

**Knox County Department of Air Quality Management**  
Title V Operating Permit Review Form



**Facility name:** Republic Plastics, L.P. – K2 Plant **Source No.:** 1065

**Source type:** Title V **ICIS-Air ID:** TNKNX0004709301065 **SIC:** 3086 **NAICS:** 326140

**Facility address:** 5428 N National Drive, Knoxville, TN 37914

**Mailing address:** 5428 N National Drive, Knoxville, TN 37914

**Facility contact(s):** Chad Walker

**Phone:** 865-522-8816 **Email:** [cwalker@republicplastics.com](mailto:cwalker@republicplastics.com)

**Facility description:** Polystyrene foam product manufacturer

**Date application received:** October 11, 2024 **Assigned to:** Rebecca Larocque

**Operating permit action requested:** ☐ Initial operating permit ☐ Administrative amendment ☐ Minor modification  
☐ Significant modification ☒ Operating permit renewal

**Description of operating permit action:**

Operating Permit Renewal

**Associated construction permit number(s):** \_\_\_\_\_

**Additional information requested:**

Date Requested	Information Requested	Date Received
10/28/24	Incomplete forms	11/27/24

**Date application deemed complete:** 12/17/2024

**Operating permit number:** V-25-1065

**Facility Potential to Emit (PTE):**

Pollutant	Uncontrolled PTE (tons per year)	Controlled/Restricted PTE (tons per year)	Facility Classification	
			PSD	Title V
PM	29.1	29.1	Minor	Minor
PM <sub>10</sub>	29.1	29.1	Minor	Minor
VOC	297.1	249.0	SM	Major

Notes: None

**Compliance summary:**

☐ Source is out of compliance ☐ Compliance schedule included ☒ Compliance certification signed

**Applicable requirements:**

☐ NSR ☐ PSD ☐ NSPS ☐ NESHAP ☐ SIP ☐ BART ☐ CAM ☐ Other

**Applicable regulations:**

KCAQMR Section(s):	15.0,16.0,17.0,19.0,21.0,25.0,26.0,31.0 and 34.0
40 CFR Part 60 (NSPS), Subpart(s):	N/A
40 CFR Part 61 (NESHAP), Subpart(s):	N/A
40 CFR Part 63 (MACT/GACT), Subpart(s):	N/A

**Miscellaneous information:**

**Knox County Department of Air Quality Management**  
Title V Operating Permit Review Form



- ☐ Acid rain source
- ☐ CAIR/CSAPR source
- ☒ Source subject to 112(r)
- ☐ Source requested synthetic PTE limit to avoid major source requirement (e.g., PSD, MACT)
- ☐ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Source applied for a plant-wide applicability limit (PAL)
- ☐ Source requested terms for operational flexibility
- ☐ Source requested streamlining of multiple applicable requirements
- ☐ Source requested monitoring plan to establish periodic monitoring
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☒ Confidential business information (CBI) included

**Comments:**

Source revised the virgin pellet input rate. Left PTE's as physical max rate. No changes to permit except removal of Condition A26 according to regulatory update.

Final permit approved by: *Justin Mayer* Date issued: 4-3-2025

Data entered into ICIS-Air by: \_\_\_\_\_ Date entered: \_\_\_\_\_

Date final permit submitted to EPA: \_\_\_\_\_

**I. General Information:**

Facility name: Republic Plastics, L.P. – K2 Plant Source No.: 1065

Source type: Title V ICIS-Air ID: TNKNX0004709301065 SIC: 3086 NAICS: 326140

Facility address: 5428 N National Drive, Knoxville, TN 37914

Facility description: Polystyrene foam product manufacturer

Knox County National Ambient Air Quality Standards (NAAQS) attainment status:

Knox County is in attainment with all National Ambient Air Quality Standards (NAAQS).

**II. Permit History:**

A. Operating Permit V-25-1065

Republic Plastics, L.P. applied for the renewal of the facility's Title V operating permit on October 11, 2024.

B. Permit V-20-1065

Republic Plastics, L.P. applied for the renewal of the Title V Operating permit on October 10, 2019 and the permit was subsequently issued on April 13, 2020.

