**NORTH CAROLINA DIVISION OF AIR QUALITY**

# Application Review

**Issue Date:**

**Region:** Winston-Salem Regional Office
**County:** Guilford
**NC Facility ID:** 4100866
**Inspector's Name:** Robert Barker
**Date of Last Inspection:** 04/09/2025
**Compliance Code:** W / Violation - procedures

## Facility Data

**Applicant (Facility's Name):** Pactiv LLC

**Facility Address:**
Pactiv LLC
520 Radar Road
Greensboro, NC 27410

**SIC:** 3086 / Plastics Foam Products
**NAICS:** 326140 / Polystyrene Foam Product Manufacturing

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

## Permit Applicability (this application only)

**SIP:** 02D .0515, 02D .0521, 02D .1806
**NSPS:** N/A
**NESHAP:** N/A
**PSD:** N/A
**PSD Avoidance:** 02Q .0317
**NC Toxics:** 02Q .0711
**112(r):** Yes
**Other:** N/A

## Contact Data

### Facility Contact

Patrick Salley
EHS Manager
(336) 852-8125
520 Radar Road
Greensboro, NC 27410

### Authorized Contact

Timothy Simmons
Plant Manager
(336) 852-8116
520 Radar Road
Greensboro, NC 27410

### Technical Contact

Charles Howell
Regional Environmental Manager
(828) 748-5636
520 Radar Road
Greensboro, NC 27410

## Application Data

**Application Number:** 4100866.24A
**Date Received:** 05/28/2024
**Application Type:** Renewal
**Application Schedule:** TV-Renewal

**Existing Permit Data**
**Existing Permit Number:** 06095/T22
**Existing Permit Issue Date:** 12/06/2019
**Existing Permit Expiration Date:** 11/30/2024

**Total Actual emissions in TONS/YEAR:**

| CY | SO2 | NOX | VOC | CO | PM10 | Total HAP | Largest HAP |
|---|---|---|---|---|---|---|---|
| 2023 | --- | 0.6200 | 121.67 | 0.5200 | 1.20 | 0.2945 | 0.2033 [Styrene] |
| 2022 | --- | 0.5900 | 117.38 | 0.5000 | 1.19 | 0.2895 | 0.1999 [Styrene] |
| 2021 | --- | 0.5700 | 135.61 | 0.4800 | 1.44 | 0.3497 | 0.2424 [Styrene] |
| 2020 | --- | 0.4100 | 134.85 | 0.3400 | 1.25 | 0.3048 | 0.2107 [Styrene] |
| 2019 | --- | 0.2600 | 131.55 | 0.2200 | 1.12 | 0.2871 | 0.1975 [Styrene] |

**Review Engineer:** Conzuela Cogdell

**Review Engineer's Signature:** **Date:**

**Comments / Recommendations:**
**Issue** 06095/T23
**Permit Issue Date:**
**Permit Expiration Date:**

## 1. Purpose of Application

PACTIV LLC currently holds Title V Permit No. 06095T22 with an expiration date of November 30, 2024, for a Polystyrene Foam Disposable Food Service Packaging Manufacturing facility in Greensboro, Guildford County, North Carolina. This permit application is for permit renewal without modification as well as second application regarding an ownership change that was received May 27, 2025. The renewal application was received on May 28, 2024, or at least six months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

## 2. Facility Description

Pactiv LLC (Pactiv) operates a polystyrene-foam, disposable food service packaging manufacturing plant, operating 24 hours per day, seven days per week and fifty-one weeks a year. The facility manufactures polystyrene trays for food packaging for Tyson and local grocery stores.

The facility is a Title V facility because emissions of volatile organic compounds exceed 100 tons per year threshold.

## 3. History/Background/Application Chronology

History/Background

| | |
|---|---|
| December 6, 2019 | TV permit renewal issued. Air Permit No. 06095T22 was issued on December 6, 2019, with an expiration date of November 30, 2024. |
| October 22, 2021 | NOD was issued for failing to meet several requirements of Section 112(r) RMP. |
| November 5, 2021 | The facility submitted a Response to Notice of Deficiency to the Regional office addressing all items. |
| July 13, 2023 | The facility was inspected by Andrew Kormos. At the time of inspection, the facility appeared to be in compliance with all applicable air quality rules and regulations. |
| August 7, 2024 | The facility was inspected by Davis Murphy. At the time of inspection, the facility appeared to be in compliance with all applicable air quality rules and regulations. |
| April 9, 2025 | Section 112(r) compliance inspection |
| April 23, 2025 | Notice of Violation letter (15A NCAC 02D .2100-Risk Management) was sent to facility |

Application Chronology

| | |
|---|---|
| May 28, 2024 | Received permit application 4100866.24A for renewal. |
| May 31, 2024 | Sent acknowledgment letter indicating that the application for permit renewal was complete. |
| June 25, 2024 | Application uploaded to Laserfiche and received comments on application from Winston Salem Regional office |
| September 30, 2024 | First draft of Statement of Basis and Permit submitted to Supervisor for Review |
| October 15, 2024 | Received and discussed comments from Emily Supple on draft Permit and Statement of Basis. |
| October 31, 2024 | Submitted technical information request regarding derivation of emission factor for PM to Pactiv and PFAS survey |
| November 5, 2024 | Received spreadsheet with calculations for all emission sources |
| November 11, 2024 | I received PFAS questionnaire. All answers are “No” (Attachment C) |

| | |
|---|---|
| November 12, 2024 | Sent Draft Permit and Draft Statement of Basis to Facility Representative and DAQ Sections for track comments with due date 11/19/2024 |
| November 12, 2024 | TVEE updated in IBEAM |
| November 14, 2024 | Received "No comment" from Murphy Davis and Jim Hafner with Winston Salem Regional Office and received comments from Joe Voelker |
| November 18, 2024 | Received Comments from Pactiv LLC (M. Gnegy) |
| January 6, 2025 | TEAMS meeting with the applicant, their consultant and internal DAQ personnel. The following topics were discussed: During the conversation, the following questions were raised:<br>• What portions of the mass balance equations are considered proprietary<br>• Would PACTIV be willing to consider a lower PSD Limit that mainly considers CD-10, ES-9, ES-11, and ES-12 and to lump uncontrolled emissions as a set value to be detailed in the permit to minimize recordkeeping.<br>• Best language/method to express above within the permit that is clear and addresses all PSD Avoidance conditions.<br><br>Trinity Consultants stated they will meet internally and with PACTIV corporation to answer the above questions, provide additional calculations as needed and to meet at a future date.<br>DAQ will discuss internally the result of the meeting and draft avoidance condition based on available information for future discussions. |
| January 14, 2025 | Was informed by the applicant they are working on a response for items discussed on 1/6/25 meeting. |
| February 14, 2025 | Was informed by consultant they are waiting on additional information/response from applicant. |
| April 3, 2025 | Received comments from Pactiv |
| April 17, 2025 | Revised Draft Permit and Statement of Basis Submit to Supervisor for 2nd Review |
| May 16, 2025 | Sent revised 2nd Draft to Applicant and Regional Office |
| May 27, 2025 | Received Ownership Change Application (4100866.25A) |
| June 4, 2025 | • Received comments for 2nd draft from Applicant, with concurrence from Supervisor<br>• Received request to withdraw Ownership Change Application |
| June 5, 2025 | Received No Comment from Regional Office. |
| June 6, 2025 | Sent Draft Documents for Notice Preparation |

