**NORTH CAROLINA DIVISION OF AIR QUALITY**

# Application Review

**Issue Date: March 4, 2025**

**Region:** Raleigh Regional Office
**County:** Franklin
**NC Facility ID:** 3500067
**Inspector's Name:** Abdul Kadir
**Date of Last Inspection:** 04/03/2024
**Compliance Code:** 3 / Compliance - inspection

## Facility Data

**Applicant (Facility's Name):** K-Flex USA, LLC

**Facility Address:**
K-Flex USA, LLC
100 K-Flex Way
Youngsville, NC 27596

**SIC:** 3086 / Plastics Foam Products
**NAICS:** 326150 / Urethane and Other Foam Product (except Polystyrene) Manufacturing

**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, 02D .0521, 02D .1100,
**NSPS:** N/A
**NESHAP:** 40 CFR 63 Subpart ZZZZ
**PSD:** N/A
**PSD Avoidance:** 15A NCAC 02Q .0317
**NC Toxics:** 15A NCAC 02D .1100, 02Q .0711
**112(r):** 15A NCAC 02D .2100
**Other:** N/A

## Contact Data

| Facility Contact | Authorized Contact | Technical Contact |
|---|---|---|
| Victor Nagy<br>EHS Coordinator<br>(919) 909-2922<br>100 K-Flex Way<br>Youngsville, NC 27596 | Giuseppe Guarino<br>President<br>(919) 435-5533<br>100 K-Flex Way<br>Youngsville, NC 27596 | Victor Nagy<br>EHS Coordinator<br>(919) 909-2922<br>100 K-Flex Way<br>Youngsville, NC 27596 |

## Application Data

**Application Number:** 3500067.24B
**Date Received:** 10/07/2024
**Application Type:** Modification
**Application Schedule:** TV-Minor

**Existing Permit Data**
**Existing Permit Number:** 07866/T24
**Existing Permit Issue Date:** 09/09/2024
**Existing Permit Expiration Date:** 08/31/2029

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

| CY | SO2 | NOX | VOC | CO | PM10 | Total HAP | Largest HAP |
|---|---|---|---|---|---|---|---|
| 2023 | 0.0100 | 1.65 | 106.18 | 8.76 | 1.80 | 0.3248 | 0.0967 [Carbon disulfide] |
| 2022 | 0.0100 | 1.69 | 82.72 | 6.01 | 1.13 | 0.2364 | 0.0604 [Carbon disulfide] |
| 2021 | 0.0100 | 1.75 | 77.85 | 8.97 | 1.82 | 0.3570 | 0.0985 [Carbon disulfide] |
| 2020 | 0.0100 | 2.23 | 85.37 | 9.83 | 2.13 | 0.4610 | 0.1080 [Carbon disulfide] |
| 2019 | 0.0100 | 2.36 | 122.19 | 10.23 | 2.19 | 0.6827 | 0.2078 [Hexane, n-] |

**Review Engineer:** Emily Supple

**Review Engineer's Signature:** **Date:** 03/04/2025
*Emily J Supple*

**Comments / Recommendations:**
**Issue** 07866/T25
**Permit Issue Date:** March 4, 2025
**Permit Expiration Date:** 08/31/2029

## 1. Purpose of Application

K-Flex USA, LLC (K-Flex), located in Youngsville, Franklin County, North Carolina, currently holds Air Quality Title V Permit No. 07866T24 with an expiration date of August 31, 2029.

On October 7, 2024, the North Carolina Department of Environmental Quality (NCDEQ), Division of Air Quality (DAQ), received Permit Application No. 3500067.24B, pursuant to Title V program's minor modification provision.

The application was missing a signed Form E5, so on October 9, 2024, a request to the applicant was made via email for a signed hardcopy of Form E5 to be sent to the DAQ Central Permitting Office. The signed Form E5 hardcopy was received on October 18, 2024, and the minor modification acknowledgement letter was sent on October 28, 2024. The payment of $3,508 was received in full via ePay on October 17, 2024.

The application was missing a zoning consistency determination, so on November 27, 2024, a request to the applicant was made via email to send a copy of a signed zoning consistency determination. An incompleteness letter was sent on December 2, 2024. The zoning consistency determination was received via email on January 8, 2025.

On December 5, 2024, an application addendum was received requesting to keep the Dosing Table No. 2 (ID No. ES-11) in the permit instead of removing it, as was originally requested.

This permitting action will be considered a Title V minor modification under 15A NCAC 02Q .0515. With this application, K-Flex is proposing the following changes:

- Add new Auto Dosing (ID No. ES-19) to vent to existing Baghouse #2 (ID No. B-10)

- Add new Expanded Polyethylene (EPE) Extruder Line 3 (ID No. ES-20), identical to existing EPE Extruder Lines 1 and 2 (ID Nos. ES-12 and ES-13), and identical to the EPE Line 3 (previous ID No. ES-14), included in previous Permit No. 07866R21, issued August 16, 2017.