**III. Knox County Air Quality Management Regulations (KCAQMR) Requirements:**

A. Facility-wide requirements:

1. KCAQMR Section 25.70-F-1c(3)(a) requirements:

- The owner or operator is required to submit semi-annual reports of any required monitoring including deviations from permit requirements and the report must be certified by a responsible official.

2. KCAQMR Section 25.70-F3.e(3) requirements:

- The owner or operator is required to submit to the Department and EPA an annual compliance certification that is certified by a responsible official which identifies the facility's compliance status with each permit conditions by January 31<sup>st</sup> of each year.

3. KCAQMR Section 26.5-C requirements:

- The owner or operator is required to report the annual emissions of VOC and NO<sub>x</sub> by March 31<sup>st</sup> each year when the facility has actual emissions of 25 tons per year or greater of nitrogen oxides or volatile organic compounds.

4. KCAQMR Section 34.0 requirements:

- When a malfunction of equipment causes emissions in excess of any applicable emission limit, the owner or operator shall notify the Department within 24 hours of the malfunction and provide a statement giving all pertinent facts, including the duration of the malfunction. The owner or operator shall notify the Department when the malfunction has been corrected.

Notes: None

**Knox County Department of Air Quality Management**  
Statement of Basis



**B. Pellet Feed Silo Bins and Fluff Surge Hoppers (emissions units 001-01 through 001-04) information and requirements**

Emission Unit #	Source(s)	Control(s)	Applicable KCAQMR Section(s)
001-01	Pellet Feed Silo Bin	Bin Vent Filter	17.0 and 19.0
001-02	Extruder #1 Fluff Surge Hopper	Baghouses 1-1 and 1-2	17.0 and 19.0
001-03	Extruder #2 Fluff Surge Hopper	Baghouses 2-1 and 2-2	17.0 and 19.0
001-04	Extruder #3 Fluff Surge Hopper	Baghouses 3-1 and 3-2	17.0 and 19.0

Max Production/Throughput: 79,596 lb/day raw pellets 56,265 lb/day foam production  
Fuel Input Rate(s): N/A

**1. KCAQMR Section 17.0 and 19.0 requirements:**

- Emission units 001-01 through 001-04 (silo bin and fluff surge hoppers) are subject to KCAQMR Section 17.1 visible emission limit of 20% opacity for a six (6) minute average.
- Emission units 001-01 through 001-04 (silo bin and fluff surge hoppers) are subject to KCAQMR Section 19.2 maximum particulate matter (TSP) emission limit of 6.65 lb/hr.
- The owner or operator demonstrates ongoing compliance by:
  - Equipping the silo bin with a bin vent filter;
  - Equipping the fluff surge hoppers with baghouses;
  - Operating and maintaining the baghouses and bin vent filters;
  - Installing, operating, and maintaining a device to measure the pressure drop across the baghouses;
  - Inspecting the bin vent filter weekly;
  - Monitoring the pressure drop across the baghouses at least once during each week the associated emission unit operated; and
  - Keeping a record of the results of the weekly monitoring of the bin vent filter and baghouses which includes the date, bin vent filter observations, baghouses' pressure drop readings, and any corrective actions taken.

Notes: Virgin pellet throughput numbers updated by source.

**C. Extruder Operations with Associated Roll storage, Thermoforming, and Stamping Processes (emission units 002-01 through 002-03) information and requirements**

Emission Unit #	Source(s)	Control(s)	Applicable KCAQMR Section(s)
002-01	Extruder #1 with associated roll storage, thermoforming, and stamping processes	None	19.0
002-02	Extruder #2 with associated roll storage, thermoforming, and stamping processes	None	19.0
002-03	Extruder #3 with associated roll storage, thermoforming, and stamping processes	None	19.0

Max Production/Throughput: 82,944 lb/day if all virgin pellets 56,265 lb/ day utilizing the recycled process.  
Fuel Input Rate(s): N/A

**1. KCAQMR Section 19.0 requirements:**

- Emission units 002-01 through 002-03 (extruder operations) are subject to KCAQMR Section 19.3-B requirement to install and utilize the best equipment and technology for controlling gaseous emissions at the time of construction.
- The owner or operator demonstrates ongoing compliance by:
  - Complying with the applicable requirements contained in KCAQMR Section 25-1D & F (see Section III.C.2); and
  - Limiting emission units 002-01 through 002-03 (extruder operations) to only using isobutane and CO<sub>2</sub> as blowing agents.

