NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: December 20, 2024

Region: Raleigh Regional Office
County: Granville
NC Facility ID: 3900009
Inspector's Name: Abdul Kadir
Date of Last Inspection: 09/12/2024
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Bridgestone-Bandag, LLC

Facility Address:
Bridgestone-Bandag, LLC
505 West Industry Drive
Oxford, NC 27565

SIC: 7534 / Tire Retreading and Repair Shops
NAICS: 326212 / Tire Retreading

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0515, 15A NCAC 02D .0521
NSPS: N/A
NESHAP: N/A
PSD: N/A
PSD Avoidance:
NC Toxics: 15A NCAC 02D .1100, 15A NCAC 02Q .0711
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Jim Peele Senior Environmental Specialist (919) 603-5293 505 West Industry Drive Oxford, NC 27565	Billy Fralick Plant Manager (919) 603-5201 505 West Industry Drive Oxford, NC 27565	Jim Peele Senior Environmental Specialist (919) 603-5293 505 West Industry Drive Oxford, NC 27565

Application Data

Application Number: 3900009.24A
Date Received: 09/24/2024
Application Type: Modification
Application Schedule: TV-Sign-501(b)(2) Part II

Existing Permit Data
Existing Permit Number: 02889/T22
Existing Permit Issue Date: 07/14/2021
Existing Permit Expiration Date: 04/30/2026

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2022	0.0200	3.97	206.38	3.30	12.50	9.26	6.04 [Carbon disulfide]
2021	0.0200	3.78	174.22	3.14	12.14	9.44	5.23 [Carbon disulfide]
2020	0.0200	3.59	167.89	3.00	10.24	8.73	4.96 [Carbon disulfide]
2019	0.0200	3.91	172.64	3.26	3.94	6.22	1.13 [MIBK (methyl isobutyl ketone)]
2018	0.0200	4.03	178.68	3.29	5.56	7.28	1.22 [MIBK (methyl isobutyl ketone)]

Review Engineer: Connie Horne

Review Engineer's Signature: **Date:** December 20, 2024

Connie Horne

Comments / Recommendations:
Issue 02889/T23
Permit Issue Date: December 20, 2024
Permit Expiration Date: April 30, 2026

1. Purpose of Application

This permit action is for Part II of a two-step process allowed under 15A NCAC 02Q .0501(b)(2). The Rule states:

(c) With the exception in Paragraph (d) of this Rule, the owner or operator of an existing facility, new facility, or modification of an existing facility (except for minor modifications under Rule .0515 of this Section), including significant modifications that would not contravene or conflict with a condition in the existing permit, subject to the requirements of this Section shall not begin construction without first obtaining:

(1) a construction and operation permit following the procedures under this Section (except for Rule .0504), or
(2) a construction and operation permit following the procedures under Rule .0504 and filing a complete application within 12 months after commencing operation to modify the construction and operation permit to meet the requirements of this Section.

The Permittee submitted an application for a significant 501(b)(2) Part I permit (3900009.21A) on February 26, 2021. The Part I permit (02889T22) was issued on July 14, 2021 and included the following approved permit modifications:

Equipment to be ADDED

- One No.4 Banbury Mixer **(ID No. ES-36)** with associated cartridge-type fabric filter **(ID No. CE-29)** for PM control.
- Day bin 4-1 **(ID No. ES-26)** with associated cartridge-type fabric filter **(ID No. CE-28)**
- Day bin 4-2 **(ID No. ES-27)** with associated cartridge-type fabric filter **(ID No. CE-27)**
- Day bin 4-3 **(ID No. ES-28)** with associated cartridge-type fabric filter **(ID No. CE-26)**
- Day bin 4-4 **(ID No. ES-29)** with associated cartridge-type fabric filter **(ID No. CE-25)**
- **ID No. ES-30** which includes Silo 5 **(ID No. S5)** with associated cartridge-type fabric filter **(ID No. CE-23)**, Day bin 3-5 **(ID No. DB 3-5)** with associated cartridge-type fabric filter **(ID No. CE-21)** and Day bin 4-5 **(ID No. DB 4-5)** with associated cartridge-type fabric filter **(ID No. CE-24)**.

Equipment to be MODIFIED

- One cartridge-type fabric filter **(ID No. CE-3)** for PM control of No.3 Banbury Mixer **(ID No. ES-5)** to be changed from 7,200 square feet of filter area to 10,800 square feet of filter area.

On September 24, 2024, DAQ received this Part II application (3900009.24A) from Bridgestone-Bandag, LLC to complete the process to include the above-listed changes as required in condition 2.2 B.1 of Permit 02889T22. According to this application, emission sources ES-26 through ES-29 and ES-36 as well as control devices CE-3, CE-25 through CE-29 were installed and began operation on October 2, 2023. Therefore, this application was received in the required 12-month timeframe after commencing operation. (Note: ES-30 and associated control devices CE-21, CE-23 and CE-24 were not installed). The technical review for the Part I application (3900009.21A) is attached to this document.

2. Facility Description

Bridgestone-Bandag is a manufacturer of cured rubber tread and other rubber products, located in Oxford, Granville County, North Carolina. At the facility, carbon black is brought in and off-loaded from train or trucks and stored in silos until it is sent to the mixer day bins where it is mixed with chemicals and then sent to the Banbury mixer where it is blended with pressure and heat. At this point a portion of the rubber is sent to Mixer 2 to make 'cushion rubber' which is a material that is placed under retreads. Some of the cushion rubber from Mixer 2 is sent off site to other Bandag facilities and some remains on site to go through the calendering process. The remainder of the material coming out of the existing No. 3 Banbury Mixer and new No. 4 Banbury Mixer goes through the breakdown mill and the blend mill to produce the type of rubber that they want to make. Next, the rubber goes through extruder where the different treads are formed and then is pressed and placed into storage. After storage, the material is sent to be buffed and polished to remove any errant pieces of rubber. Finally, the material goes into the roll coating process where it is cured and then sent to the warehouse.