## 4. Permit Modifications/Changes and TVEE Discussion

The following table describes the modifications to the current permit as part of the renewal process. This summary is not meant to be an exact accounting of each change but a summary of those changes.

| Page No. | Section | Description of Changes |
|---|---|---|
| | Cover Letter | • Updated cover letter with new header, and most current permit shell |
| | Permit Cover | • Updated new issuance and complete application date, application number, facility information |

| Page No. | Section | Description of Changes |
|---|---|---|
| Throughout | Throughout | • Updated dates/permit numbers.<br>• Fixed formatting.<br>• Updated authorized contact |
| 3 | Acronyms | • List of Acronyms moved from last page to third page |
| 5 | Section 2: Specific Limitations and Conditions Table | • Added 15A NCAC 02D .0516 "Sulfur Dioxide Emissions" to condition table. |
| 6 | Section 2.1 B | • Updated language to reflect one cyclone to 2.1 B.1.c<br>• Added Section 2.1 B.3 "Sulfur Dioxide Emissions"<br>• Section 2.1 B.3.2, updated fuel from Butane to Natural Gas |
| 8- | Section 2.2 A Throughout | • Created Table 2.2A to list Facility Wide Emission sources<br>• Added PFAS language (15A NCAC 02Q .0309(b)) to Facility Wide Emission Source Limits/Standards Table |
| 9 | Section 2.2 A.2 | • For clarification updated Section 2.2 A.2.b.iii by adding "when the RTO (ID No. CD-10) is operating"<br>• Updated Section 2.2 A.2.c to provide clarification regarding testing requirements<br>• Moved 2.2 A.2.d to Monitoring/Recordkeeping (2.2 A.2.g) and renumbered accordingly<br>• Updated2.2 A.2.e to reflect periodic testing of RTO (61 months starting with current permit)<br>• Added Section 2.2 A.2.d.iv to reflect PTE VOC emissions from Section 3 of this permit. |
| 11 | Section 2.2 A.3 | • Updated Section 2.2 A.3 to current permit shell language. |
| 12 | Section 2.2 A.4 | • Added Section 2.2 A.4, state-enforceable language for 15A NCAC 02Q .0309(b) |
| 14 | Insignificant Activity List | • Relocated to Section 3<br>• Removed I-ES-14 Reclaim resin storage silo<br>• Removed I-ES-36, Fluff storage conveyor and foam grinders<br>• Removed I-ES-38 and 39, two cooling towers<br>• Added I-ES-43, one cooling tower and updated description to Two Cooling Towers<br>• Added I-ES-44 (electric mini-jet oven) |
| 15 | Section 4: General Permit Conditions | • General Permit Conditions version 5.3 updated to version 8.0 due to the removal of General Conditions (GC) item J and modification to item D |

This permit renewal is being processed without modification, with changes to the Title V Equipment Editor regarding insignificant emission sources are needed. With this renewal, Pactiv is requesting changes to the insignificant activities list. The proposed changes are listed below:

| Emission source ID | Requested change |
|---|---|
| I-ES-14 | Remove I-ES-14 as the unit has been removed from the facility |
| I-ES-36 | Remove I-ES-36 as the unit has been removed from the facility |
| I-ES-38, I-ES-39 | Remove I-ES-38 and I-ES-39 to be replaced by I-ES-43 |
| I-ES-43 | Add I-ES-43 (one cooling tower) to replace I-ES-38 and I-ES-39 |
| I-ES-44 | Add I-ES-44 (electric mini-jet oven) |

## 5. Regulatory Review

Pactiv is subject to the following regulations:

- 15A NCAC 02D .0515 "Particulates from Miscellaneous Industrial Processes"
- 15A NCAC 02D .0521 "Control of Visible Emissions"
- 15A NCAC 02D .1806 "Control and Prohibition of Odorous Emissions"
- 15A NCAC 02Q .0317 "Avoidance Conditions"(PSD Avoidance)
- 15A NCAC 02Q .0711 "Emission Rates Requiring a Permit"

The facility's operations and emissions sources have not changed since the last renewal in 2019; however, changes to insignificant activities were noted. The permit was updated to reflect the most current stipulations for all applicable regulations, where necessary.

02D .1806 "Control and Prohibition of Odorous Emissions" (State-enforceable only)

This regulation is state enforceable only. Complaints regarding this facility were not found. Continued compliance will be determined during subsequent inspections.

02D .0515 "Particulates from Miscellaneous Industrial Processes"

This rule applies to sources that emit particulates and are not subject to any other particulate emission standard in 02D .0500 applies. The following polystyrene foam manufacturing processes are subject to this rule:

- One fluff storage silo (ID No. ES-9) (with associated simple cyclone (ID No. CD-9), baghouse (CD-BH8) and a regenerative thermal oxidizer [RTO] (ID No. CD-10))
- Two fluff storage silos (ID No ES-11 and ES-12) followed by baghouse (CD-BH8) and RTO (ID No. CD-10)

a. Emissions of particulate matter from the above sources shall not exceed an allowable emission rate as calculated by the following equation:

eq-1
$E = 4.10 \times P^{0.67}$ (for process rates less than or equal to 30 tons per hour), or
eq-2
$E = 55.0 \times P^{0.11} - 40$ (for process rates greater than 30 tons per hour)

Where E = allowable emission rate in pounds per hour
P = process rate in tons per hour

Liquid and gaseous fuels and combustion air are not considered as part of the process weight.

The rule limits particulate emissions based on the process rate of the specific sources. To demonstrate compliance, Pactiv will operate particulate control devices on ID Nos. ES-9. ES-11 and ES-12. Pactiv must perform regular inspections, maintenance, keep records of those actions and must submit a report of all records twice per year. Pactiv's potential throughput is 52,560,000 pounds per year, where a year is equal to 8,760 hours and the control devices with a control efficiency of 99 percent. Pactiv's emission factors for PM were derived from a mix of performance tests and engineering test data. Per Trinity Consultants testing was performed in Temple, TX March 7th-9th, 2000, and can be found in Pactiv's internal document, Pactiv Emissions Technical Manual, Section 10 dated November 2nd, 2004.

The potential emission rate is presented below:

$$Uncontrolled\ PM\ Emissions = Total\ Potential\ Throughput\ \left(\frac{lb.}{yr.}\right) x\ Emission\ Factor\ \left(\frac{lb.\ PM}{1000\ lb.}\right) x\ conversion\ Factor\ \left(\frac{1\ ton}{2000\ lb.}\right)$$

$$Potential\ Uncontrolled\ PM\ Emissions = 52{,}560{,}000\ \left(\frac{lb.}{yr.}\right) x\ 0.5847\ \left(\frac{lb.PM}{1000\ lb.}\right) x\ \left(\frac{1\ ton}{2000\ lb}\right)$$

$$Potential\ Uncontrolled\ PM\ Emissions = 15.37tpy \quad where\ Controlled\ PM\ is\ 0.15tpy.$$

Based on Pactiv's 2023 Emissions Inventory Review approved by NCDEQ on October 22, 2024, the PM10 emissions for ES-9, ES 11 and ES-12 and RTO listed below are less than the potential PM emissions.