2. KCAQMR Section 25-1-D & F (construction permit C-1065-01A) requirements:

- VOC emissions from emission units 002-01 through 002-03 (extruder operations) shall not exceed 249 tons per year during any consecutive 12-month period.
- The owner or operator demonstrates ongoing compliance by;
  - Keeping a daily record of the mass of isobutane used, the mass of foam sheet produced, and the mass of product produced at the facility;
  - Keeping a record of the isobutane usage during each period of operation of each extruder;
  - Keeping a record of the daily, monthly, and 12-month rolling total mass of isobutane released from the facility; and
  - Submitting finished product samples to an independent laboratory to determine the mass of isobutane retained in the product quarterly (used in calculating the amount of isobutane released from the facility).

Notes: None

**IV. Exempted Sources:**

Source(s)	Exempted due to
Natural gas fired combustion units less than 10 MMBtu/hr	KCAQMR Section 25.70-L.2.b(1)
Electric ovens	KCAQMR Section 25.70-L.2.a
Space heaters	KCAQMR Section 25.70-L.2.h

**V. Compliance History (since last permit renewal):**

No record of compliance issues since last permit renewal.
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**Knox County Department of Air Quality Management**  
**Title V Operating Permit Notice Worksheet**



**I. General Information:**

Facility name: Republic Plastics, LP – K2 Plant Source No.: 1065

Facility address: 5428 N National Drive, Knoxville TN 37914

Operating permit number: V-25-1065

**II. Notice Periods and Public Hearings:**

States/EPA Notice Date: 1/16/25

Public Notice Period: 1/17/25 - 2/16/25

EPA Review Period: 2/17/25 - 4/3/25

Date(s) of Public Hear(s): No public Hearings requested no needed

**III. Public Comments and Air Quality Responses:**

A. No comments received from the Public

B. No Comments received from EPA region 4

## Rebecca Larocque

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**From:** Rebecca Larocque  
**Sent:** Friday, February 14, 2025 1:17 PM  
**To:** R4TitleVTN@epa.gov  
**Subject:** T5 Renewal  
**Attachments:** V\_25\_1065\_Draft Permit Submittal.zip

Please see attached Renewal for Republic Plastics K2 plant. No changes to the permit other than removal of the affirmative defense emergency Provisions condition A26.

There have been no public nor neighboring state comments. The public comment period was to close on 2/16/25. However I did notice that the draft document link was not working so I have extended the comment period until March 11 and will run concurrently with EPA review period.

Permit expected to be issued April 3, 2025

### Rebecca Larocque

*Environmental Program Manager*  
*Environmental Health*  
Health Department  
**Office:** 865-215-5941  
**Cell:** 865-507-9122  
140 Dameron Ave  
Knoxville, TN 37917





## Rebecca Larocque

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**From:** Rebecca Larocque  
**Sent:** Friday, January 17, 2025 10:34 AM  
**To:** mark.cuilla@ncdenr.gov; michael.kennedy@ky.gov; air.pollution.control@tn.gov  
**Cc:** Marc Corrigan; Ferrando, Emily; Justin Mayer  
**Subject:** Affected States Notification: Renewal Draft Title V Permit  
**Attachments:** V-25-1065 DRAFT.pdf

Republic Plastics L.P - K 2 Plant has applied for renewal of the Title V Operating Permit. The source is a polystyrene foam product manufacturer with a potential to emit over the Title V threshold for VOC. The only changes on the draft permit from the existing permit is the removal of the emergency provisions clause. The permit will be posted on our website for public comment today. Questions concerning the sources(s) and the proposed permit may be addressed to Rebecca Larocque at (865) 215-5941 or by e-mail at [Rebecca.Larocque@knoxcounty.org](mailto:Rebecca.Larocque@knoxcounty.org)