The proposed changes are not expected to increase emissions of any regulated air pollutants, trigger any new applicable regulatory requirements, or alter existing permit limits.

## 2. Facility Description

The following facility description is taken from the most recent inspection report, dated April 15, 2024, by Abdul Kadir of the Raleigh Regional Office:

> *K-Flex manufactures commercial and industrial pipe insulation products utilizing rubber and polyethylene extrusion processes. For the rubber extrusion processes, raw materials (both natural and synthetic rubber) are first mixed and blended and then extruded using heat into pipe insulation or flat/sheet insulation. After the extrusion process is complete, the pipe insulations are split length-wise, cut to the appropriate length, and packaged for shipment.*

The existing permitted equipment includes the following sources and associated control devices:

- <u>Rubber Extrusion Operation</u>
    - Three (3) hot oil heated continuous curing ovens (ID Nos. ES-6A, ES-6D, and ES-6F)
    - Two (2) natural gas-fired batch curing ovens (0.88 million Btu per hour maximum heat input capacity, each) (ID Nos. ES-6B and ES-ES-6C)
        - All above sources exhaust to one of two exhaust treatment trains: (1) pre-filter (ID No. C-9A) in series with a coalescence filter (ID No. C-10A) in series with a steel AISI scrubber (265 gallons per minute minimum injection rate) (ID No. C-11A) and (2) pre-filter (ID No. C-9B) in series with a coalescence filter (ID No. C-10B) in

series with a steel AISI scrubber (265 gallons per minute minimum injection rate) (ID No. C-11B)
    - Mixer No. 1 (ID No. ES-7)
        - Exhausts to a fabric filter (790 square feet of filter area) (ID No. B-9)
    - Mixer No. 2 (9,106 pounds per hour maximum throughput) (ID No. ES-8)
        - Exhausts to a fabric filter (790 square feet of filter area) (ID No. B-10)
    - Mixer No. 3 (2,811 pounds per hour maximum throughput) (ID No. ES-10)
        - Exhausts to a fabric filter (1,600 square feet of filter area) (ID No. B-11)
    - Dosing Table No. 1 (ID No. ES-9)
        - Exhausts to a fabric filter (790 square feet of filter area) (ID No. B-10)
    - Dosing Table No. 2 (ID No. ES-11)
        - Exhausts to a fabric filter (1,600 square feet of filter area) (ID No. B-11)
- EPE Extrusion Operation
    - Two (2) EPE Extruder Lines (397 pounds per hour maximum throughput) (ID Nos. ES-12 and ES-13) **– The new EPE Extruder Line No. 3 (ID No. ES-20), being permitted with this permitting action, will be identical to these existing sources.**
        - No control devices are associated with these sources.

**3. History/Background/Application Chronology**

History/Background

| | |
|---|---|
| August 16, 2017 | Permit No. 07866T21 issued to K-Flex USA, LLC. The previous EPE Extruder Line No. 3 (ID No. ES-14) is listed in this version of the permit with the following source description: *EPE Extruder Line 3 (397 pounds per hour, maximum throughput)*. No control devices are associated with this emission source. |
| December 6, 2019 | Permit No. 07866T22 issued to K-Flex USA, LLC. The previous EPE Extruder Line No. 3 (ID No. ES-14) was removed from the permit with this permitting action. |
| June 11, 2020 | Permit No. 07866T23 issued to K-Flex USA, LLC for administrative amendment. |
| May 13, 2024 | Application No. 3500067.24A received for Title V permit renewal. |
| September 9, 2024 | Permit No. 07866T24 issued to K-Flex USA, LLC for permit renewal. |

Application Chronology

| | |
|---|---|
| September 17, 2024 | DAQ and K-Flex USA, LLC met via Microsoft Teams meeting to discuss the proposed changes with Application No. 3500067.24B. |
| October 7, 2024 | Application No. 3500067.24B received for minor modification. |
| October 9, 2024 | DAQ requested a signed hardcopy of Form E5 to complete Application No. 3500067.24B. |
| October 16, 2024 | Mark Cramer of The EI Group, Inc., facility consultant, sent an email with a digital copy of the signed Form E5 attached. |
| October 17, 2024 | Payment of $3,508 received for minor modification application via ePay. |
| October 18, 2024 | Received hardcopy of signed Form E5. Application No. 3500067.24B for minor modification is complete. |