| Fluff Silos Groups GR38, GR61 | | | | |
|---|---|---|---|---|
| Hours of Operations | hr. | 8,616 | | |
| Silos | GR61 ES 8,9 Controlled | GR 38 ES 11,12 Unontrolled | ES59 RTO | incl RTO emissions w GR38 |
| PM (ton / hr) | 0.000E+00 | 7.404E-05 | | |
| $PM_{10}$ (ton / hr) | 0.000E+00 | 7.279E-05 | | |
| $PM_{2.5}$ (ton/hr) | 0.000E+00 | 6.395E-05 | | |
| VOC EF (ton / hr) controlled | 0.000E+00 | 6.070E-04 | | |
| PM TPY | 0 | 0.64 | 0.047 | **0.69** |
| $PM_{10}$ TPY | 0 | 0.63 | 0.047 | **0.67** |
| $PM_{2.5}$ TPY | 0 | 0.55 | 0.047 | **0.60** |
| VOC TPY | 0 | 5.23 | 0.034 | **5.26** |
| SO2 | 0 | | 0.004 | **0.00** |
| NOx | 0 | | 0.620 | **0.62** |
| N2O (GHG) | 0 | | 0.001 | |
| CO2 (GHG) | 0 | | 743.844 | |
| CH4 (GHG) | 0 | | 0.014 | |
| CO | 0 | | 0.521 | **0.52** |

Pactiv was determined to be in compliance with this rule during the most recent inspection on August 7, 2024, and appeared to comply with all applicable air quality rules and regulations. Continued compliance will be determined with subsequent inspections and reports.

02D .0521 "Control of Visible Emissions"

Visible emissions (VE) from three existing fluff silos (ES-9, ES-11 and ES-12) with a dedicated cyclone for ES-9 (CD-9), a baghouse for all three fluff silos (CD-BH8) followed by a regenerative thermal oxidizer [RTO] (CD-10) are currently subject to a 20 percent opacity limit when averaged over a six-minute period. Under this requirement, Pactiv must perform visible emissions observations of the fluff storage silos monthly. If the visible emissions observed are above normal, corrective action must be taken. The monthly visible emissions observations are to be recorded and maintained in a logbook with dates, times, results and any corrective action taken. Pactiv must submit a summary report of the observations on a semi-annual basis.

The August 7, 2024, inspection noted no visible emissions. The facility performs weekly VE observations in conjunction with their weekly external ductwork/control device inspections and maintains records of their observations in their maintenance PM "Maintenance Connection" system. Mr. Murphy reviewed the records, and they appeared to be complete. Pactiv submitted a semi-annual report, received by WSRO on July 24, 2024, reporting compliance. Compliance was demonstrated and continued compliance is anticipated.

02Q .0317 "Avoidance Conditions" (Prevention of Significant Deterioration "PSD")

This rule allows facilities to accept enforceable limits in the Title V permit to avoid triggering requirements of certain rules. For facilities not included in the list of named source categories under 40 CFR 51.166(b)(1)(i)(*a*), a major source is a facility with potential emissions of any pollutant greater than 250 tons per year.

Pactiv had previously accepted a facility-wide limit of 250 tpy on volatile organic compounds ("VOC") emissions to avoid applicability of 02D .0530 "Prevention of Significant Deterioration" ("PSD").

Pactiv's Form D1 indicated that the facility has facility wide PTE for VOC of 247.90 tons per year after controls, assuming the emissions from the fluff silos are controlled by the RTO except for 720 hours of downtime associated with maintenance and malfunctions.

After further research it was determined that 215.69 tons per year were from uncontrolled emissions (ES4-7, ES-7A and ES-7G, ES-13A, ES-19, ES-24, ES-25 and ES-43), 24.57 tons per year from controlled sources (ES-9, ES-11 and ES-12) and 0.09 tons per year combustion emissions from RTO for fluff storage silos (CD-10). The insignificant emission sources contribute approximately 7.55 tons per year totaling 247.90 tons per year as shown on Form D1.

Based on Pactiv's emission calculations (See Attachment A,) the revised permit will include a conservative constant value of 10tpy (or 0.83 tons per month) for insignificant activities to simplify monitoring and reporting requirements to only those sources included in Section 1 of the permit. If Pactiv complies with this limit, the facility will remain a Minor Source for PSD, and thus not subject to 02D .0530. The emission sources subject to the facility wide permit limitation are presented in Table 2.2 A of the revised permit and all the insignificant activities as presented in Section 3 of the revised permit.

To demonstrate compliance with the limit, Pactiv must operate the regenerative thermal oxidizer (RTO), ID No. CD-10, with an average combustion temperature of 1425 °F[1] (774°C) for any 3-hour period while VOC emissions are being controlled. Pactiv shall operate the fluff storage silos (ID Nos ES-9, ES-11 and ES-12) to ensure 100 percent capture when the RTO is in operation. In addition, Pactiv shall vent all emissions from the fluff storage silos into the inlet of the RTO. The RTO is not to exceed 720 hours of downtime in any consecutive 12-month period for maintenance and malfunctions.

Pactiv shall use a temperature monitoring system for the RTO combustion chamber temperature. The calibration of the chart recorder, data logger, or temperature indicator must be verified on an annual basis, or the chart recorder, data logger test, or temperature indicator must be replaced. The device must have an accuracy of ±1 percent of the temperature being monitored in degrees Celsius, or ±1°C, whichever is greater. The thermocouple or temperature sensor must be installed in the combustion chamber at a location in the combustion zone. A minimum pressure drop of at least 0.007 inches $H_2O$ (in w.c) must be maintained for the exhaust conveyance configuration system associated with the fluff storage silos. The pressure drop must be measured from a pressure gauge at the inlet to the baghouse, CD-BH8.

Pactiv shall be required to maintain the following records on a monthly basis:

- the total quantity (in pounds) of blowing agent (i.e. VOC) processed in extrusion (where the rate of butane injected to about 150-170lb./hr. measured by a flowmeter is controlled)
- the total quantity of product in pounds for all uncontrolled and controlled VOC emissions sources listed above
- blowing agent retention in product in percent weight,
- RTO downtime, lowest 3-hour average combustion temperature when the RTO is operating and
- facility-wide VOC emissions, which includes emissions from all sources listed in Table 2.2 A determined consistent with the procedures documented in Attachment B to this statement of basis and emissions from all the insignificant activities listed in Section 3 of the permit assuming 0.83 tons/month.
- facility-wide VOC emissions for the previous 12-month period (tons/year).

The YTD, through June 2024 actual data reported on August 7, 2024, inspection report for the RTO are as follows:

- The total quantity (in pounds) of blowing agent (i.e. VOC) processed in extrusion: 241,000 pounds
- RTO downtime (in hours): 131 hours,
- Lowest 3-hour average combustion temperature (°F), when the RTO is operating, 1540 °F
- The temperature data logger/monitoring device was replaced April 15, 2024, and the thermocouples were replaced as well.
- The pressure differential gauge reads 1.6 inches of $H_2O$ (in w.c.) and is recorded monthly

[1] The combustion temperature limit was established as average of 3-runs during the performance test on September 5, 2018, and correlates to a 97.9% VOC destruction efficiency of the RTO.

