

APPENDIX C

EMISSION CALCULATIONS

Gerdau - Jackson

Parameter	Value	Units
Average Annual Production	60,000	tpy
Average Natural Gas Consumption	30.49	MMscf/yr
Maximum Hourly Production	42	ton/hr
Average Hours of Operation	1,440	hr/yr
Allowable Annual Production	195,833	tpy
Allowable Annual Natural Gas Consumption	99.53	MMscf/yr

Normal Operating Schedule	
Value	Units
24	hr/day
4	day/wk
60	day/yr

Gerdau - Jackson

Parameter		Value	Units
Allowable Annual Operation		4,700	hrs/yr
Maximum Annual Production		195,833	tpy
Heat Input Capacity		21.6	MMBtu/hr
Heating Value		1,020	Btu/scf
Maximum Hourly Natural Gas Consumption		0.02	MMscf/hr
Maximum Annual Natural Gas Consumption		99.53	MMscf/yr

Notes:

1. Heating value obtained from AP-42, 5th Edition, Volume I, Section 1.4: Natural Gas Combustion

Pollutant Type	Pollutant	Emission Factor (lb/MMscf)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Criteria	NO _x	100	2.12	4.98
	CO	84	1.78	4.18
	Total PM	7.6	0.16	0.38
	Condensable PM	5.7	0.12	0.28
	Filterable PM	1.9	4.02E-02	0.09
	SO ₂	0.6	1.27E-02	0.03
	VOC	5.5	0.12	0.27
	Lead	5.00E-04	1.06E-05	2.49E-05
Greenhouse Gas (GHG)	CO ₂	120,000	2,541	5,972
	CH ₄	2.3	4.87E-02	0.11
	N ₂ O	2.2	4.66E-02	0.11
	Greenhouse Gas Equivalent(CO ₂ e)	-	2,556	6,007

Hazardous Air Pollutants (HAPs)	2-Methylnaphthalene	2.40E-05	5.08E-07	1.19E-06
	3-Methylcholanthrene	1.80E-06	3.81E-08	8.96E-08
	7,12-Dimethylbenz(a)anthracene	1.60E-05	3.39E-07	7.96E-07
	Acenaphthene	1.80E-06	3.81E-08	8.96E-08
	Acenaphthylene	1.80E-06	3.81E-08	8.96E-08
	Anthracene	2.40E-06	5.08E-08	1.19E-07
	Benz(a)anthracene	1.80E-06	3.81E-08	8.96E-08
	Benzene	2.10E-03	4.45E-05	1.05E-04
	Benzo(a)pyrene	1.20E-06	2.54E-08	5.97E-08
	Benzo(b)fluoranthene	1.80E-06	3.81E-08	8.96E-08
	Benzo(g,h,i)perylene	1.20E-06	2.54E-08	5.97E-08
	Benzo(k)fluoranthene	1.80E-06	3.81E-08	8.96E-08
	Chrysene	1.80E-06	3.81E-08	8.96E-08
	Dibenzo(a,h)anthracene	1.20E-06	2.54E-08	5.97E-08
	Dichlorobenzene	1.20E-03	2.54E-05	5.97E-05
	Fluoranthene	3.00E-06	6.35E-08	1.49E-07
	Fluorene	2.80E-06	5.93E-08	1.39E-07
	Formaldehyde	0.08	1.59E-03	3.73E-03
	Hexane	1.80	3.81E-02	0.09
	Indeno(1,2,3-cd)pyrene	1.80E-06	3.81E-08	8.96E-08
	Naphthalene	6.10E-04	1.29E-05	3.04E-05
	Phenanthrene	1.70E-05	3.60E-07	8.46E-07
	Pyrene	5.00E-06	1.06E-07	2.49E-07
	Toluene	3.40E-03	7.20E-05	1.69E-04
	Arsenic	2.00E-04	4.24E-06	9.95E-06
	Beryllium	1.20E-05	2.54E-07	5.97E-07
	Cadmium	1.10E-03	2.33E-05	5.47E-05
	Chromium	1.40E-03	2.96E-05	6.97E-05
	Cobalt	8.40E-05	1.78E-06	4.18E-06
	Manganese	3.80E-04	8.05E-06	1.89E-05
	Mercury	2.60E-04	5.51E-06	1.29E-05
	Nickel	2.10E-03	4.45E-05	1.05E-04
	Selenium	2.40E-05	5.08E-07	1.19E-06
	Total HAPs	1.89	4.00E-02	0.09

Notes:

2. Emission factors obtained from AP-42, 5th Edition, Volume I, Section 1.4: Natural Gas Combustion, Table 1.4-1: Emission Factors for Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) from Natural Gas Combustion, Table 1.4-2: Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion, and Table 1.4-3: Emission Factors for Speciated Organic Compounds from Natural Gas Combustion.