| | |
|---|---|
| October 28, 2024 | Minor modification acknowledgement letter sent to K-Flex USA, LLC indicating a complete application, and the facility may implement the proposed changes as a minor modification under 15A NCAC 02Q .0515 immediately. |
| November 6, 2024 | Draft permit and review sent to direct supervisor for review. |
| November 28, 2024 | Supervisor provided comments and noted the missing zoning consistency determination. |
| December 2, 2024 | Revised minor modification acknowledgement letter sent to K-Flex USA, LLC indicating an incomplete application due to a missing zoning consistency determination. |
| December 5, 2024 | Application addendum received via email. The facility requested to keep the Dosing Table No. 2 (ID No. ES-11) in the permit instead of removing it, as was originally requested. |
| January 8, 2025 | A signed zoning consistency determination was received for this application for minor modification. The application was deemed complete as of this date. |
| January 15, 2025 | Draft permit and review sent to applicant, Raleigh Regional Office (RRO), and the stationary source compliance branch (SSCB) for comments. No comments were received from the regional office or from SSCB. |
| January 31, 2025 | Comments were received from Mark Cramer, facility consultant, and are discussed in Section 12 below. |
| February 4, 2025 | DAQ requested additional information regarding calculation of potential emissions. |
| February 14, 2025 | Additional information was received from Mark Cramer, facility consultant, and is discussed in Section 12 below. |
| March 4, 2025 | Permit No. 07866T25 issued. |

**4. Permit Modification/Emission Changes and TVEE Discussion**

Application No. 3500067.24B and the application addendum received on December 5, 2024 propose the following changes to the facility's current Permit No. 07866T24 as part of this minor modification:

- Add new Auto Dosing (ID No. ES-19) to vent to existing Baghouse #2 (ID No. B-10)
- Add new Expanded Polyethylene (EPE) Extruder Line 3 (ID No. ES-20), identical to existing EPE Extruder Lines 1 and 2 (ID Nos. ES-12 and ES-13), and identical to the EPE Line 3 (previous ID No. ES-14), included in previous Permit No. 07866R21, issued August 16, 2017.

<u>Add New Auto Dosing (ID No. ES-19)</u>

Per the application, the facility is requesting to add the new Auto Dosing (ID No. ES-19) to the permit. Potential mixing/milling emissions are currently limited by the rubber extruder capacities, which will remain the same. The new Auto Dosing (ID No. ES-19) will exhaust to the existing fabric filter (ID No. B-10). Thus, facility emissions are not expected to change with this proposed change.

<u>Add New Expanded Polyethylene (EPE) Extruder Line 3 (ID No. ES-20)</u>

Per the application, the new EPE Line 3 (ID No. ES-20) is being proposed to enhance operating flexibility to run three different EPE products/sizes simultaneously, not to increase the total EPE production. K-Flex is proposing to keep the existing PSD avoidance limit of 432,000 pounds total isobutane usage per consecutive 12-month period to be applicable to all three EPE lines. Thus, facility emissions are not expected to change with this proposed change.

Title V Equipment Editor (TVEE)

TVEE was updated as part of this application and was reviewed and approved on March 3, 2025 by Connie Horne of DAQ.

Permit Changes

Table 4.1 below describes the changes to the facility's current Air Permit No. 07866T24 as a result of this minor modification:

**Table 4.1: Table of Changes to Permit No. 07866T24**

| Page No. | Section | Description of Changes |
|---|---|---|
| Cover and throughout | -- | • Updated all dates and permit revision numbers<br>• Updated to current shell language and formatting |
| 4 | 1 | • Added emission sources (ID Nos. ES-19 and ES-20)<br>• Updated equipment table section headings |
| 5-6 | 2.1 A.1 | • Added emission source (ID No. ES-19) to list of affected sources under 02D .0515 |
| 7 | 2.1 A.3 | • Added emission source (ID No. ES-19) to list of affected sources under 02D .0521<br>• Added requirement to establish "normal" visible emissions from this source (ID No. ES-19) |
| 9-10 | 2.2 A.1 | • Added emission source (ID No. ES-19) to list of affected sources under 02D .1100<br>• Added reporting requirement for summary of required monitoring and recordkeeping |
| 10-11 | 2.2 A.3 | • Added new emission source (ID No. ES-20) to list of affected sources under 02Q .0317 (PSD Avoidance) |
| 13 | 2.3 | • Created Section 2.3, Other Applicable Requirements and moved conditions 02D .2100 and 02Q .0308(a)/02Q .0309(b) to this section |

## 5. Regulatory Review

The following regulations were reviewed as part of this minor modification:

- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0521, Control of Visible Emissions
- 15A NCAC 02D .1100, Control of Toxic Air Pollutants
- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions
- 15A NCAC 02D .2100, Risk Management Program
- 15A NCAC 02Q .0308(a) and 02Q .0309(b), Disclosure of Information Relating to Emissions of Fluorinated Chemicals
- 15A NCAC 02Q .0317, Avoidance of PSD (VOC)
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

a. 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes

This rule applies to stacks, vents, or outlets emitting particulates from industrial processes with no other applicable standards. The allowable emission rate is in terms of pounds per hour and is calculated using the following equation:

For process rates up to 30 tons per hour:

$$E = 4.10(P)^{0.67}$$

For process rates greater than 30 tons per hour:

$$E = 55.0(P)^{0.11} - 40$$

Where: E = Allowable emission rate in pounds per hour
P = Process weight in tons per hour

The new Auto Dosing (ID No. ES-19) is subject to 02D .0515.

Table 5.1 below shows the expected maximum process rate of this source, the calculated allowable particulate emission rate, the potential particulate emission rate, and the expected actual particulate emission rate.

**Table 5.1: Allowable Emission Rate vs. Potential Emission Rate**

| Source ID No. | Max. Process Rate[2] (tph) | Allowable Emission Rate[3] (lb/hr) | Potential PM Emission Rate[4] (lb/hr) | Actual PM Emission Rate[5] (lb/hr) |
|---|---|---|---|---|
| Auto Dosing[1] (ID No. ES-19) | 1.39 | 5.11 | 5.61 | 0.56 |

[1] Auto Dosing provides automated measurements of materials (i.e., ethylene propylene diene monomer (EPDM), nitrile butadiene rubber (NBR), additives, etc.) to be added to the mixing operation.
[2] Maximum process rate of Auto Dosing taken from the permit application, Form B9, where the following calculation is provided: Auto Dosing Capacity = 3 bags/min x 7 kg/bag x 60 min/hr = 1,260 kg/hr = 2,778 lb/hr, or 1.39 tons per hour.
[3] The equation $E = 4.10(P)^{0.67}$ was used to calculate the allowable particulate emission rate for this emission source since the process rate was less than 30 tons per hour for each area.
[4] Potential emission rate of PM calculated using data in the application including an emission factor of 2.02E-03 lb PM/lb rubber, determined by facility mass balance, and the maximum process rate as follows: Potential PM Emission Rate = 2.02E-03 lb PM/lb rubber x 2,778 lb/hr = 5.61 lb/hr
[5] Actual emission rate calculated using a control efficiency of 90% for the fabric filter (ID No. B-10) as follows: Actual PM Emission Rate = 5.61 lb/hr x (1-control eff. (90%)) = 0.56 lb/hr

Table 5.1 demonstrates that the actual particulate emission rate of Auto Dosing (ID No. ES-19) is expected to be below the allowable particulate emission rate. Thus, compliance with 02D .0515 is expected.

To ensure compliance with this regulation, the Permittee shall conduct a monthly external visual inspection of the system ductwork and material collection unit for leaks and an annual internal inspection of the fabric filter's (ID No. B-10) structural integrity. The results of all inspection and maintenance shall be maintained in a logbook onsite and be made available for inspection upon request. The Permittee shall submit a summary report of the required monitoring and recordkeeping activities on a semiannual basis.

No changes to the requirements of this condition are necessary with this minor modification.

b. 15A NCAC 02D .0521, Control of Visible Emissions

For sources manufactured after July 1, 1971, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period. However, except for sources required to install COMs, six-minute averaging periods may exceed 20 percent opacity if:

(1) No six-minute period exceeds 87 percent opacity;
(2) No more than one six-minute period exceeds 20 percent opacity in any hour; and
(3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

The new Auto Dosing (ID No. ES-19) is subject to 02D .0521.

To ensure compliance with this regulation, the Permittee shall establish "normal" for the new Auto Dosing (ID No. ES-19) within 30 days following the beginning of operation of this source. Additionally, the Permittee shall conduct monthly visible emissions observations and take appropriate action to correct any above-normal emissions as soon as practicable and within the monitoring period. The results of the monitoring shall be recorded and maintained in a logbook onsite and be made available for inspection upon request. The Permittee shall submit a summary report of the required monitoring and recordkeeping activities on a semiannual basis.

Compliance with 02D .0521 is expected.

No changes to this permit condition are required as part of this minor modification.

c. 15A NCAC 02D .1100, Control of Toxic Air Pollutants

See Section 7 below for a discussion of State Air Toxics applicability.

d. 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions

This condition is state-enforceable only. This rule requires that the facility shall not be operated without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from causing or contributing to objectionable odors beyond the facility's boundary.

This rule is applicable facility wide. No monitoring, recordkeeping, or reporting is required.