**Table 2.2 A.2 of the revised permit**
**RTO Operating and Monitoring Parameters**

| Parameter | Value |
|---|---|
| Capture efficiency | 100 % |
| Destruction efficiency | 96% |
| Oxidation chamber temperature | 1425 °F, 3-hour rolling block average |

To ensure proper operation of the RTO moving forward:

- Pactiv shall be required to conduct a performance test to confirm or re-establish the parameters in Table 2.2 A.2 above in accordance with a testing protocol approved by the DAQ. Testing shall be completed and the results submitted within 180 days of the issuance of permit no. 06095T23 unless an alternate date is approved by the DAQ.
- Pactiv shall also be required to conduct repeat performance tests every 5 years (i.e., within 61 months of the previous performance test)

Pactiv shall also submit a summary report of monitoring and recordkeeping activities that contain the following: facility-wide VOC (controlled and uncontrolled) emissions for the previous 17 calendar months, 12-month rolling VOC emissions for the previous 17 calendar months, and clear identification of all instances of deviations from the requirements of the TV Permit. Pactiv submitted sample calculation methodology for all emission factors found in Attachment B. Based on the above and the result of August 7, 2024, inspection, Pactiv indicated compliance and continued compliance is anticipated.

02Q .0711 "Toxic Air Pollutant Emissions Limitation Requirement"

Pactiv shall be operated and maintained in such a manner that emissions of any TAPs from the facility, including fugitive emissions, will not exceed the Toxic Permitting Emission Rates (TPERs) listed in 15A NCAC 02Q .0711. Neither monitoring, recordkeeping nor reporting are required by this permit condition. Based on a reported (approximate) operating schedule of 24 hours/day, 7 days/week, and 51 weeks/year, actual emissions from the CY 2022 emissions inventory and 2024 TV permit renewal application are shown in the table below.

| Pollutant (CAS) | TPER | CY 2022 Actual Emissions | Emissions 4100866.24A Application | Compliant (Yes/No) |
|---|---|---|---|---|
| Acetaldehyde (75-07-0) | 6.8 lb./hr. | .015lb./hr. | 0.09 lb./hr. | Yes |
| Acrolein (107-02-8) | .02 lb./hr. | Not Reported (NR) | NR | Yes |
| Ammonia (7664-41-7) | 0.68lb./hr. | NR | .01lb/hr. . | Yes |
| Benzene (71-43-2) | 8.1 lb./yr. | 1.34 lb./yr. | 7.99 lb./yr. | Yes |
| Benzo(a)pyrene (50-32-8) | 2.2 lb./yr. | NR | NR | NR |
| 1,3-butadiene (106-99-0) | 11 lb./yr. | 0.61 lb./yr. | 3.79 lb./yr. | Yes |
| Non-specific chromium (VI) compounds, as chromium (VI) equivalent | .0056 lb./yr. | 4E-05 lb./yr. | 2.20E-04 lb./yr. | Yes |
| Formaldehyde (50-0-0) | 0.04 lb./ hr. | .0015 lb./hr. | 7.42E-03 lb./hr. | Yes |
| n-hexane (110-54-3) | 23 lb./day | N/A | 1.68E-01 lb./day | Yes |
| Manganese and compounds | 0.63lb./day | 3.89E-05 lb./day | 1.92E-04 lb./day | Yes |
| Nickel, soluble compounds as nickel | 0.013 lb./day | 1.12E-07 lb./day | 6.03E-07 lb./day | Yes |
| Phenol (108-95-2) | 0.24 lb./hr. | NR | NR | NR |
| Styrene (100-42-5) | 2.7 lb./hr. | 0.047 lb./hr. | 0.27 lb./hr. | Yes |
| Toluene (108-88-3) | 14.4 lb./hr.<br>98 lb./day | 0.0034 lb./hr.<br>0.0080 lb./day | 0.02 lb./hr.<br>0.48 lb./day | Yes |
| Xylene (1330-20-7) | 16.4 lb./hr.<br>57 lb./day | 0.0011 lb./hr.<br>0.025 lb./day | 0.01 lb./hr.<br>0.14 lb./day | Yes |

## 6. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS

The facility is not currently subject to any New Source Performance Standards. This permit renewal does not change the facility's NSPS status.

NESHAP/MACT

The facility is not currently subject to any Maximum Achievable Control Technology standards. This permit renewal does not change the facility's MACT status.

Based on a review of the emissions included in the application, the facility is an area source of HAP emissions as the PTE of HAP is less than 10/25 tpy. for individual/total HAP. The largest species of HAP emitted is styrene which has PTE of 1.2 tpy. The facility-wide total PTE of HAP is 1.7576 tpy. as calculated from Form D1.

112(r)

The facility is subject to Section 112(r) of the Clean Air Act requirements because it stores butane in quantities above the 112(r) thresholds. The blowing agent (butane) is stored in an 18,000-gallon pressurized tank located behind the facility. Per the application, Pactiv stores a maximum intended inventory of 74,000lbs of butane. In accordance with Permit Condition 2.3 A.1.c, Pactiv submitted a RMP to EPA pursuant to 40 CFR 68.150 and is required to review, update and resubmit the RMP at least once every five years after October 5, 2022, or after the most recent update required by 40 CFR 68.190(b)(2) through (b)(7) whichever is later. The last updated RMP was submitted to US EPA on October 27, 2021. No change with respect to 112(r) is anticipated under this permit renewal.

CAM

Under the Compliance Assurance Monitoring (CAM) regulations at 40 CFR 64, facilities are required to prepare and submit monitoring plans for certain emission units with the initial, significant modification, or Title V Operating Permit renewal application.

The CAM rule (40 CFR 64; 15A NCAC 02D .0614) applies to each pollutant specific emissions unit (PSEU) located at facilities required to hold Title V permits, where all three of the following criteria are met:

- The unit is subject to any (non-exempt: e.g. pre-November 15, 1990, Section 111, or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- The unit uses any control device to achieve compliance with any such emission limitation or standard.
- The unit has potential pre-control device emissions of the applicable regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (i.e. 100 tons per year for criteria pollutants or 10/25 tons per year for HAPs).

Pactiv utilizes two control devices to control PSEU's baghouse (CD-BH8) for PM control and an RTO (CD-10) for VOC control. However, the facility does not emit PM (uncontrolled) in quantities greater than the major source threshold and VOC emissions are not subject to any non-exempt emission limitation or standard; therefore, CAM does not apply. This permit renewal does not change the facility's CAM status.

## 7. Facility Wide Air Toxics

The facility is currently subject to the procedural requirement in 02Q .0711. Based on the information provided in the application, the facility-wide emissions for acetaldehyde, acrolein, ammonia, benzene, benzo(a)pyrene, 1,3-butadiene, chromium compounds, formaldehyde, n-hexane, manganese compounds, nickel compounds, styrene, toluene, and xylene, are expected to remain below their applicable TPERs. Therefore, the requirement in 02Q .0711 will apply for these pollutants. Detailed discussion is provided in Section 5 above.

## 8. Facility Emissions Review

The facility-wide potential emissions have not changed because of this TV permit renewal. Actual emissions for criteria pollutants and HAPs for the previous five years reporting periods are provided in the header of this permit review. The facility-wide VOC emissions for the previous 17 calendar months and 12-month rolling VOC emissions for the previous 17 calendar months are shown below.