3. GHG equivalent factors from 40 CFR Part 98, Table A-1.

Gerdau - Jackson

Parameter	Value	Units
Allowable Annual Operation	1,440	hrs/yr
Average Annual Production	60,000	tpy
Heat Input Capacity	21.6	MMBtu/hr
Heating Value	1,020	Btu/scf
Maximum Hourly Natural Gas Consumption	2.12E-02	MMscf/hr

Notes:

1. Heating value obtained from AP-42, 5th Edition, Volume I, Section 1.4: Natural Gas Combustion

Pollutant Type	Pollutant	Emission Factor (lb/MMscf)	Hourly Emission Rate (lb/hr)	Annual Emission Rate (tpy)
Criteria	NOx	100	2.12	1.52
	CO	84	1.78	1.28
	Total PM	7.6	0.16	0.12
	Condensable PM	5.7	0.12	0.09
	Filterable PM	1.9	4.02E-02	0.03
	SO ₂	0.6	1.27E-02	0.01
	VOC	5.5	0.12	0.08
	Lead	5.00E-04	1.06E-05	7.62E-06
Greenhouse Gas (GHG)	CO ₂	120,000	2,541	1,830
	CH ₄	2.3	4.87E-02	0.04
	N ₂ O	2.2	4.66E-02	0.03
	Greenhouse Gas Equivalent(CO ₂ e)	-	2,556	1,841

Hazardous Air Pollutants (HAPs)	2-Methylnaphthalene	2.40E-05	5.08E-07	3.66E-07
	3-Methylcholanthrene	1.80E-06	3.81E-08	2.74E-08
	7,12-Dimethylbenz(a)anthracene	1.60E-05	3.39E-07	2.44E-07
	Acenaphthene	1.80E-06	3.81E-08	2.74E-08
	Acenaphthylene	1.80E-06	3.81E-08	2.74E-08
	Anthracene	2.40E-06	5.08E-08	3.66E-08
	Benz(a)anthracene	1.80E-06	3.81E-08	2.74E-08
	Benzene	2.10E-03	4.45E-05	3.20E-05
	Benzo(a)pyrene	1.20E-06	2.54E-08	1.83E-08
	Benzo(b)fluoranthene	1.80E-06	3.81E-08	2.74E-08
	Benzo(g,h,i)perylene	1.20E-06	2.54E-08	1.83E-08
	Benzo(k)fluoranthene	1.80E-06	3.81E-08	2.74E-08
	Chrysene	1.80E-06	3.81E-08	2.74E-08
	Dibenzo(a,h)anthracene	1.20E-06	2.54E-08	1.83E-08
	Dichlorobenzene	1.20E-03	2.54E-05	1.83E-05
	Fluoranthene	3.00E-06	6.35E-08	4.57E-08
	Fluorene	2.80E-06	5.93E-08	4.27E-08
	Formaldehyde	0.08	1.59E-03	1.14E-03
	Hexane	1.80	3.81E-02	0.03
	Indeno(1,2,3-cd)pyrene	1.80E-06	3.81E-08	2.74E-08
	Naphthalene	6.10E-04	1.29E-05	9.30E-06
	Phenanathrene	1.70E-05	3.60E-07	2.59E-07
	Pyrene	5.00E-06	1.06E-07	7.62E-08
	Toluene	3.40E-03	7.20E-05	5.18E-05
	Arsenic	2.00E-04	4.24E-06	3.05E-06
	Beryllium	1.20E-05	2.54E-07	1.83E-07
	Cadmium	1.10E-03	2.33E-05	1.68E-05
	Chromium	1.40E-03	2.96E-05	2.13E-05
	Cobalt	8.40E-05	1.78E-06	1.28E-06
	Manganese	3.80E-04	8.05E-06	5.79E-06
	Mercury	2.60E-04	5.51E-06	3.96E-06
	Nickel	2.10E-03	4.45E-05	3.20E-05
	Selenium	2.40E-05	5.08E-07	3.66E-07
	Total HAPs	1.89	4.00E-02	0.03

Notes:

- Emission factors obtained from AP-42, 5th Edition, Volume I, Section 1.4: Natural Gas Combustion, Table 1.4-1: Emission Factors for Nitrogen Oxides (NO_x) and Carbon Monoxide (CO) from Natural Gas Combustion, Table 1.4-2: Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion, and Table 1.4-3: Emission Factors for Speciated Organic Compounds from Natural Gas Combustion.
- GHG equivalent factors from 40 CFR Part 98, Table A-1.

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