	--	--
Chromium, Hex. (Cr)	14.5	--	--	--	--	--
Copper	--	--	--	--	--	--
Lead	50	--	--	--	--	--
Manganese	--	--	--	--	--	--
Mercury	4.7	--	--	--	--	0.20 J
Molybdenum	78	--	--	--	--	--
Nickel	310	--	--	--	--	--
Phenol	9400	--	--	--	--	--
Selenium	78	--	--	--	--	--
Silver	9400	--	--	--	--	--
Strontium	9400	--	--	--	--	--
Thallium	1.3	--	--	--	--	--
Vandium	110	--	--	--	--	--
Zinc	4700	--	--	--	--	--
					Cat 2	Cat 2

Notes:

- Existing limits from NR 538 Appendix I, Ferrous Foundry Excess System Sand
- All testing is to be conducted on a representative sample of a single industrial byproduct prior to commingling with other materials, unless otherwise approved by DNR
- "J" indicates results less than the reporting limit but greater than or equal to the method detection limit. The reported concentrations are approximate.

Category 2
Category 3

Table 2
Industrial Byproducts Sampling Results - TCLP
(September 16, 2016)
RMG - 1401 Perkins Avenue, Waukesha

Analyte	NR538 Water Leach Limits (mg/L)				September-2016	
	Cat 1 (Table 1A)	Cat 2 (Table 2A)	Cat 3 (Table 2A)	Cat 4 (Table 3)	H1/H2 Core Sand Composite ^{2,3}	H1/H2 Mold Sand Composite ^{2,3}
<i>Collection Date</i>	Existing Categorical Limits¹				9/16/2016	9/16/2016
Aluminum	1.5	--	--	--	--	--
Antimony	0.0012	0.012	0.012	0.03	<0.0076	<0.0076
Arsenic	0.005	0.05	0.05	0.25	<0.0034	<0.0034
Barium	0.4	4	4	10	0.049	0.076
Beryllium	0.0004	0.004	0.004	0.02	<0.0012	<0.0012
Cadmium	0.0005	0.005	0.005	0.025	<0.0013	<0.0013
Chromium, Tot. (Cr)	0.010	0.1	0.1	0.5	<0.0026	<0.0026
Cobalt					--	--
Copper	0.130	1.30	1.30	6.5	--	--
Total Cyanide	0.040	0.40	0.40	1	--	--
Fluoride	0.80	8.0	8.0	20	--	--
Iron	0.150	1.5	1.5	3	0.048J	0.71
Lead	0.0015	0.015	0.015	0.075	<0.0043	<0.0043
Manganese	0.025	0.25	0.25	0.5	0.0056	0.0081J
Mercury	0.0002	0.002	0.002	0.01	--	--
Nickel	0.020	0.20	0.20	0.5	--	--
Phenol	1.2	12	12	30	0.999	0.0696
Selenium	0.010	0.10	0.10	0.25	<0.017	<0.017
Silver	0.010	0.10	0.10	0.25	--	--
Sulfate	125	1250	1250	2500	--	--
Thallium	0.0004	0.004	0.004	0.01	--	--
Zinc	2.5	25	25	50	--	--
					Cat 2	Cat 2

Notes:

- Existing limits from NR 538 Appendix I, Ferrous Foundry Excess System Sand
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Category 2
Category 3

Table 3
Industrial Byproducts Sampling Results - PAHs
(September 16, 2016)
RMG - 1401 Perkins Avenue, Waukesha

Analyte	NR538 Limits (mg/Kg)				September-2016	
	Cat 1 (Table 1A)	Cat 2 (Table 2A)	Cat 3 (Table 2A)	Cat 4 (Table 3)	H1/H2 Core Sand Composite ^{2,3}	H1/H2 Mold Sand Composite ^{2,3}
<i>Collection Date</i>	Existing Limits ¹				9/16/2016	9/16/2016
Acenaphthene	900		--	--	< 0.194	< 0.078
Anthracene	5000		--	--	< 0.286	< 0.115
Benzo (a) anthracene	0.088	44	--	--	< 0.159	< 0.064
Benzo (a) pyrene	0.0088	4.4	--	--	< 0.126	< 0.051
Benzo (b) fluoranthene	0.088	44	--	--	< 0.141	< 0.057
Benzo (g,h,i) perylene	0.88		--	--	< 0.102	< 0.041
Benzo (k) fluoranthene	0.88		--	--	< 0.126	< 0.051
Chrysene	8.8		--	--	< 0.169	< 0.068
Dibenzo (a,h) anthracene	0.0088	4.4	--	--	< 0.112	< 0.045
Fluoranthene	600		--	--	< 0.261	< 0.105
Fluorene	600		--	--	< 0.207	< 0.084
Indeno (1,2,3-cd) pyrene	0.088	44	--	--	< 0.110	< 0.044
Methyl-1-Naphthalene	8.8		--	--	11.7	2.19
Methyl-2-Naphthalene	8.8		--	--	21.6	4.02
Naphthalene	600		--	--	16	2.87
Phenanthrene	0.88		--	--	< 0.584	0.270 J
Pyrene	500		--	--	< 0.226	< 0.091
Total PAHs ⁴	100	100	--	--	49.70	9.67
					Cat 2	Cat 2

Notes:

- Existing limits from NR 538 Appendix I, Ferrous Foundry Excess System Sand
- All testing is to be conducted on a representative sample of a single industrial byproduct prior to commingling with other materials, unless otherwise approved by DNR
- "J" indicates results less than the reporting limit but greater than or equal to the method detection limit. The reported concentrations are approximate.
- If total polyaromatic hydrocarbons exceed 100 mg/kg, department concurrence is necessary prior to classification as a category 2 industrial byproduct

Category 2

Category 3



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