**Greensboro Facility Wide VOC Emissions (Tons)**

| 2023 VOC Emissions | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Emissions | 11.8 | 9.8 | 10.3 | 11.6 | 9.8 | 8.0 | 8.2 | 9.8 | 10.0 | 9.8 | 10.1 | 11.3 |
| 12-Month Rolling Emissions | 118.8 | 120.3 | 117.7 | 120.1 | 120.4 | 119.4 | 119.4 | 118.4 | 117.6 | 116.8 | 117.5 | 120.5 |

| 2024 VOC Emissions | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Emissions | 9.5 | 12.9 | 15.0 | 13.0 | 12.2 | 7.4 | 9.7 | 13.4 | 11.5 | 12.4 | 9.0 | 8.9 |
| 12-Month Rolling Emissions | 118.2 | 121.2 | 126.0 | 127.4 | 129.8 | 129.2 | 130.8 | 134.3 | 135.9 | 138.4 | 137.3 | 134.9 |

## 9. Compliance Status

DAQ has reviewed the compliance status of Pactiv, LLC-Greensboro Facility and received form E5 further certifying compliance with all applicable requirements. During the most recent inspection conducted on August 7, 2024, the facility appeared to be in compliance with all applicable requirements. Further, the facility has had no air quality violations within the last five years. The facility's Annual Compliance Certification was received on January 24, 2024, which indicated compliance with all applicable requirements.

Pactiv most current inspection conducted April 9, 2025. Mr. Barker of WSRO conducted a full 112 (r) compliance inspection to confirm compliance with 40 CFR 68 "Chemical Accident Prevention Provision". The following violations were found:

During the inspection, Mr. Barker discovered the following items were either missing from the facility's RMP or were insufficient to meet the requirements of Section 112(r):

- 40 CFR 68.67(f) - Process Hazard Analysis (PHA) shall be updated and revalidated at least every five years after the initial PHA. The last PHA was conducted in April of 2024 while the previous PHA was conducted in January of 2017. This is a period of over seven years, which exceeds the five year period.
- 40 CFR 68.93(a) and (b) - The facility had not coordinated or documented their emergency response activities annually with the local emergency planning committee (LEPC) as required. While the facility did submit their Tier II, this is not sufficient to meet the requirements of this section of the RMP.

- 40 CFR 68.96(a) - At least once every calendar year, the facility shall conduct an exercise of the stationary source's emergency response notification mechanisms and maintain a written record of each notification exercise conducted over the last five years, with the first one being conducted by December 19, 2024. The facility had not conducted this notification exercise by this date.

A Notice of Violation (NOV) was issued due to the facility being in violation of 40 CFR Part 68 and 15A NCAC 2D .2100. It should be noted that the facility was issued a Notice of Deficiency (NOD) on October 22, 2021, for deficiencies found during the September 28, 2021, 112(r) inspection. According to WSRO, Pactiv's deadline of May 7th, 2025, to address NOV was extended to May 14th , 2025. It was confirmed they are in active communication to resolve the NOV. As of May 14, 2025, the NOV has not been fully resolved.

## 10. Public Notice/EPA and Affected State(s) Review

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. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. 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 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 02Q .0521 above.

## 11. Other Regulatory Considerations

- A P.E. seal is NOT required for this renewal application.
- PFAS: permit condition language has been added to Section 2.2 A due to NAICS/SIC query reported facility is suspected containing PFAS
- A zoning consistency determination is NOT required for this renewal application.
- A permit fee is NOT required for this renewal application.
- 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[2]. Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses[3] 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

[2] NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

[3] In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 (July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

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.

## 12. Recommendations

The permit renewal application for Pactiv LLC-Greensboro Facility 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. DAQ recommends the issuance of Air Permit No. 06095T23.

Attachment A
Pactiv Greensboro PTE Calcs

**Facility-Wide Controlled Emissions - Criteria Pollutants**

| Emission ID(s) | Emission Source Description | PM | | $PM_{10}$ | | $PM_{2.5}$ | | VOC | | CO | | $SO_2$ | | $NO_x$ | | $CO_2e$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) |
| ES-4, 5, 6, 7, 43 | Foam Extruder #1-#4, #5 | ---- | ---- | ---- | ---- | ---- | ---- | 109,963 | 54.98 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| CD-10 | Combustion Emissions from RTO for Fluff Storage Silos | 17.76 | 0.01 | 17.76 | 0.01 | 14.69 | 0.01 | 188 | 0.09 | 2,869 | 1.43 | 20 | 1.02E-02 | 3,415 | 1.71 | 4,103,117 | 2,052 |
| ES-7A to 7G | Thermoformer #1-#7 | ---- | ---- | ---- | ---- | ---- | ---- | 103,619 | 51.81 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-9 | Fluff Storage Silo | 102.44 | 0.05 | 102.44 | 0.05 | 96.70 | 0.05 | 16,381 | 8.19 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-11, 12 | Fluff Storage Silos #3-#4 | 204.88 | 0.10 | 204.88 | 0.10 | 193.41 | 0.10 | 32,762 | 16.38 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-13A, 19 | Reclaim Extruders #1 & #2 | 1,501.11 | 0.75 | 803.12 | 0.40 | 245.19 | 0.12 | 103,324 | 51.66 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-24 | Roll Storage Area | ---- | ---- | ---- | ---- | ---- | ---- | 103,619 | 51.81 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-25 | Finished Goods Handling Operation | ---- | ---- | ---- | ---- | ---- | ---- | 10,848 | 5.42 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-1, 2, 26 | Resin Pellet Silo Conveyor, Resin Pellet Silos #1 and #2 | 40.18 | 0.02 | 40.17 | 0.02 | 39.90 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-3 | Pneumatic Conveyor #2 | 139.71 | 0.07 | 136.86 | 0.07 | 119.52 | 0.06 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-10 | Talc Storage Silo #1 | 45.76 | 0.02 | 45.64 | 0.02 | 38.41 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-15, 16, 17, 18 | Resin Storage Conveyor, Reclaim Resin Pellet Silo #1-#4 | 28.07 | 1.40E-02 | 25.33 | 1.27E-02 | 15.82 | 7.91E-03 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-22 | Beringer Jet Cleaner | 1.45 | 7.23E-04 | 1.45 | 7.23E-04 | 1.45 | 7.23E-04 | 36.62 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-28A & B | Two blasters | 12.96 | 6.48E-03 | 6.24 | 3.12E-03 | 0.62 | 3.12E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-29 | Parts washer | ---- | ---- | ---- | ---- | ---- | ---- | 10,050 | 5.03 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-30 | Welding hood | 0.07 | 3.53E-05 | 0.07 | 3.53E-05 | 0.07 | 3.53E-05 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-31A & B | Dryers | 19.55 | 9.78E-03 | 19.53 | 9.77E-03 | 19.39 | 9.69E-03 | 25.39 | 1.27E-02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-35 | Reclaim Extruder Pneumatic Conveyor, Fluff Storage Conveyor and Foam Grinders | 531 | 0.27 | 531 | 0.27 | 499 | 0.25 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-37 | Hot melt adhesive system | ---- | ---- | ---- | ---- | ---- | ---- | 398 | 0.20 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-40 & 43 | Two cooling towers | 45.89 | 0.02 | 45.89 | 0.02 | 45.89 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-41 | Bag sealing operations | 2,080 | 1.04 | 2,080 | 1.04 | 2,080 | 1.04 | 3,641 | 1.82 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-42 | Maintenance chemicals | ---- | ---- | ---- | ---- | ---- | ---- | 947 | 0.47 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-44 | Electric Mini-Jet Oven | ---- | ---- | ---- | ---- | ---- | ---- | 0.55 | 2.75E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| *FACILITY TOTALS* | | *4,770.34* | *2.39* | *4,059.89* | *2.03* | *3,409.51* | *1.70* | *495,802* | *247.90* | *2,868.77* | *1.43* | *20.49* | *1%* | *3,415.20* | *1.71* | *4,103,117* | *2,052* |
| | | | | | | | | 24.6652 | 7.55 | 24.67 | | | | | | | |
| | | | | | | | | 223.24 | | | | | | | | | |
| | | | | | | | | ***247.90*** | | | | | | | | | |