3. Application Chronology

September 24, 2024	Part II application received and deemed incomplete.
September 24, 2024	Sent acknowledgment letter. Application incomplete. Need forms A & E5 signed by RO.
September 30, 2024	Forms A & E5 with signature of RO received.
October 14, 2024	ePayment of $1002 received. Application deemed complete.
October 30, 2024	Draft to applicant and regional office
October 30, 2024	Draft to public notice and EPA
December 2, 2024	Public comment period ends
December 16, 2024	EPA Comment period ends
December 20, 2024	Permit issued

4. Permit Modifications/Changes

The table below outlines the proposed changes to the current permit (02889T22):*

Page No.	Section	Description of Changes
Cover Letter	---	Modified to reflect current permit number, issue and effective dates Added "NOTICE REGARDING THE RIGHT TO CONTEST A DIVISION OF AIR QUALITY PERMIT DECISION"
All	Headers	Amended permit revision number
1-31	Entire permit, where applicable	Modified to reflect current permit number, issue and effective dates
4-5	Section 1 Equipment Table	Removed footnote regarding requirement to file application within one year from the issuance of Air Quality Permit 02889T22 and asterisks for emission sources ES-26 through ES-30 and ES-36 as well as control devices CE-3, CE-21 and CE-23 through CE-29.
21	2.2 B	Removed "15A NCAC 02Q .0504: OPTION FOR OBTAINING CONSTRUCTION AND OPERATION PERMIT". This requirement was satisfied with the application (.24A) received September 24, 2024 for all sources except ES-30 (not installed) and all control devices except CE-21, CE-23 and CE-24 which have been installed but are not yet being operated.
22	Section 3	Moved Insignificant Activities list from Attachment to Section 3
23-31	Section 4	Updated General Conditions from version 5.5 (08/25/2020) to version 8.0 (07/10/24) and moved from Section 3 to Section 4

* This list is not intended to be a detailed record of every change made to the permit but a summary of those changes.

5. General Condition J Removed from Permit (see discussion below)

EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA's current interpretation of the enforcement structure of the CAA, in light of prior court decisions[1]. Moreover, per EPA, the removal of these

provisions is also consistent with other recent EPA actions involving affirmative defenses[2] and will harmonize the EPA's treatment of affirmative defenses across different CAA programs.

As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

Regarding NCDAQ, it has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition (GC) J.

Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

6. Other Requirements

- An application fee of $1002 was required for this application and was received on 10/14/24.
- The appropriate number of application copies were received on 9/24/24.
- The application was signed by Mr. Billy Fralick, Plant Manager, on 9/26/24 as the Responsible Official.
- Granville County has not triggered increment tracking under PSD for any pollutants, so no tracking is required.
- The associated dates are listed in the Application Chronology section above.

7. Public Notice

Public notice and EPA review is required for the completion of this two-step significant process. A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 15A NCAC 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 15A NCAC 02Q .0521, above.

8. Facility Compliance Status

This facility was last inspected on September 12, 2024 by Abdul Kadir of the Raleigh Regional Office. According to Mr. Kadir's report, this facility appeared to operate in compliance with the applicable air quality regulations and permit conditions at the time of the inspection.

9. Conclusions, Comments and Recommendations

The issuance of Air Quality Permit No. 02889T23 to Bridgestone-Bandag, LLC is recommended.

ATTACHMENT

Technical Review for Part I
Permit Application No. 3900009.21A

NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: July 14, 2021

Region: Raleigh Regional Office
County: Granville
NC Facility ID: 3900009
Inspector's Name: Matthew Mahler
Date of Last Inspection: 12/11/2019
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Bridgestone-Bandag, LLC

Facility Address:
Bridgestone-Bandag, LLC
505 West Industry Drive
Oxford, NC 27565

SIC: 7534 / Tire Retreading And Repair Shops
NAICS: 326212 / Tire Retreading

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0515, 15A NCAC 02D .0521
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics: 15A NCAC 02D .1100, 15A NCAC 02Q .0711
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Jerray Battle Environmental Coordinator (919) 603-5293 505 West Industry Drive Oxford, NC 27565	Charles Pittman IV Plant Manager (919) 603-5201 505 West Industry Drive Oxford, NC 27565	Jerray Battle Environmental Coordinator (919) 603-5293 505 West Industry Drive Oxford, NC 27565

Application Data

Application Number: 3900009.21A
Date Received: 02/26/2021
Application Type: Modification
Application Schedule: TV-Sign-501(b)(2) Part I

Existing Permit Data
Existing Permit Number: 02889/T21
Existing Permit Issue Date: 05/25/2021
Existing Permit Expiration Date: 04/30/2026

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2019	0.0200	3.91	172.64	3.26	3.94	6.22	1.13 [MIBK (methyl isobutyl ketone)]
2018	0.0200	4.03	178.68	3.29	5.56	7.28	1.22 [MIBK (methyl isobutyl ketone)]
2017	0.3100	3.86	146.46	3.18	2.65	5.04	0.8558 [Toluene]
2016	0.0200	3.40	158.05	2.86	2.94	5.76	1.05 [MIBK (methyl isobutyl ketone)]
2015	0.0400	3.62	168.28	3.03	2.36	5.19	0.8830 [Toluene]