Compliance with 02D .1806 is expected.

No changes to this permit condition are required as part of this minor modification.

e. 15A NCAC 02D .2100, Risk Management Program

See Section 6.d below for a discussion of 112(r) applicability.

f. 15A NCAC 02Q .0308(a) and 02Q .0309(b), Disclosure of Information Relating to Emissions of Fluorinated Chemicals

This condition is state-enforceable only. The facility has an ongoing duty to disclose the presence of materials containing fluorinated chemicals at the facility that have the potential to result in the emission of fluorinated chemicals to the environment. The facility must disclose the presence of these materials to the Regional Office Supervisor, in writing, within thirty days of becoming aware of such information. DAQ may require testing or analysis of the materials to properly evaluate emissions sources at the facility.

No emissions increases are expected with the proposed changes in this application, including emissions of any fluorinated chemicals.

Compliance with this regulation is expected and will be determined during inspections.

g. 15A NCAC 02Q .0317, Avoidance of PSD (VOC)

K-Flex is currently subject to a facility-wide VOC emission limit of less than 250 tons per year to avoid PSD applicability for major sources and major modifications. As per the T24 permit review, since the other existing sources of VOC (natural gas combustion sources, emergency generators, and printing/cladding/gluing operations) at the site have potential VOC emissions estimated at 34 tons per year, the two existing EPE extrusion lines are limited to less than 216 tons of VOC emissions per year to ensure the facility wide VOC emissions stay below 250 tons per year.

EPE is manufactured using an extrusion process, where low density polyethylene (LDPE) resins and additives are blended and heated, then a blowing agent, isobutane (a VOC), is injected near the head of the extruder, followed by expansion of the mixture into EPE foam. No (or low) VOC emissions are expected from the LDPE resins and additives. The blowing agent, isobutane, is assumed to be emitted at 100% usage, so usage of isobutane is restricted to 432,000 pounds per consecutive 12-month period to ensure compliance with the PSD avoidance limit of less than 216 tons per year.

With the addition of a third EPE extrusion line, the facility will continue to be subject to the existing production limit of 432,000 pounds of isobutane usage per consecutive 12-month period.

With this permitting action, the following updates to the permit were made:

- All potential sources of VOCs are now listed under 15A NCAC 02Q .0317, PSD Avoidance for VOC, including the curing ovens (ID Nos. ES-6A, ES-6B, ES-6C, ES-6D, and ES-6F), the mixing and milling operations (ID Nos. ES-7, ES-8, ES-9, ES-10, ES-11, and new source ES-19), the emergency generators (ID No. IES-5 and IES-9), the printing/cladding/gluing operations (ID Nos. IES-10 and IES-12), and all insignificant natural gas combustion sources (ID Nos. IES-6, IES-7, IES-8, IES-13, IES-14, IES-15, IES-16, and IES-17).
- The VOC PSD Avoidance condition under 02Q .0317 was be updated to list the actual existing permit limit of 250 tons per year. No monitoring and recordkeeping requirements for VOC emissions from the sources of VOC including (ID Nos. ES-6A, ES-6B, ES-6C, ES-6D, ES-6F, ES-7, ES-8, ES-9, ES-10, ES-11, ES-19, IES-5, IES-9, IES-10, IES-12, IES-6, IES-7, IES-8, IES-13, IES-14, IES-15, IES-16, and IES-17) will apply. The potential emissions of these sources have been accounted for in setting the 216 ton per year emission limit for the extruders (ID Nos. ES-11, ES-12, and ES-20).

Compliance with 02Q .0317 is expected and will be verified during inspections.

h. 15A NCAC 02Q .0711, Emission Rates Requiring a Permit

See Section 7 below for a discussion of State Air Toxics applicability.

**6. NSPS, NESHAP/MACT, PSD, 112(r), and CAM Applicability**

a. NSPS

K-Flex is currently subject to NSPS Subpart IIII for the insignificant diesel-fired 80 kW emergency generator (ID No. IES-5).

NSPS Subpart IIII applicability will not change with this minor modification.

No NSPS regulations apply to the EPE rubber curing and extrusion process, so the installation of the new Auto Dosing (ID No. ES-19) and new EPE Extruder Line 3 (ID No. ES-20) will not trigger applicability of any new NSPS regulations as reconstruction under 40 CFR 60.15. Additionally, no emissions of any pollutant are expected to increase, so modification will not be triggered under 40 CFR 60.14.

b. NESHAP/MACT

K-Flex is currently subject to NESHAP Subpart ZZZZ for the insignificant diesel-fired 80 kW emergency generator (ID No. IES-5) and for the insignificant propane-fired 0.14 million Btu per hour emergency generator (ID No. IES-9).

