

Potential to Emit

Source No.	Emission Unit	Emission Source	Information Provided by Facility				PM		PM ₁₀		SO ₂		CO		VOC		NOx		HAPs (total)		Carbon disulfide (single HAP)	
			Design Input (lbs./hr.)	Design Input (tons/hr.)	Flow Rate (cfm)	Design Heat Input (MMBtu/hr.)	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.
04	Boilers #1-3	(3) Boilers	—	—	—	25.10	0.57	2.51	—	—	0.05	0.20	6.33	27.70	0.41	1.81	7.53	32.98	—	—	—	—
06	Ext #3, 4	Rubber Extrusion Lines #3 and 4	605	—	—	—	0.00	0.00	—	—	—	—	—	—	—	1.45	—	—	0.01	0.05	0.00	0.00
16	Curing	(8) Vulcanizers and Liquid Cure Unit	4,779	—	3250	—	—	—	—	—	—	—	—	—	—	17.26	—	—	—	20.43	—	13.46
26	Adhesive	Work Cells w/ Adhesive Applicators	1	—	—	—	—	—	—	—	—	—	—	—	0.58	2.54	—	—	—	—	—	—
TOTAL EMISSIONS:							0.57	2.51	0.00	0.00	0.05	0.20	6.33	27.70	0.99	23.07	7.53	32.98	0.01	20.48	0.00	13.46

Controlled Emissions

Source No.	Emission Unit	Emission Source	Information Provided by Facility				PM		PM ₁₀		SO ₂		CO		VOC		NOx		HAPs (total)		Carbon disulfide (single HAP)	
			Design Input (lbs./hr.)	Design Input (tons/hr.)	Flow Rate (cfm)	Design Heat Input (MMBtu/hr.)	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.
04	Boilers #1-3	(3) Boilers	—	—	—	25.10	0.57	2.51	—	—	0.05	0.20	6.33	27.70	0.41	1.81	7.53	32.98	—	—	—	—
16	Curing	(8) Vulcanizers and Liquid Cure Unit	531	—	3250	—	—	—	—	—	—	—	—	—	—	12.37	—	—	—	14.64	—	9.65
TOTAL EMISSIONS:							0.57	2.51	0.00	0.00	0.05	0.20	6.33	27.70	0.41	14.18	7.53	32.98	0.00	14.64	0.00	9.65

Allowable PM Emissions

Source No.	Emission Unit	Emission Source	Information Provided by Facility				Calculations Based on TN APC Chapter 7: Process Emission Standards Regulations				Controlled Potential PM		Uncontrolled Potential PM		Allowable Limits		
			Design Input (lbs./hr.)	Design Input (tons/hr.)	Flow Rate (cfm)	Design Heat Input (MMBtu/hr.)	PWR Table 2 (lbs./hr.)	0.02 gr./dsct (lbs./hr.)	0.25 gr./dsct (lbs./hr.)	Emission per Chapter 7 Rules (lbs./hr.)	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	Allowable (lbs./hr.)	Operating Hours	Allowable (tpy)
04	Boilers #1-3	(3) Boilers	—	—	—	25.10	Non-Process Emission Source - Subject to Ch. 6 and 14				0.57	2.51	0.57	2.51	14.69	8760	64.33
TOTAL EMISSIONS:											0.57	2.51	0.57	2.51	14.69		64.33

Based on 1200-03-06-.02(2)(a)

Allowable SO₂ Emissions

Source No.	Emission Unit	Emission Source	Information Provided by Facility				TN APC Chapter 14: Control of Sulfur Dioxide Emissions				Controlled Potential SO ₂		Uncontrolled Potential SO ₂		Allowable Limits		
			Design Input (lbs./hr.)	Design Input (tons/hr.)	Flow Rate (cfm)	Design Heat Input (MMBtu/hr.)	Non-Process Emission Source (lbs/hr)	Process Emissions Source (lbs/hr)		Emission per Chapter 14 Rules (lbs./hr.)	lbs./hr.	tons/yr.	lbs./hr.	tons/yr.	Allowable (lbs./hr.)	Operating Hours	Allowable (tpy)
04	Boilers #1-3	(3) Boilers	—	—	—	25.10	376.50	—	—	376.50	0.05	0.20	0.05	0.20	376.50	8760	1,649.07
TOTAL EMISSIONS:											0.05	0.20	0.05	0.20	376.50		1649.07