Review Engineer: Alice Wessner

Review Engineer's Signature: *Alice M. Wessner* **Date:** July 14, 2021

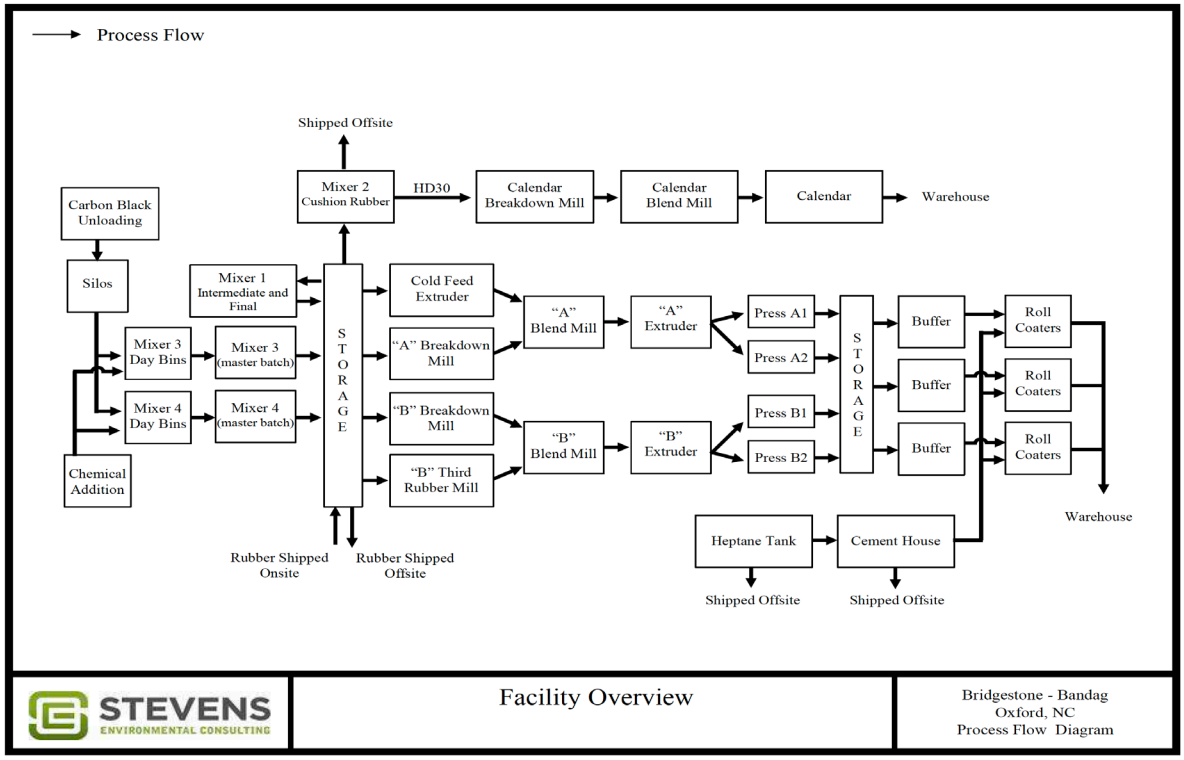
Comments / Recommendations:
Issue 02889/T22
Permit Issue Date: July 14, 2021
Permit Expiration Date: April 30, 2026