The insignificant diesel-fired 80 kW emergency generator (ID No. IES-5) is subject to NSPS Subpart IIII. As per 40 CFR 63.6590(c), this engine shall meet the requirements of NESHAP Subpart ZZZZ by meeting the requirements of NSPS Subpart IIII, and no further requirements apply for this engine under NESHAP Subpart ZZZZ.

For the other engine, the insignificant propane-fired 0.14 million Btu per hour emergency generator (ID No. IES-9), compliance with NESHAP Subpart ZZZZ is affected by a recent regulatory update as follows.

On August 30, 2024, EPA finalized an update to NESHAP Subpart ZZZZ such that an inspection/maintenance for each engine shall be completed within one year plus 30 days of the previous inspection/maintenance (rather than completed on an "annual" basis, implying once per calendar year).

Specifically, per Table 2d of NESHAP Subpart ZZZZ, Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions, each emergency stationary RICE shall meet the following requirements, except during periods of startup:

a. Change oil and filter every 1000 hours of operation or within 1 year plus 30 days of the previous change, whichever comes first. **This requirement has been updated from "annually", which implies once per calendar year, to "within 1 year plus 30 days", which specifies a more stringent period.**

b. Inspect air cleaner every 1,000 hours of operation or within 1 year plus 30 days of the previous inspection, whichever comes first, and replace as necessary. **This requirement has been updated from "annually", which implies once per calendar year, to "within 1 year plus 30 days", which specifies a more stringent period.**

c. Inspect all hoses and belts every 500 hours of operation or within 1 year plus 30 days of the previous inspection, whichever comes first, and replace as necessary. **This requirement has been updated from "annually", which implies once per calendar year, to "within 1 year plus 30 days", which specifies a more stringent period.**

During periods of startup, the Permittee shall minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

NESHAP Subpart ZZZZ applicability will not change with this minor modification.

No NESHAP regulations apply to the EPE rubber curing and extrusion process, so the installation of the new Auto Dosing (ID No. ES-19) and new EPE Extruder Line 3 (ID No. ES-20) will not trigger applicability of any new NESHAP regulations as a reconstruction under 40 CFR 63.2.

c. PSD

K-Flex is a PSD minor source located in Franklin County, which is in attainment for all promulgated NAAQS standards. This county has not triggered increment tracking under PSD for any regulated NSR pollutants. No increases in emissions of any pollutant are expected with this application for minor modification.

d. 112(r)

The 1990 Clean Air Act Amendments established provisions in Title 1, Part A, Section 112(r) for the prevention and mitigation of accidental chemical releases. The EPA published regulations under 40 CFR

Part 68, "Chemical Accident Prevention Provisions." The goal of Part 68, and the risk management program required under Part 68, is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur.

**Table 6.1: Process Subject to 112(r) and Included in the Risk Management Program**

| Process Description | Chemical Involved | Quantity of Chemical | Threshold Quantity | Program Level |
|---|---|---|---|---|
| Isobutane Storage Tank | Isobutane | 56,232 lbs | 10,000 lbs | 3 |

Based on the March 8, 2023 inspection report by Abdul Kadir of the Raleigh Regional Office, K-Flex submitted a Risk Management Plan (RMP) to EPA pursuant to 40 CFR Part 68.150 on February 21, 2023. They must revise and submit the updated RMP plan to the EPA no later than February 22, 2028 (the anniversary date of the current RMP).

e. CAM

CAM applicability is addressed only during initial Title V permitting, renewals, and significant modifications. Since this application is a minor modification, CAM applicability need not be addressed at this time.

**7. Facility Wide Air Toxics**

The current Permit No. 07866T24 includes emission limits for acrolein, acrylonitrile, ammonia, and benzene under 02D .1100 for the mixing operations (ID Nos. ES-7, ES-8, and ES-10), the dosing operations (ID Nos. ES-9 and ES-11), the continuous oven hot oil boiler 2 (ID No. IES-14), the continuous curing oven No. 3 natural gas-fired hot oil boiler 2 (ID No. IES-15), the diesel-fired emergency generator (ID No. IES-5), and the propane-fired emergency generator (ID No. IES-9), all combined.

With this application, Dosing Table No. 2 (ID No. ES-11) is being replaced with new Auto Dosing (ID No. ES-19), and EPE Extrusion Line 3 (ID No. ES-20) is being added. These changes will not increase potential emissions as potential emissions are limited by the rubber extruder capacities, which will remain the same.

Because no increase in emissions of any toxic air pollutant (TAP) is expected nor will any new toxic air pollutants be emitted with the proposed changes in this application, no modification has occurred pursuant to 15A NCAC 02Q .0703(14). Thus, a revised modeling analysis is not required with this application.