**Facility-Wide Emissions - HAP/TAP Pollutants**

| CAS No. | Pollutant | ES-13A, 19 - Reclaim Extruder #1 & #2 | | | I-ES-22 - Beringer Jet Cleaner | | | I-ES-31A & B - Dryers | | | CD-10 - RTO for Fluff Storage Silos | | | I-ES-30 - Welding hood, I-ES-41 - Bag sealing operations | | | Facility-Wide Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) |
| 75-07-0 | Acetaldehyde (H,T) | 673.57 | 1.85 | 0.08 | ---- | ---- | ---- | ---- | ---- | ---- | 5.19E-04 | 1.42E-06 | 5.93E-08 | 73.07 | 0.20 | 8.34E-03 | 746.64 | 2.05 | 0.09 |
| 107-02-8 | Acrolein (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 6.15E-04 | 1.68E-06 | 7.02E-08 | ---- | ---- | ---- | 6.15E-04 | 1.68E-06 | 7.02E-08 |
| 7664-41-7 | Ammonia (T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 109.29 | 0.30 | 0.01 | ---- | ---- | ---- | 109.29 | 0.30 | 0.01 |
| 71-43-2 | Benzene (H,T) | 7.61 | 0.02 | 8.69E-04 | ---- | ---- | ---- | 0.31 | 8.43E-04 | 3.51E-05 | 0.07 | 1.96E-04 | 8.19E-06 | ---- | ---- | ---- | 7.99 | 0.02 | 9.12E-04 |
| 50-32-8 | Benzo(a)pyrene (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 4.10E-05 | 1.12E-07 | 4.68E-09 | ---- | ---- | ---- | 4.10E-05 | 1.12E-07 | 4.68E-09 |
| 106-99-0 | 1,3-Butadiene (H,T) | 3.79 | 0.01 | 4.32E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 3.79 | 0.01 | 4.32E-04 |
| CRC-Other | Chromium Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.20E-04 | 6.03E-07 | 2.51E-08 | 2.20E-04 | 6.03E-07 | 2.51E-08 |
| COC-Other | Cobalt Compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.87E-03 | 7.86E-06 | 3.27E-07 | 2.20E-04 | 6.03E-07 | 2.51E-08 | 3.09E-03 | 8.46E-06 | 3.53E-07 |
| 100-41-4 | Ethylbenzene (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 3.25 | 8.90E-03 | 3.71E-04 | 3.25 | 0.01 | 3.71E-04 |
| 50-00-0 | Formaldehyde (TH) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.56 | 7.02E-03 | 2.92E-04 | 62.45 | 0.17 | 7.13E-03 | 65.01 | 0.18 | 0.01 |
| 110-54-3 | Hexane, n- (TH) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 61.47 | 0.17 | 7.02E-03 | ---- | ---- | ---- | 61.47 | 0.17 | 0.01 |
| PBC-Other | Lead Compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.02 | 4.68E-05 | 1.95E-06 | ---- | ---- | ---- | 0.02 | 4.68E-05 | 1.95E-06 |
| MNC-Other | Manganese Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.07 | 1.92E-04 | 7.99E-06 | 0.07 | 1.92E-04 | 7.99E-06 |
| 91-20-3 | Naphthalene (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.02 | 5.71E-05 | 2.38E-06 | ---- | ---- | ---- | 0.02 | 5.71E-05 | 2.38E-06 |
| NIC-Other | Nickel Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.20E-04 | 6.03E-07 | 2.51E-08 | 2.20E-04 | 6.03E-07 | 2.51E-08 |
| SEC | Selenium compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 8.20E-04 | 2.25E-06 | 9.36E-08 | ---- | ---- | ---- | 8.20E-04 | 2.25E-06 | 9.36E-08 |
| 100-42-5 | Styrene (H,T) | 2,249.10 | 6.16 | 0.26 | 1.16 | 3.17E-03 | 1.32E-04 | 22.44 | 6.15E-02 | 2.56E-03 | ---- | ---- | ---- | 121.16 | 0.33 | 1.38E-02 | 2,393.85 | 6.56 | 0.27 |
| 108-88-3 | Toluene (H,T) | 157.18 | 0.43 | 0.02 | 0.67 | 1.85E-03 | 7.70E-05 | 2.21 | 6.05E-03 | 2.52E-04 | 0.12 | 3.18E-04 | 1.33E-05 | 14.36 | 0.04 | 1.64E-03 | 174.55 | 0.48 | 0.02 |
| 1330-20-7 | Xylene-mixed (H,T) | 38.94 | 0.11 | 4.44E-03 | ---- | ---- | ---- | 0.35 | 9.63E-04 | 4.01E-05 | ---- | ---- | ---- | 12.68 | 0.03 | 1.45E-03 | 51.97 | 0.14 | 0.01 |
| | | | | | | | | | | | 3471.04 | | | | | | 3,617.91 | | |

**Toxic Pollutant Emission Rate (TPER) Comparison for TAP**

| CAS No. | Pollutant | 15A NCAC 02Q .0711 - Emission Rates Requiring a Permit | | | Are Facility Emissions >TPER? (Y/N) | | |
|---|---|---|---|---|---|---|---|
| | | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) |
| 75-07-0 | Acetaldehyde (H,T) | | | 6.8 | | | N |
| 107-02-8 | Acrolein (H,T) | | | 0.02 | | | N |
| 7664-41-7 | Ammonia (T) | | | 0.68 | | | N |
| 71-43-2 | Benzene (H,T) | 8.1 | | | N | | |
| 50-32-8 | Benzo(a)pyrene (H,T) | 2.2 | | | N | | |
| 106-99-0 | 1,3-Butadiene (H,T) | 11 | | | N | | |
| CRC-Other | Chromium Compounds (H,T) | 0.0056 | | | N | | |
| 50-00-0 | Formaldehyde (TH) | | | 0.04 | | | N |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 110-54-3 | Hexane, n- (TH) | | 23 | | | N | |
| MNC-Other | Manganese Compounds (H,T) | | 0.62 | | | N | |
| NIC-Other | Nickel Compounds (H,T) | | 0.013 | | | N | |
| 100-42-5 | Styrene (H,T) | | | 2.7 | | | N |
| 108-88-3 | Toluene (H,T) | | 98 | 14.4 | | N | N |
| 1330-20-7 | Xylene-mixed (H,T) | | 57 | 16.4 | | N | N |