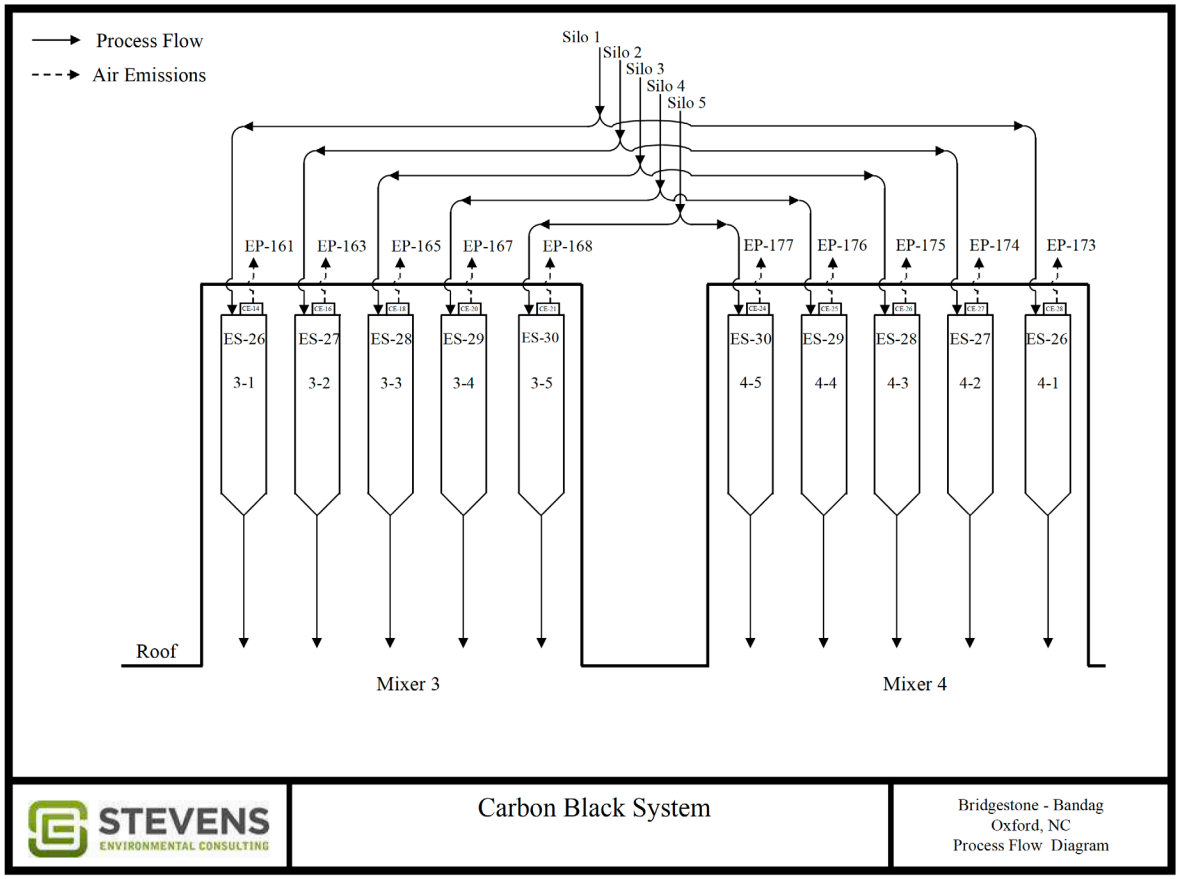
1. Purpose of Application

Bridgestone Bandag, LLC (referred to as Bandag for the remainder of the review) plans to add a fourth Banbury Mixer to their process where the rubber and various additives such as carbon black are blended with pressure and heat. The additional mixer will allow increased rubber throughput in the facility and an increase of the amount of rubber shipped to other Bandag facilities. To supply carbon black to the new No. 4 Banbury Mixer, a fifth carbon black silo with a cartridge-type fabric filter bin vent will be added to the carbon black system. Carbon black day bins with the cartridge-type fabric filters bin vents will be constructed over the new mixer. A new dust collector will be added to control particulate emissions from the new Banbury Mixer. The existing No. 3 Banbury Mixer's dust collector will be replaced with a new dust collector that is like the No. 4 Banbury Mixer's dust collector. A permit application requesting a Two-Step Significant Modification to Air Permit 02889T21 was received on February 26, 2021.

2. Facility Description

Bandag is a manufacturer of cured rubber tread and other rubber products, located in Oxford, Granville County, North Carolina. At the facility, carbon black is brought in and off-loaded from train or trucks and stored in silos until it is sent to the mixer day bins where it is mixed with chemicals and then sent to the Banbury mixer where it is blended with pressure and heat. At this point a portion of the rubber is sent to Mixer 2 to make 'cushion rubber' which is a material that is placed under retreads. Some of the cushion rubber from Mixer 2 is sent off site to other Bandag facilities and some remains on site to go through the calendering process. The remainder of the material coming out of the existing No. 3 Banbury Mixer and new No. 4 Banbury Mixer goes through the breakdown mill and the blend mill to produce the type of rubber that they want to make. Next, the rubber goes through extruder where the different treads are formed and then is pressed and placed into storage. After storage, the material is sent to be buffed and polished to remove any errant pieces of rubber. Finally, the material goes into the roll coating process where it is cured and then sent to the warehouse.





3. Application Chronology

February 26, 2021	Permit Application No. 3900009.21A was received as a Two Step Significant Modification to Air Permit 02889T21.
March 1, 2021	NCDAQ Permitting sent a letter to the facility stating that the application was deemed incomplete because it did not contain the complete request for a consistency determination.
March 2, 2021	A request was sent by letter attached to an email to Mr. Mark Cuilla to remove benzidine (CAS No. 92-87-5) from the Platen Press emissions estimate based on the fact that Bandag does not use benzidine in the rubber manufacturing process.
March 3, 2021	A copy of the written request for a 'determination of consistency' with local government ordinances of each local government having jurisdiction was received.
March 5, 2021	An email was sent from Alice M. Wessner to Gary Saunders, Supervisor, Stationary Source Compliance Branch (SSCB) requesting review and decision for Bandag's request to remove benzidine from the emissions calculations.

April 6, 2021	A letter was sent from Gary Saunders, Supervisor, SSCB to Charles Pittman IV, Plant Manager of Bandag approving the removal of benzidine emissions from the platen press emissions estimates.
April 6, 2021	Lem Stevens, PE provided via email modeling protocol for review
April 7, 2021	Nancy Jones, Meteorologist, of the Air Quality Analysis Branch of NCDAQ approved via email Bandag's modeling protocol
April 15, 2021	Application deemed complete
May 5, 2021	Nancy Jones issued a memorandum approving the air dispersion modeling.
June 21, 2021	Emailed Bandag engineering consultants with Stevens Environmental Consulting with final questions about some individual TAP and HAP emissions and the notable change in emissions for Carbon Disulfide from previous actual emission numbers in our records.
June 23, 2021	Received an email from Carter Venable, PE of Stevens Environmental Consulting with responses to DAQ's questions. o-Cresol (CAS 95-48-7) was inadvertently added to the TAP list in the application in error, therefore, it was removed. Trichloroethene was listed in error. Trichloroethylene was added to the TAP table below. Explanation for the increase in Carbon Disulfide emissions was received.
June 28, 2021	Draft permit and permit review forwarded for review.
July 6, 2021	Received comments from Jim Peele, Environmental Coordinator, Bridgestone Americas, Inc. Comments from facility included adding identification numbers to new sources, added day bins above Mixer 4, changed the description of presses to avoid confusion and updated some modeling emission rates to equal those in the final dispersion model. Comments were incorporated into draft permit.
July 7, 2021	Received comments from Dena Pittman and Matthew Mahler from the Raleigh Regional Office (RRO) and Samir Parekh of the Stationary Source Compliance Branch. No comments noted.
July 8, 2021	Nancy Jones reviewed the minor discrepancies in the modeled emission rates of TAPs noted by Jim Peele in his comments. Ms. Jones provided an e-mail that these discrepancies required no additional modeling due to the small changes in emission rates noted and the large margin of compliance with the Acceptable Ambient Levels (AALs). See Section 8 below for a discussion of these discrepancies.
July 9, 2021	Comments received from Booker Pullen, Permitting Supervisor.
July 14, 2021	Permit issued.