Based on 1200-03-14-.02(2)(a)

Permitted Emissions

Source No.	Emission Unit	Emission Source	Information Provided by Facility				[Limit (tpy)] / [Design Input (tons/hr.)] (hrs./yr.)	Actual = Controlled Potential PM		Facility Agreed Upon Permitted Limits															
			Design Input (lbs./hr.)	Design Input (tons/hr.)	Max. Annual Throughput (tons/yr.)	Throughput Restriction (tons/yr.)		lbs./hr.	tons/yr.	PM (lbs./hr.)	PM (tons/yr.)	PM ₁₀ (lbs./hr.)	PM ₁₀ (tons/yr.)	SO ₂ (lbs./hr.)	SO ₂ (tons/yr.)	CO (lbs./hr.)	CO (tons/yr.)	VOC (lbs./hr.)	VOC (tons/yr.)	NOX (lbs./hr.)	NOX (tons/yr.)	HAP (s) (lbs./hr.)	HAP (s) (tons/yr.)	HAP (t) (lbs./hr.)	HAP (t) (tons/yr.)
04	Boilers #1-3	(3) Boilers	--	--	--	--	--	0.57	2.51	1.80	7.88	--	--	0.30	1.31	--	27.7	--	1.8	--	33.0	--	--	--	--
16	Curing	(8) Vulcanizers and Liquid Cure Unit	531	--	3250	--	--	--	--	--	--	--	--	--	--	--	--	17.3	--	--	--	9.9	--	--	24.9
TOTAL EMISSIONS:								0.57	2.51	1.80	7.88	0.00	0.00	0.30	1.31	0.00	27.70	0.00	19.07	0.00	32.98	0.00	9.90	0.00	24.90

Source 04: (3) Boilers

Potential Operating Hours:	8,760 hrs./yr.	
Boiler Power (per unit):	600.000 hp	[Application dated January 10, 2020]
Per-Boiler Heat Input Rate:	25.100 MMBtu/hr.	[Application dated January 10, 2020]
Total Heat Input Rate:	75.300 MMBtu/hr.	
Date Constructed (B1 and B2):	pre-1989	[Application dated January 10, 2020]
Date Constructed (B3)	1997	[Application dated December 15, 2023]

Allowable Emissions (combined fuel-burning installation of all 3 boilers)

PM

TAPCR 1200-03-06-.02(2)(a): Non-process particulate, "New" design

$$E = 0.600 \left(\frac{10}{Q} \right)^{0.5566}$$

Q = 75.300 MMBtu/hr
E = 0.195 lb/MMBtu

$$\text{PM (lbs./hr.)} = [E \text{ (lb/MMBtu)}] \times [\text{Heat Input Capacity (MMBtu/hr.)}] = \underline{\underline{14.69 \text{ lbs./hr.}}}$$

$$\text{PM (tons/yr.)} = \frac{[\text{PM}_{\text{allow.}} \text{ (lbs./hr.)}] \times [\text{Potential Hours (hrs./yr.)}]}{2000 \text{ lbs./ton}} = \underline{\underline{64.33 \text{ ton/yr.}}}$$

SO₂

TAPCR 1200-03-14-.02(1)(a)

Class VI County 5.0 lbs. / MMBtu

$$\text{SO}_2 \text{ (lbs./hr.)} = [\text{Emission Standard (lbs./MMBtu)}] \times [\text{Heat Input Capacity (MMBtu/hr.)}] = \underline{\underline{376.5 \text{ lbs./hr.}}}$$

$$\text{SO}_2 \text{ (ton/yr.)} = \frac{[\text{SO}_{2\text{allow.}} \text{ (lbs./hr.)}] \times [\text{Potential Hours (hrs./yr.)}]}{2000 \text{ lbs./ton}} = \underline{\underline{1649.07 \text{ ton/yr.}}}$$

Potential Emissions

Pollutant		MMBtu/hr		lb./MMBtu		lbs./hr.		hr./yr.		lbs./ton		ton/yr.
PM	=	75.300	x	0.0076	=	0.57	x	8,760	/	2,000	=	2.51
SO ₂	=	75.300	x	0.0006	=	0.05	x	8,760	/	2,000	=	0.20
CO	=	75.300	x	0.084	=	6.33	x	8,760	/	2,000	=	27.70
VOC	=	75.300	x	0.0055	=	0.41	x	8,760	/	2,000	=	1.81
NO _x	=	75.300	x	0.1	=	7.53	x	8,760	/	2,000	=	32.98