The new Auto Dosing (ID No. ES-19) will replace Dosing Table No. 2 (ID No. ES-11) in the existing 02D .1100 permit condition. The existing emission limits will continue to apply as well as the existing monitoring and recordkeeping requirements, including the requirement to control emissions of ammonia from the rubber curing operations sources (ID Nos. ES-6A through ES-6F) using the scrubbers (ID Nos. C-11A and C-11B), conduct annual inspections and maintenance on the scrubbers, and keep records of all inspection, maintenance, and monitoring activities conducted on the scrubbers.

With this permitting action, the following updates were made to the toxics permit condition under 02D .1100:

- Reporting under 15A NCAC 02D .1100 has been added due to the associated monitoring and recordkeeping requirements.

The facility is also subject to various TAP permitting emission rates (TPERs) under 02Q .0711, as shown in Table 7.1 below.

**Table 7.1: Facility-Wide TPER Limits**

| Pollutant | CAS No. | Carcinogens (lb/yr) | Chronic Toxicant (lb/day) | Acute Systemic Toxicants (lb/hr) | Acute Irritants (lb/hr) |
|---|---|---|---|---|---|
| Acetaldehyde | 75-07-0 | | | | 6.8 |
| Aniline | 62-53-3 | | | .25 | |
| Arsenic and inorganic Arsenic Compounds | 7440-38-2 | 0.053 | | | |
| Benzidine & salts | 92-87-5 | 0.01 | | | |
| Benzo(a)pyrene | 92-87-5 | 2.2 | | | |
| Beryllium Metal | 7440-41-7 | 0.28 | | | |
| Butadiene, 1,3 | 106-99-0 | 11 | | | |
| Cadmium Metal | 7440-43-9 | 0.37 | | | |
| Carbon disulfide | 75-15-0 | | 3.9 | | |
| Carbon tetrachloride | 56-23-5 | 460 | | | |
| Chlorobenzene | 108-90-7 | | 46 | | |
| Chloroform | 67-66-3 | 290 | | | |
| 1,4-Dichlorobenzene | 106-46-7 | | | | 16.8 |
| Ethylene dibromide | 106-93-4 | 27 | | | |
| Formaldehyde | 50-00-0 | | | | 0.04 |
| n-Hexane | 110-54-3 | | 23 | | |
| Hydrogen chloride | 7647-01-0 | | | | 0.18 |
| 2-butanone | 78-93-3 | | 78 | | 22.4 |
| Manganese & compounds | MNC | | 0.63 | | |
| Mercury | 7439-97-6 | | 0.013 | | |
| Nickel | 7440-02-0 | | 0.13 | | |
| Nitrobenzene | 98-95-3 | | 1.3 | 0.13 | |
| N-Nitrosodimethylamine | 62-75-9 | 3.4 | | | |
| Pentachlorophenol | 87-86-5 | | 0.063 | 0.0064 | |
| Phenol | 108-95-2 | | | 0.24 | |
| Styrene | 100-42-5 | | | 2.7 | |
| Toluene | 108-88-3 | | 98 | | 14.4 |
| Vinyl Chloride | 75-01-4 | 26 | | | |
| Xylene | 1330-20-7 | | 57 | | 16.4 |

As previously discussed, no new TAP emissions are expected with the proposed changes in this application. Thus, no new TPERs need to be added to the list under 02Q .0711.

Compliance with State Air Toxics is expected and will be verified during inspections.

**8. Facility Emissions Review**

Page 1 of this review includes actual emissions data for calendar years 2019 through 2023. The highest reported HAP for calendar year 2019 was n-hexane (0.2078 tpy), and the highest reported HAP for calendar years 2020 through 2023 was carbon disulfide with emissions each year less than or equal to 0.1080 tpy.

Emissions changes are also discussed in Section 4 above. Detailed emission calculations are provided in the application.

**9. Compliance History**

K-Flex has been issued a Notice of Violation (NOV) in the last five years.

The most recent NOV was issued on March 12, 2024 for late submittal of the Annual Compliance Certification (ACC). The ACC was received on March 6, 2024. DAQ received the facility's response to the violation letter on March 27, 2024. This violation was resolved as of March 27, 2024. No civil penalty was enforced for this violation.

The facility was also issued a Notice of Deficiency (NOD) on June 26, 2020 for incomplete visible emissions observations for March of 2020, as noted during the May 13, 2020 compliance inspection by Matthew Mahler, formerly of the Raleigh Regional Office. DAQ received the facility's response to the NOD letter on August 6, 2020. No further compliance action was taken for this deficiency.