4. Proposed Modification

Bandag manufacturers truck tire retreading materials at its Oxford, North Carolina Plant. Rubber and various additives such as carbon black are blended with heat and pressure in the Banbury mixers. The rubber is further processed through break mills and blend mills in preparation for extrusion. After extrusion the rubber is sent to presses for molding and developing a tread pattern. Finally, the retread is buffed and processed through the finishing line rollers.

Presently, the emission sources consist of three Banbury Mixers, breakdown and blend mills, carbon black storage and transfer, rubber cement mixing operation, three finishing line roll coaters, and three finishing line buffer operations. Particulate matter emissions are controlled by fabric filters on the Banbury Mixers, silos, and day bins, cyclones in series with fabric filters on the buffing operations. The facility also operates two natural gas/No.2 oil-fired boilers.

Proposed Equipment Changes
Per application submittal for this permit modification, the following changes were requested (see Form A2 and Attachments for more details):

Equipment to be ADDED

- One No.4 Banbury Mixer **(ID No. ES-36)** with associated cartridge-type fabric filter **(ID No. CE-29)** for PM control.
- Day bin 4-1 **(ID No. DB 4-1)** with associated cartridge-type fabric filter **(ID No. CE-28)**
- Day bin 4-4 **(ID No. DB 4-2)** with associated cartridge-type fabric filter **(ID No. CE-27)**
- Day bin 4-4 **(ID No. DB 4-3)** with associated cartridge-type fabric filter **(ID No. CE-26)**
- Day bin 4-4 **(ID No. DB 4-4)** with associated cartridge-type fabric filter **(ID No. CE-25)**
- **ID No. ES-30** which includes Silo 5 **(ID No. S5)** with associated cartridge-type fabric filter **(ID No. CE-23)**, Day bin 3-5 **(ID No. DB 3-5)** with associated cartridge-type fabric filter **(ID No. CE-21)** and Day bin 4-5 **(ID No. DB 4-5)** with associated cartridge-type fabric filter **(ID No. CE-24)**.

Equipment to be MODIFIED

- One cartridge-type fabric filter **(ID No. CE-3)** for PM control of No.3 Banbury Mixer **(ID No. ES-5)** to be changed from 7,200 square feet of filter area to 10,800 square feet of filter area.

No equipment will be removed as part of this modification.

A block diagram of the tire manufacturing process is provided in the figures above. The manufacturing process occurs in the same building.

5. Emissions

Potential Emissions
Potential emissions from Bandag are provided in the table below.

Pollutant	Controlled Emissions (tpy)
CO	5.43
NO_X	7.17
PM	17.75

Pollutant	Controlled Emissions (tpy)
PM10	17.75
PM2.5	17.75
SO2	0.10
VOC	246.80
HAP	13.53
Largest HAP (Carbon Disulfide)	6.48
Greenhouse gases (CO_2, Methane, N_2O and CO_2e)	15,068.92

6. Regulatory Evaluation

Bandag will be subject to the following regulations for the added emission sources.

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes – The new No. 4 Banbury Mixer (ID No. ES-36) with associated cartridge-type fabric filter (ID No. CE-29), Silo 5, day bin 5 (ID No. ES-30) with associated cartridge-type fabric filters (ID Nos. CE-21 and CE-22) and No. 3 Banbury Mixer's modified cartridge-type fabric filter (ID No. 3) are subject to 02D .0515. This regulation limits particulate emissions from any stack, vent, or outlet, resulting from any industrial process, for which no other emission control standard is applicable. Allowable emissions of PM are calculated from the following equation:

  $\boxed{E = 4.10(P)^{0.67}}$ For process weight rates less than or equal to 30 tons/hr

  Where:
  E = allowable emission limit for particulate matter in lb/hr; and
  P = process weight rate in tons/hr.

  Bandag must conduct monthly external and annual internal inspections of the cartridge-type fabric filters on these emission sources to ensure compliance. Compliance is anticipated.

  Note that the vacuum unloading unit, silos and day bins are paired in Section 2.1 F of the air permit. In accordance with the process flow diagram above, Bandag has each silo feed two day bins: one day bin for No. 3 Banbury Mixer and one day bin for No. 4 Banbury Mixer.

- 15A NCAC 02D .0521, Control of Visible Emission – The emission sources cited below are subject to 02D .0521. The equipment must not have visible emissions of more than 20 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 02D .0521(d).

  - No. 4 Banbury Mixer **(ID No. ES-36)**
  - Silo 1, day bin 3-1, day bin 4-1 **(ID No. ES-26)**, Silo 2, day bin 3-2, day bin 4-2 **(ID No. ES-27)**, Silo 3, day bin 3-3, day bin 4-3 **(ID No. ES-28)**, Silo 4, day bin 3-4, day bin 4-4 **(ID No. ES-29)** and Silo 5, day bin 3-5, day bin 4-5 **(ID No. ES-30)**

  Bandag will ensure compliance by operating the emission sources with the appropriate control devices and conducting monthly visible emission observations and associated recordkeeping. To

demonstrate compliance, Bandag shall establish "normal" for these sources **(ID No. ES-26 through ES-30)** in the first 30 days of beginning operation.