***AP 42, Chapter 1.4: Natural Gas Combustion**

Tables 1.4-1 and 1-4-2

Pollutant	Emission Factor (lbs./10 ⁶ scf)		Coverion Factor (Btu/ft ³)	Emission Factor (lbs./MMBtu)
PM	7.6	/	1000	0.0076
SO ₂	0.6	/	1000	0.0006
CO	84	/	1000	0.084
VOC	5.5	/	1000	0.0055
NO _x	100	/	1000	0.1

Source 06: Rubber Extrusion Lines #3 and 4

Cyclohexanone Input Rate: 0.0 gal/hr [Application dated November 16, 2023]
S-5995 Input Rate: 0.24 gal/hr [Application dated April 7, 2020]
Production Rate (Total for 2 Lines): 605.00 lbs/hr [Application dated December 15, 2023]

Maximum Operating Hours: 8760.00 hr/yr

Calculated Emissions

Solvent VOC (Mass Balance):

100% VOC Content (Cyclohexanone) [Application dated April 7, 2020]
7.9 lbs/gal Density (Cyclohexanone) [Application dated April 7, 2020]
75.0% Reclamation Rate [Application dated April 7, 2020]
90.0% Transfer Rate to Product [Application dated April 7, 2020]
0.0 lbs/hr Cyclohexanone Emissions
0.0 tons/yr Cyclohexanone Emissions

81% VOC Content (S-5995) [Application dated April 7, 2020]
6.7 lbs/gal Density (S-5995) [Application dated April 7, 2020]
50.0% Reclamation Rate [Application dated April 7, 2020]
50.0% Transfer Rate to Product [Application dated April 7, 2020]
0.3 lbs/hr S-5995 Emissions
1.4 tons/yr S-5995 Emissions

Extrusion VOC: AP-42 Table 4.12-3 (Extrusion, lb/lb rubber)

Analyte Name			Cmpd #9 EPDM	
Total VOC			1.24006E-05	
Total Particulate Matter			1.51292E-08	
Total Organic HAPs			1.86633E-05	
Total HAPs			1.88584E-05	
Carbon disulfide			9.06E-08	[Highest single HAP]

Emissions (lbs/hr) Emissions (tpy)
VOC 0.007502346 0.032860276
Total HAPs 0.01140932 0.049972824 [Below threshold for insignificant activity]
PM 9.15317E-06 4.00909E-05
Carbon disulfide 5.48E-05 0.000240081

1.5 tons/yr **VOC Emissions (Total)**

Source 16: (8) Hose Cure Vulcanizers and (1) Liquid Cure Medium Unit

Maximum Operating Hours: 8,760 hrs./yr.

Production Rate (Liquid Cure): 531 lbs/hr [Application dated February 27, 2024]

Production Rate (Vulcanizing): 4248 lbs/hr [Application dated February 27, 2024]

Total Production Rate: 4779 lbs/hr

Flow Rate: 3,250 cfm [Application dated January 9, 2020, single ductwork for all vulcanizers]

Production Limit: 30,000,000 lbs/year [Agreement letter dated March 12, 2024]

Calculated Emissions

Material Usage: 4779 lbs/hr

Emissions Factors: AP-42 Table 4.12-3 (Hot Air Curing, lb/lb rubber)

Analyte Name		Cmpd #8 EPDM	
Total VOC		0.000825	
Total Organic HAPs		9.76E-04	
Total HAPs		9.76E-04	
Carbon disulfide		6.43E-04	[Highest single HAP]

Uncontrolled Emissions (tpy)

VOC 17.26

Total HAPs 20.43

Single HAP (max) 13.46

Controlled Emissions (tpy)

VOC 12.37

Total HAPs 14.64

Single HAP (max) 9.65

Source 26: Work Cells w/ Adhesive Applicators

Adhesive Input Rate: 0.58 lbs/hr

[Application dated April 7, 2020]

Adhesive Input Rate: 0.00029 tons/hr

Calculated Emissions

VOC

100% VOC Content (Permabond)

[Application dated November 5, 2019]

0.58 lbs/hr

VOC Emissions

2.54 tons/yr

VOC Emissions