**Facility-Wide Uncontrolled Emissions - Criteria Pollutants**

| Emission ID(s) | Emission Source Description | PM | | $PM_{10}$ | | $PM_{2.5}$ | | VOC | | CO | | $SO_2$ | | $NO_X$ | | $CO_2e$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) | (lb/yr) | (tpy) |
| ES-4, 5, 6, 7, 43 | Foam Extruder #1-#4, #5 | ---- | ---- | ---- | ---- | ---- | ---- | 109,963 | 54.98 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| CD-10 | Combustion Emissions from RTO for Fluff Storage Silos | 17.76 | 0.01 | 17.76 | 0.01 | 14.69 | 0.01 | 188 | 0.09 | 2,869 | 1.43 | 20 | 1.02E-02 | 3,415 | 1.71 | 4,103,117 | 2,052 |
| ES-7A to 7G | Thermoformer #1-#7 | ---- | ---- | ---- | ---- | ---- | ---- | 103,619 | 51.81 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-9 | Fluff Storage Silo | 10,244 | 5.12 | 10,244 | 5.12 | 9,670 | 4.84 | 137,765 | 68.88 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-11, 12 | Fluff Storage Silos #3-#4 | 20,488 | 10.24 | 20,488 | 10.24 | 19,341 | 9.67 | 275,531 | 137.77 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-13A, 19 | Reclaim Extruders #1 & #2 | 1,501.11 | 0.75 | 803.12 | 0.40 | 245.19 | 0.12 | 103,324 | 51.66 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-24 | Roll Storage Area | ---- | ---- | ---- | ---- | ---- | ---- | 103,619 | 51.81 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| ES-25 | Finished Goods Handling Operation | ---- | ---- | ---- | ---- | ---- | ---- | 10,848 | 5.42 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-1, 2, 26 | Resin Pellet Silo Conveyor, Resin Pellet Silos #1 and #2 | 40.18 | 0.02 | 40.17 | 0.02 | 39.90 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-3 | Pneumatic Conveyor #2 | 139.71 | 0.07 | 136.86 | 0.07 | 119.52 | 0.06 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-10 | Talc Storage Silo #1 | 45.76 | 0.02 | 45.64 | 0.02 | 38.41 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-15, 16, 17, 18 | Resin Storage Conveyor, Reclaim Resin Pellet Silo #1-#4 | 28.07 | 1.40E-02 | 25.33 | 1.27E-02 | 15.82 | 7.91E-03 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-22 | Beringer Jet Cleaner | 1.45 | 7.23E-04 | 1.45 | 7.23E-04 | 1.45 | 7.23E-04 | 36.62 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-28A & B | Two blasters | 12.96 | 6.48E-03 | 6.24 | 3.12E-03 | 0.62 | 3.12E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-29 | Parts washer | ---- | ---- | ---- | ---- | ---- | ---- | 10,050 | 5.03 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-30 | Welding hood | 0.07 | 3.53E-05 | 0.07 | 3.53E-05 | 0.07 | 3.53E-05 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-31A & B | Dryers | 19.55 | 9.78E-03 | 19.53 | 9.77E-03 | 19.39 | 9.69E-03 | 25.39 | 1.27E-02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-35 | Reclaim Extruder Pneumatic Conveyor, Fluff Storage Conveyor and Foam Grinders | 531 | 0.27 | 531 | 0.27 | 499 | 0.25 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-37 | Hot melt adhesive system | ---- | ---- | ---- | ---- | ---- | ---- | 398 | 0.20 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-40 & 43 | Two cooling towers | 45.89 | 0.02 | 45.89 | 0.02 | 45.89 | 0.02 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-41 | Bag sealing operations | 2,080 | 1.04 | 2,080 | 1.04 | 2,080 | 1.04 | 3,641 | 1.82 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-42 | Maintenance chemicals | ---- | ---- | ---- | ---- | ---- | ---- | 947 | 0.47 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| I-ES-44 | Electric Mini-Jet Oven | ---- | ---- | ---- | ---- | ---- | ---- | 0.55 | 2.75E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| *FACILITY TOTALS* | | *35,194.33* | *17.60* | *34,483.88* | *17.24* | *32,130.42* | *16.07* | *859,955* | *429.98* | *2,868.77* | *1.43* | *20.49* | *1%* | *3,415.20* | *1.71* | *4,103,117* | *2,052* |

**Facility-Wide Emissions - HAP/TAP Pollutants**

| CAS No. | Pollutant | ES-13A, 19 - Reclaim Extruder #1 & #2 | | | I-ES-22 - Beringer Jet Cleaner | | | I-ES-31A & B - Dryers | | | CD-10 - RTO for Fluff Storage Silos | | | I-ES-30 - Welding hood, I-ES-41 - Bag sealing operations | | | Facility-Wide Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) | (lb/yr) | (lb/day) | (lb/hr) |
| 75-07-0 | Acetaldehyde (H,T) | 673.57 | 1.85 | 0.08 | ---- | ---- | ---- | ---- | ---- | ---- | 5.19E-04 | 1.42E-06 | 5.93E-08 | 73.07 | 0.20 | 8.34E-03 | 746.64 | 2.05 | 0.09 |
| 107-02-8 | Acrolein (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 6.15E-04 | 1.68E-06 | 7.02E-08 | ---- | ---- | ---- | 6.15E-04 | 1.68E-06 | 7.02E-08 |
| 7664-41-7 | Ammonia (T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 109.29 | 0.30 | 0.01 | ---- | ---- | ---- | 109.29 | 0.30 | 0.01 |
| 71-43-2 | Benzene (H,T) | 7.61 | 0.02 | 8.69E-04 | ---- | ---- | ---- | 0.31 | 8.43E-04 | 3.51E-05 | 0.07 | 1.96E-04 | 8.19E-06 | ---- | ---- | ---- | 7.99 | 0.02 | 9.12E-04 |
| 50-32-8 | Benzo(a)pyrene (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 4.10E-05 | 1.12E-07 | 4.68E-09 | ---- | ---- | ---- | 4.10E-05 | 1.12E-07 | 4.68E-09 |
| 106-99-0 | 1,3-Butadiene (H,T) | 3.79 | 0.01 | 4.32E-04 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 3.79 | 0.01 | 4.32E-04 |
| CRC-Other | Chromium Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.20E-04 | 6.03E-07 | 2.51E-08 | 2.20E-04 | 6.03E-07 | 2.51E-08 |
| COC-Other | Cobalt Compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.87E-03 | 7.86E-06 | 3.27E-07 | 2.20E-04 | 6.03E-07 | 2.51E-08 | 3.09E-03 | 8.46E-06 | 3.53E-07 |
| 100-41-4 | Ethylbenzene (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 3.25 | 8.90E-03 | 3.71E-04 | 3.25 | 0.01 | 3.71E-04 |
| 50-00-0 | Formaldehyde (TH) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.56 | 7.02E-03 | 2.92E-04 | 62.45 | 0.17 | 7.13E-03 | 65.01 | 0.18 | 0.01 |
| 110-54-3 | Hexane, n- (TH) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 61.47 | 0.17 | 7.02E-03 | ---- | ---- | ---- | 61.47 | 0.17 | 0.01 |
| PBC-Other | Lead Compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.02 | 4.68E-05 | 1.95E-06 | ---- | ---- | ---- | 0.02 | 4.68E-05 | 1.95E-06 |
| MNC-Other | Manganese Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.07 | 1.92E-04 | 7.99E-06 | 0.07 | 1.92E-04 | 7.99E-06 |
| 91-20-3 | Naphthalene (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.02 | 5.71E-05 | 2.38E-06 | ---- | ---- | ---- | 0.02 | 5.71E-05 | 2.38E-06 |
| NIC-Other | Nickel Compounds (H,T) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 2.20E-04 | 6.03E-07 | 2.51E-08 | 0.00 | 6.03E-07 | 2.51E-08 |
| SEC | Selenium compounds (H) | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 8.20E-04 | 2.25E-06 | 9.36E-08 | ---- | ---- | ---- | 0.00 | 2.25E-06 | 9.36E-08 |
| 100-42-5 | Styrene (H,T) | 2,249.10 | 6.16 | 0.26 | 1.16 | 3.17E-03 | 1.32E-04 | 22.44 | 6.15E-02 | 2.56E-03 | ---- | ---- | ---- | 121.16 | 0.33 | 1.38E-02 | 2,393.85 | 6.56 | 0.27 |
| 108-88-3 | Toluene (H,T) | 157.18 | 0.43 | 0.02 | 0.67 | 1.85E-03 | 7.70E-05 | 2.21 | 6.05E-03 | 2.52E-04 | 0.12 | 3.18E-04 | 1.33E-05 | 14.36 | 0.04 | 1.64E-03 | 174.55 | 0.48 | 0.02 |
| 1330-20-7 | Xylene-mixed (H,T) | 38.94 | 0.11 | 4.44E-03 | ---- | ---- | ---- | 0.35 | 9.63E-04 | 4.01E-05 | ---- | ---- | ---- | 12.68 | 0.03 | 1.45E-03 | 51.97 | 0.14 | 0.01 |
| | | | | | | | | | | | | | | | | | 3,617.91 | | |