- 15A NCAC 02Q .0504, Option for Obtaining Construction and Operating Permit – The Permittee is required to file an amended application within one year from the date of beginning of operation of the following emission sources **(ID Nos. ES-26 through 30 and ES-36)** and control devices **(ID Nos. CE-3, CE-21, CE-23 through CE-29)**.

7. NSPS, NESHAP/MACT, NSR/PSD, 112(r), CAM

NSPS
This facility is NOT subject to New Source Performance Standards (NSPS), 40 CFR 60. This permit modification does not change this status.

NESHAP/MACT
Bandag is not subject to the NESHAP for Rubber Tire Manufacturing at 40 CFR 63 Subpart XXXX because that rule only applies to a major source of HAPs. The Bandag facility in Oxford, North Carolina is not a major source of HAPs.

This facility is classified as a minor source of HAPs because it operates under an avoidance condition limiting emissions to less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs. As such, the facility is subject to the National Emission Standards for Hazardous Air Pollutants, 40 CFR 63 Subpart JJJJJJ for its applicable boilers.

The facility has a GACT 6J condition classification for both oil-fired boilers (< 10 MMBtu/hr).

NSR/PSD
Granville County is currently designated as attainment for all PSD regulated pollutants. Granville County has not been triggered for PSD increment tracking purposes.

This facility is a "250 ton per year" industrial category source and currently a "minor" source for PSD. This permit modification does not affect this status.

112(r)
This facility is NOT subject to the requirements of the Chemical Accident Release Prevention Program, Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above applicability thresholds.

Compliance Assurance Monitoring (CAM)
The facility is not currently subject to CAM. Pursuant to 15A NCAC 2D .0614, a compliance assurance monitoring (CAM) applicability determination is required when a pollutant-specific emissions unit: (1) is a Title V source with potential emissions that exceed the Title V major source thresholds without considering controls; and (2) there are sources subject to an emission standard that require controls to comply with that standard.

The emission sources that are potentially subject to CAM are: The existing Banbury mixers (ID Nos. ES-3, ES-4 and ES-5) plus the new No. 4 Banbury Mixer **(ID No. ES-36)**, controlled by cartridge-type fabric filters, and the tire buffing operation **(ID Nos. ES-6, ES-7, ES-8)**.

CAM will be re-evaluated when the renewal for this permit is processed.

8. Facility Wide Air Toxics

TAPs	Potential Emissions			TPERS 15A NCAC 02Q .0711 Table (a) and (b)				
	lb/yr	lb/day	lb/hr	Carcinogens (lb/yr)	Chronic Toxins (lb/day)	Acute Systematic Toxins (lb/hr)	Acute Irritants (lb/hr)	Modeling Required
1,1,1-Trichloroethane (methyl chloroform)	386.42	1.0587	0.04411	-	250.00	-	-	-
1,1-Dichloroethene (vinylidene chloride)	-	-	-	-	2.50	-	-	-
1,3-Butadiene	65.88	0.18	0.01	11.00	-	-		Yes
1,4-Dichlorobenzene	0.62	1.71E-03	7.13E-05	-	-	16.80	-	-
2-Butanone (methyl ethyl ketone)	1737.84	4.76	0.20	-	78.00	-	22.4	-
4-Methyl-2-Pentanone (Methyl isobutyl ketone)	5169.85	14.16	0.59	-	52.00	-	7.60	-
Acetaldehyde	3.09E-01	314.65	0.86	0.04	-	-	6.80	-
Acrolein	119.72	0.33	0.01	-	-	-	0.02	-
Acrylonitrile	21.29	0.06	2.43E-03	-	0.40	0.22	-	-
Aniline	544.42	1.49	0.06	-	-	-	0.25	-
Arsenic	0.02	6.83E-05	2.85E-06	0.053	-	-	-	-
Ammonia	398.90	1.09	0.05	-	-	-	0.68	-
Benzene	55.83	0.15	0.01	8.10	-	-	-	Yes
Benzidine	-	-	-	1.00E-03	-	-	-	-
Benzo(a)pyrene	2.25E-04	6.17E-07	2.57E-08	2.20	-	-	-	-
Beryllium	0.00	4.10E-06	1.71E-07	0.28	-	-	-	-
bis(2-Ethyl hexyl) phthalate	242.95	0.67	0.03	-	-	-	-	-
Cadmium (Cd) Compounds	1.53	4.20E-03	0.00	0.37	-	-	-	Yes
Carbon Disulfide	12952.05	35.49	1.48	-	3.90	-	-	Yes
Carbon Tetrachloride	-	-	-	460.00	-	-	-	-
Chloroform	3.14	0.01	3.59E-04	290.00	-	-	-	-
Chromium VI	0.17	4.78E-04	1.99E-05	0.013	-	-	-	Yes
Fluoride	-	-	-	-	0.34	0.064	-	-
Formaldehyde	9.82	0.03	1.12E-03	-	-	-	0.04	-
Hexane	1513.50	4.15	0.17	-	23.00	92.00	-	-
Manganese	0.05	1.30E-04	5.41E-06	-	0.63	-	-	-
m-Xylene + p-Xylene	302.46	0.83	0.03	-	57.00	-	16.40	-
Mercury	0.03	8.88E-05	3.70E-06	-	0.013	-	-	-
Methylene Chloride	725.65	1.99	0.08	1600.00	-	0.39	-	-
N-Nitrosodimethylamine	-	-	-	3.40	-	-	-	-
Nickel (Ni) Compounds	41.67	0.11	4.76E-03	-	0.13	-	-	-
Nitrobenzene	-	-	-	-	1.30	0.13	-	-
Pentachlorophenol	-	-	-	-	0.063	0.0064	-	-
Phenol	308.18	0.84	0.04	-	-	0.24	-	-
Styrene	574.59	1.57	0.07	-	-	2.70	-	-

