

Potential to Emit

Source No.	Emission Unit	Emission Source	Information Provided by Facility				PM		PM <sub>10</sub>		SO <sub>2</sub>		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	--	--	--	--	--	--
<b>TOTAL EMISSIONS:</b>							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 <sub>10</sub>		SO <sub>2</sub>		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
<b>TOTAL EMISSIONS:</b>							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./dscf (lbs./hr.)	0.25 gr./dscf (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
<b>TOTAL EMISSIONS:</b>											0.57	2.51	0.57	2.51	14.69		64.33

Based on 1200-03-06-.022(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 SO2		Uncontrolled Potential SO2		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
<b>TOTAL EMISSIONS:</b>											0.05	0.20	0.05	0.20	376.50		1649.07

Based on 1200-03-14-.022(a)

Permitted Emissions

Source No.	Emission Unit	Emission Source	Information Provided by Facility				[Limit (tpy)] / [Design Input (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 <sub>10</sub> (lbs./hr.)	PM <sub>10</sub> (tons/yr.)	SO2 (lbs./hr.)	SO2 (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	--	--	--	--	
<b>TOTAL EMISSIONS:</b>							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

PM (lbs./hr.) = [E (lb/MMBtu)] x [Heat Input Capacity (MMBtu/hr.)] = 14.69 lbs./hr.

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

**SO<sub>2</sub>**

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

Class VI County 5.0 lbs. / MMBtu

SO<sub>2</sub> (lbs./hr.) = [Emission Standard (lbs./MMBtu)] x [Heat Input Capacity (MMBtu/hr.)] = 376.5 lbs./hr.

SO<sub>2</sub> (ton/yr.) =  $\frac{[SO_{2allow.} \text{ (lbs./hr.)}] \times [Potential \text{ Hours (hrs./yr.)}]}{2000 \text{ lbs./ton}}$  = 1649.07 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 <sub>2</sub>	=	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 <sub>x</sub>	=	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 <sup>6</sup> scf)		Coverion Factor (Btu/ft <sup>3</sup> )	Emission Factor (lbs./MMBtu)
PM	7.6	/	1000	0.0076
SO <sub>2</sub>	0.6	/	1000	0.0006
CO	84	/	1000	0.084
VOC	5.5	/	1000	0.0055
NO <sub>x</sub>	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

[Application dated December 15, 2023]  
 [Highest single HAP]

	Emissions (lbs/hr)	Emissions (tpy)
VOC	0.007502346	0.032860276
Total HAPs	0.01140932	0.049972824
PM	9.15317E-06	4.00909E-05
Carbon disulfide	5.48E-05	0.000240081
1.5 tons/yr	<b>VOC Emissions (Total)</b>	

[Below threshold for insignificant activity]

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

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Maximum Operating Hours:	8,760 hrs./yr.	
Production Rate (Liquid Cure):	531 lbs/hr	<i>[Application dated February 27, 2024]</i>
Production Rate (Vulcanizing):	4248 lbs/hr	<i>[Application dated February 27, 2024]</i>
Total Production Rate:	4779 lbs/hr	
Flow Rate:	3,250 cfm	<i>[Application dated January 9, 2020, single ductwork for all vulcanizers]</i>
Production Limit:	30,000,000 lbs/year	<i>[Agreement letter dated March 12, 2024]</i>

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**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	<i>[Application dated December 15, 2023]</i>
Total VOC	0.000825	
Total Organic HAPs	9.76E-04	
Total HAPs	9.76E-04	
Carbon disulfide	6.43E-04	<i>[Highest single HAP]</i>

**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

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Adhesive Input Rate: 0.58 lbs/hr *[Application dated April 7, 2020]*  
Adhesive Input Rate: 0.00029 tons/hr

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**Calculated Emissions**

**VOC**

100% VOC Content (Permabond) *[Application dated November 5, 2019]*  
0.58 lbs/hr VOC Emissions  
2.54 tons/yr VOC Emissions