# Attachment B
# Emission Factor Notes

**VOC Emission Factor for Area 1: Extrusion, Roll Storage, Thermoforming**

The VOC Emission Factor for Area 1 (Extrusion, Roll Storage and Thermoforming) is a ratio of VOC emissions from extrusion, roll storage and thermoforming (A) to VOC input of raw material (B).

- VOC input of raw material (B) is determined based on the blowing agent input rate (%) multiplied by the annual potential extruder throughput.
- VOC emissions from extrusion, roll storage and thermoforming (A) is determined by:
  - Ratio of extruder throughput, excluding scrap, (C) to total material in (D) multiplied by VOC input of raw material (B)
  - Subtract out VOC leaving thermoforming and going to later processes (E)

$$\frac{A}{B} = \frac{\frac{C \times B}{D} - E}{B}$$

**VOC Emission Factor for Area 1: Extrusion Scrap Emissions**

The VOC Emission Factor for Area 1 (Extrusion Scrap Emissions) is a ratio of VOC emissions from extrusion scrap emissions (F) to VOC input of raw material (B). These VOCs are collected and routed to the RTO for control (this emission factor is quantified the same way as the emission factor above, but for the extrusion scrap portion).

- VOC input of raw material (B) is determined based on the blowing agent input rate (%) multiplied by the annual potential extruder throughput.
- VOC emissions from extrusion scrap emissions (F) is determined by:
  - Ratio of VOC input in extrusion scrap (G) to total material in (D) and accounts for a buoyancy factor
  - Subtract out VOC leaving extrusion scrap processes (H), determined using a mass balance of solids in the extrusion scrap

$$\frac{F}{B} = \frac{\frac{G}{D} \times \text{Buoyancy Factor} - H}{B}$$

**VOC Emission Factor for Area 2: Uncontrolled VOC to Reclaim Fluff Silos**

The VOC Emission Factor for Area 2 (Uncontrolled VOC to Reclaim Fluff Silos) is a ratio of VOC emissions from reclaim fluff silos (I) to VOC input of raw material (B).

- VOC input of raw material (B) is determined based on the blowing agent input rate (%) multiplied by the annual potential extruder throughput.
- VOC emissions from reclaim fluff silos (I) is determined by:
  - VOC available for control (J) minus VOC sent to the RTO (K)
  - VOC available for control (J) is a mass balance of the VOC in total scrap for reclaim (L), which excludes uncaptured VOC (M) (zero, as all VOC is captured by the RTO

when it is running and reclaim system capture efficiency is 100%) and VOC to the reclaim extruders (N)

$$\frac{I}{B} = \frac{J - K}{B} = \frac{L - M - N - K}{B}$$

**VOC Emission Factor for Area 2: Reclaim Extruder Emissions**

The VOC Emission Factor for Area 2 (Uncontrolled VOC to Reclaim Fluff Silos) is a ratio of VOC to the reclaim extruders (N) to VOC input of raw material (B).

- VOC input of raw material (B) is determined based on the blowing agent input rate (%) multiplied by the annual potential extruder throughput.
- VOC to the reclaim extruders (N) is determined by:
    - VOC in total scrap for reclaim (L, described above) and accounts for 10% VOC in the scrap.

$$\frac{N}{B} = \frac{L \times 10\%}{B}$$

# Attachment C
# PFAS Screening Questions

**Addressing Emerging Contaminants Screening Questions**

1. Will your facility use any material or products in your operations that contain fluorinated chemicals? If so, please identify such materials or products and the fluorinated chemicals they contain. **No**
2. Will your facility formulate/create products or byproducts (directly or indirectly) containing fluorinated chemicals (across multiple media)? If so, please identify such products or byproducts and the fluorinated chemicals they contain. **No**
3. Will your facility generate solid, liquid, or gaseous related emissions, discharges, or wastes/products containing fluorinated chemicals? If so, please identify such waste streams or materials and the fluorinated chemicals they contain. **No**
4. Do your facility's processes or operations use equipment, material, or components that contain fluorinated chemicals (e.g., surface coating, clean room applications, solvents, lubricants, fittings, tubing, processing tools, packaging, facility infrastructure, air pollution control units)? Could these processes or operations directly or indirectly (e.g., through leaching, chemical process, heat treatment, pressurization, etc.) result in the release of fluorinated chemicals into the environment? **No**
5. List the fluorinated chemicals identified (i.e., through testing or desktop review) above in your response under the appropriate methods/approaches? If one is not, are they on any other known US or International target lists? **N/A**
    - OTM-45 (air emissions)
    - Methods 533 & 537.1 (drinking water)
    - SW-846: Method 8327 (water)
    - Draft Method 1633 (water, solids, tissue)
    - "Total PFAS" Draft Method 1621 for Adsorbable Organic Fluorine (wastewater)
    - Non targeted analytical methods
    - Qualitative approach through suspect screening
6. Are there other facilities or operations in the U.S. or internationally engaged in the same or similar activities involving fluorinated chemicals addressed in your response to the above questions? If so, please provide facility identification information? In addition, are there any ISO (International Organization for Standardization) certification requirements? – **We are not aware of any current use of PFAS at any other location.**
7. Do you plan to store AFFF on site, use it in fire training at the site, use it for fighting fires at the facility, or include it in a fire fighting system at the site? **No**
8. Are other emerging contaminants (e.g., 1,4-dioxane, brome, perchlorate, 1,2,3-Trichloropropane) used in some capacity within your facility or operations? **No**
9. Do you need technical assistance to answer the above questions? **No**

In identifying any fluorinated chemicals or emerging contaminants in response to any of the above questions, please use CAS numbers (if available) and specify the relevant quantities of any such chemicals. If your answers to any of the above questions rely on assumptions or, if information necessary to respond to any of these questions is unavailable, please state. If any of the information requested is deemed a "trade secret" under N.C.G.S. § 66-152(3) and subject to

confidential treatment under N.C.G.S. § 132-1.2(1) as required under the Public Record Act, please contact us to discuss proper designation of this information.