Tetrachloroethene (perchloroethylene)	723.99	1.98	0.08	13000.00	-	-	-	-
Toluene (108-88-3)	1370.59	3.76	0.16	-	197.96	-	58.97	-
Trichloroethylene (79-01-6)	28.09	0.08	3.21E-03	4000	-	-	-	-
Vinyl Chloride	2.69	0.01	3.07E-04	26.00	-	-	-	-
Xylene (total)	-	-	-	-	57.00	-	16.40	-

As shown in the table below, from the approved modeling protocol from the Permittee, potential emissions of 1,3-butadiene, benzene, cadmium, carbon disulfide, and chromium exceed their TPERs. Modeled emissions impact for these five TAPs and the associated averaging periods are shown in the table below as a percentage of the applicable acceptable ambient level (AAL). The air dispersion modeling was reviewed by Nancy Jones of the AQAB, and the results were provided in a memorandum dated May 5, 2021. The modeling analysis demonstrated facility-wide toxics emissions impacts are below applicable standards on a source-by-source basis.

TAP	Averaging Period	Max. Conc. ($\mu g/m^3$)	AAL ($\mu g/m^3$)	% of AAL
1,3-Butadiene	Annual	0.0294	0.44	9 %
Benzene	Annual	0.0219	0.12	18 %
Cadmium	Annual	0.00071	0.0055	13 %
Carbon disulfide	24-hour	53.6	186	29 %
Soluble Chromium	24-hour	0.00062	0.62	<1 %

The air dispersion modeling demonstrates emissions for TAPs from Bridgestone Bandag do not present an unacceptable risk to human health.

On July 6, 2021, comments on the draft permit were received from the Permittee via email. One of the comments addressed some emission rate figures in Section 2.2 B.3 Control of Air Toxics. Specifically, the emission rate figures for Carbon disulfide for the "A" Extruder (ID No. IES-14), the addition of a 1,3 Butadiene emission rate for the "B" Extruder and the Carbon disulfide emission rate for the "A" Blend Mill (ID No. ES-16). The Permittee stated that these changes were based on "those in our final dispersion model."

Nancy Jones was asked about these changes. She confirmed that the protocol numbers were slightly different than those modeled, however, if those numbers were modeled it would not have shown an exceedance of the AALs.

For example, the EP-127 value for Carbon Disulfide that coincides with "A" Extruder (ID No. IES-14) that was used in the modeling was higher than the number provided in the final dispersion model from the Permittee, so the results are more conservative. While other numbers are also higher than those used in the model initially, they are still a small part of the total emissions. Also, the maximum concentrations of 1,3 Butadiene and Carbon Disulfide were only 7% and 29% of their AALs, so even larger increases would not result in air concentrations that exceeded the AALs.

<u>Why benzidine was not included in the emissions modeling</u>

During preliminary modeling, Bridgestone Bandag discovered that approximately 20 pounds per year of benzidine emissions from the platen presses caused an exceedance of the Acceptable Ambient Level

(AAL). Benzidine emissions were estimated using the EPA AP-42 platen press emission factor for Compound #22 in Section 4.2. Upon further review, Bridgestone Bandag did not believe this estimate accurately quantified their benzidine emissions. Therefore, a request was made by the Permittee to DAQ in a letter dated March 2, 2021 from Mr. Lem Stevens of Stevens Environmental Consulting requesting the removal of benzidine (CAS No. 92-87-5) from inclusion in future platen press emissions estimates. The letter stated that, "benzidine has been used in the distant past as a compounding agent in rubber manufacturing. However, Bandag does not use benzidine in its rubber compounds." A search of Bandag Safety Data Sheets (SDS) for all materials used in its facilities resulted in no benzidine being used in any rubber compound formulations. The letter further stated that, "the manufacture of benzidine is a two-step process that requires nitrobenzene and mineral acids. According to AP-42, there is no nitrobenzene in the compound/process where benzidine emissions are claimed." The electronic database of SDS was queried for nitrobenzene with no finding. Finally, Bridgestone Bandag's discussions with other testing firms as to the amount of testing that would be required for each rubber compound for Bridgestone to obtain valid benzidine data to establish a data-supported emission factor would require an extensive amount of testing to even approach to determine an emission factor for benzidine. Therefore, DAQ granted the request to remove benzidine emissions from the platen press emissions estimates after reviewing all the supporting documentation submitted.

9. Facility Emissions Review

As part of this modification, Bandag reviewed all the plant throughputs and emissions past and present. Prior permits significantly overestimated the amount the of rubber processed at the facility. In previous calculations, the estimate of rubber throughput was far greater than the actual throughput at the facility. The Permittee refined the actual amount of rubber that was going through the facility prior to adding the No. 4 Banbury Mixer. With the addition of the No. 4 Banbury Mixer, the emission calculations are 2.5 times what the facility has been actually emitting in the past years.