In accordance with the provisions of 15A NCAC 02Q .0520 and .0515(b)(4) the Responsible Official, Mr. Giuseppe Guarino, President, has signed the required Title V Compliance Certification - Form E5 and Form A dated October 15, 2024 and October 3, 2024, respectively.

Additionally, during the most recent inspection, conducted on April 3, 2024 by Abdul Kadir of RRO, the facility appeared to be in compliance with all applicable requirements.

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

Public notice and EPA review are not required for this minor modification.

Applications processed in accordance with 15A NCAC 02Q .0515 "Minor Permit Modifications" do not require public participation. Pursuant to this provision, this permit revision will be "proposed" to EPA for their 45-days review and the changes made to the current permit will become effective on the 60$^{th}$ day from the issuance date if no EPA comment is received. If the EPA does comment on the "proposed" permit within the required 45-days review period, the permit will be reissued with the changes as appropriate.

**11. Other Regulatory Considerations**

- Professional Engineer (PE) Seal Requirement – 15A NCAC 02Q .0112, Applications Requiring Professional Engineer Seal

  A PE Seal was not required for this application since no control devices are being added or modified.

- Zoning Requirement – 15A NCAC 02Q .0305(a)(1)(B) and .0304(b)(1)

  Pursuant to 15A NCAC 02Q .0507(d), a zoning consistency determination is required for a new facility or for expansion of an existing facility in accordance with G.S. 143-215.108(f).

  A zoning consistency determination is required for this application because the facility is expanding per 02Q .0507(d). The signed zoning consistency determination was received via email on January 8, 2025.

- An application fee of $3,508 was required and received for this application on October 17, 2024.

- The correct number of applications were received with the initial submittal on October 7, 2024.

**12. Conclusions, Comments, and Recommendations**

The draft permit was sent to the applicant for review on January 15, 2025. Comments were received from Mark Cramer of The EI Group, Inc. on January 31, 2025. Additional information was requested by DAQ on February

4, 2025, and the facility responded to this request on February 14, 2025. A summary of received comments and DAQ responses is shown in the following discussion.

Comment 1: This comment requests the removal of the proposed monitoring requirements added for the 'mixing and milling' sources **(ID Nos. ES-7, ES-8, ES-9, ES-10, ES-11, and ES-19)** and the combustion sources **(ID Nos. IES-14, IES-15, IES-5, and IES-9)** under the 02D .1100 permit condition. The comment further states that the potential to emit of the mixing and milling sources is limited by the extruder capacity which has not been modified with this permit application.

**DAQ Response:** The potential emissions calculations in this application for the mixing and milling sources **(ID Nos. ES-7, ES-8, ES-9, ES-10, ES-11, and ES-19)** are based on the maximum extrusion capacity of 71,892,607 pounds of rubber per year. On February 14, 2025, the facility provided a comparison of the potential emissions from the mixing and milling sources to the modeled TAP emission rates to demonstrate that potential emissions are less than the permit limits. The most recent modeling analysis, received by AQAB on June 5, 2017, was conducted at the potential emission rate for each TAP. The facility also optimized the emission rates for each TAP based on the worst-case stack. The only TAP that was modeled assuming a control efficiency was ammonia, for which the permit currently contains monitoring and recordkeeping requirements. No monitoring or recordkeeping will be required as the potential emissions of the mixing and milling sources does not change with this application, and the potential emissions are well below modeled emission rates for each applicable TAP. Additionally, no monitoring or recordkeeping will be required for the combustion sources **(ID Nos. IES-14, IES-15, IES-5, and IES-9)** because these sources were modeled at potential emission rates. The proposed monitoring and recordkeeping requirements will be removed from Permit Condition No. 2.2 A.1.

Comment 2: This comment requests the removal of the proposed monitoring requirements added for the mixing and milling sources and printing/cladding/gluing sources. This comment further states that the potential emissions for these sources is limited by the rubber extrusion capacity which has not increased with this permit application. The information received on February 14, 2025 further requests that Permit Condition No. 2.2 A.3 be reverted back to the previously agreed upon facility-wide VOC limit of 216 tons per year.

**DAQ Response:** No monitoring, recordkeeping, or reporting will be required for these sources since the potential emissions have already been accounted for in the VOC emission limit of 216 tons per year for the extruders **(ID Nos. ES-11, ES-12, and ES-20)**. The proposed monitoring and recordkeeping requirements for these sources will be removed from Permit Condition No. 2.2 A.3. The facility-wide VOC emission limit will remain at 250 tons per year, but the VOC emission limit for the extruders **(ID Nos. ES-11, ES-12, and ES-20)** will remain listed at 216 tons per year.

This engineer recommends issuance of Air Permit No. 07866T25.