Many of the VOC emission estimates were updated based on other Bridgestone facilities. The PM emission calculations were updated to an exhaust concentration times flow rate methodology, which is more accurate than the US AP-42 fugitive emission factors used in past permit modifications. Because the plantwide emission estimates were affected, facility wide emission estimates after the modification are shown in the table below.

Pollutant	Potential Facility-Wide Emissions after Modification (ton/yr)	PSD Threshold (ton/yr)	PSD Threshold Exceeded?
CO	5.43	250	No
NOx	7.17	250	No
PM	17.75	250	No
PM10	17.75	250	No
PM2.5	17.75	250	No
SO2	0.10	250	No
VOC	246.80	250	No
Greenhouse Gases (CO_2, Methane, N_2O and CO_2e)	15,068.92	100,000	No
Notes: 1. Potential Emission totals came from Page 32 Table in application 2. VOC emissions from No. 1, 2, 3 and 4 Banbury Mixers			

Bandag is a minor source under Prevention of Significant Deterioration (PSD) rules. For a minor PSD source, a major modification under PSD is a modification that by itself exceeds the major source threshold. Because the increased emissions from the new emission sources are less than the major source threshold levels, this modification is considered a minor modification under PSD.

Bandag also updated HAP emissions, and as shown in the table below, the facility will remain a minor source of HAPs after this modification.

HAP	Potential Facility-Wide HAP Emissions after Modification (ton/yr)	Major Source Threshold (ton/yr)
Largest HAP (Carbon Disulfide)	6.48	10
Total HAPs	13.5	25

Please refer to the summary table at the beginning of this review for the last five years (2015-2019) of actual EI data for the criteria pollutants and HAPs as reported by Bandag and approved by the Raleigh Regional Office. The largest HAP has been either Toluene and MIBK (methyl isobutyl ketone) in the past, however, with this modification the highest HAP is Carbon Disulfide with most emissions (6.39 ton/yr) coming from the Presses **(ID No. ES-12 and ES-13)**. Outlined below is the explanation for the changes in HAP emissions as a result of this modification:

Toluene:
Overall, Toluene emissions increased by approximately 450 lbs due to this modification and the addition of the fourth Banbury mixer **(ID No. ES-36).** Also, Toluene emissions decreased by approximately 650 lbs through the presses **(ID Nos. ES-12 and ES-13)** and decreased by approximately 780 lbs through the extruders **(ID Nos. IES-14 and IES 17A)** due to the Permittee reviewing and updating to a more accurate selection of rubber compounds used which in turn effects the emission factors used in AP-42.

4-Methyl-2-pentanone (Methyl Isobutyl Ketone)
4-Methyl-2-pentanone emissions had a large increase of approximately 1970 lbs due to this modification and the addition of the fourth Banbury mixer **(ID No. ES-36).** There was a decrease of approximately 100 lbs through the extruders **(ID Nos. IES-14 and IES 17A)** due to the Permittee reviewing and updating to a more accurate selection of rubber compounds used which in turn effects the emission factors used in AP-42.

Carbon Disulfide:
Carbon Disulfide emissions had a very large increase of approximately 12,500 lbs through the presses **(ID Nos. ES-12 and ES-13)** due to the Permittee reviewing and updating to a more accurate selection of rubber compounds used which in turn effects the emission factors used in AP-42. The current emission factor used is approximately forty-seven times the emission factor used in the past.

10. Compliance Status

DAQ has reviewed the compliance status for this facility for the last five years. The results are listed below.

- On March 20, 2019, NCDAQ issued an NOV for not conducting engine maintenance on a regular schedule and not retaining records of this maintenance for 2018 for the facility's fire pump engine

(ID No. IES-34) that is subject to MACT Subpart ZZZZ. The violation has been resolved per the letter from the facility dated April 4, 2019.

- On February 15, 2016, NCDAQ issued an NOV and NRE for submitting a late application to renew Permit 02889T18. NRE was withdrawn per the May 16, 2016, letter from the Division.

During the most recent inspection conducted on December 11, 2019, Matthew Mahler of the Raleigh Regional Office indicated that Bandag appeared to be in compliance with all applicable requirements and regulations.

11. Public Notice

Public notice is not required for a permit for Step 1 of a two-step Significant modification.

The permit will require Bandag to submit a Title V permit application within one year beginning operation of any of the permitted emission sources in accordance with 15A NCAC 02Q .0504(d). At that time, a notice of the draft Title V Permit will be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period for the public, with an opportunity for a public hearing. Consistent with 15 A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period.

12. Other Regulatory Considerations

Professional Engineering Seal

Pursuant to 15A NCAC 2Q .0112 "Application Requiring A Professional Engineering Seal (PE Seal)," a PE Seal is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in Rule .0103 of this Section that involve:

(1) design;
(2) determination of applicability and appropriateness;
(3) or determination and interpretation of performance; of air pollution capture and control systems.

See Form D5 of the application for PE Seal.

Zoning Consistency Determination

A consistency determination was required for this significant permit modification pursuant to 15A NCAC 2Q .0507(d) due to addition of the proposed sources. A zoning consistency determination is required if the modification is considered an expansion. The zoning consistency determination was received by DAQ on March 3, 2021(reference Cheryl Hart, Planning Director, City of Oxford).

Permit Fee

A permit fee is required for the Significant Two-Step modification application. A permit fee of $1,002 was received with the permit application for modification on March 2, 2021.

13. Recommendations

The Significant Two-Step modification permit application for Bridgestone Bandag LLC in Oxford, Granville County, NC has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in

the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 02889T22.