### Rebecca Larocque

*Environmental Program Manager*  
*Environmental Health*  
Health Department  
**Office:** 865-215-5941  
**Cell:** 865-507-9122  
140 Dameron Ave  
Knoxville, TN 37917





Facility Name: Republic Plastics, L.P. – K2 Plant  
 Location: 5428 N National Drive  
 Source Number: 1065  
 Permit Number: V-25-1065  
 Prepared by: Rebecca Larocque  
 Date: 1/16/2025

**Uncontrolled Potential to Emit**

Emission unit(s)	Source Description	PM	PM <sub>10</sub>	VOC
001-01 through 001-04	Silo Bin and Fluff Surge Hoppers	29.1	29.1	---
002-01 through 002-03	Extruder Operations	---	---	297.1
FACILITY TOTAL		29.1	29.1	297.1

**Controlled/Restricted Potential to Emit**

Emission unit(s)	Source Description	PM	PM <sub>10</sub>	VOC
001-01 through 001-04	Silo Bin and Fluff Surge Hoppers	29.1	29.1	---
002-01 through 002-03	Extruder Operations	---	---	249.0
FACILITY TOTAL		29.1	29.11	249.0

#### Potential Emissions Calculations

Facility Name: Republic Plastics, L.P. – K2 Plant  
Location: 5428 N National Drive  
Permit Number: V-25-1065  
Emission Unit: All emission units  
Prepared by: Rebecca Larocque  
Date: 1/16/2025

#### Resin/Talc/Fluff Conveying Systems (emission units 001-01 through 001-04)

Operating Hours: 8760 hr/yr  
Resin/Talc Input Rate: 5400 lb/hr  
Total Filters/Baghouses Exhaust Flow: 6275 CFM  
Filters/Baghouses Control Eff: 99.9%  
Enclosed Building Control Eff: 90.0%

\* Reduce in application from previous based upon "double counting recycled pellets" See Letter from 11/25/24  
However left as is physical PTE rather than Actuals

#### KCAQMR Section 19.0 Emission Limit(s) Analysis

Uncontrolled PM=( 0.0014 lb<sub>PM</sub>/CFM )( 376500 ft<sup>3</sup>/hr )( 0.10 uncontrolled) = 53.8 lb/hr

KCAQMR 19.6-B 0.02 gr/dscf PM Limit = 1.08 lb/hr

KCAQMR 19.2 Process Weight PM Limit = 6.65 lb/hr

KCAQMR 19.6-A 0.25 gr/dscf PM Limit = 13.4 lb/hr

Controlled Baghouse Exhaust PM=( 0.0000014 lb<sub>PM</sub>/CFM )( 376500 ft<sup>3</sup>/hr )( 0.10 uncontrolled) = 0.54 lb/hr

#### Potential to Emit Calculations (calculated PM/PM<sub>10</sub> emission as Section 19.0 allowable or uncontrolled PM, whichever is smaller)

##### Uncontrolled Calculations:

PM=( 6.65 lb/hr )( 8760 hr/yr )( 0.0005 ton/lb) = 29.1 Potential TPY  
PM<sub>10</sub>=( 6.65 lb/hr )( 8760 hr/yr )( 0.0005 ton/lb) = 29.1 Potential TPY

##### Controlled/Restricted Calculations:

PM=( 6.65 lb/hr )( 8760 hr/yr )( 0.0005 ton/lb) = 29.1 Potential TPY  
PM<sub>10</sub>=( 6.65 lb/hr )( 8760 hr/yr )( 0.0005 ton/lb) = 29.1 Potential TPY

Reference(s): used filter/baghouse outlet grain loading of 0.01 gr/ft<sup>3</sup> and 99.9% control eff to find uncontrolled PM emissions (0.0000014/0.001 = 0.0014); and assumed PM = PM<sub>10</sub>

#### Extruder Operations (emission units 002-01 through 002-03)

##### Potential to Emit Calculations

##### Uncontrolled Calculations:

VOC=( 67.8 lb/hr )( 8760 hr/yr )( 0.0005 ton/lb) = 297.1 Potential TPY

##### Controlled/Restricted Calculations:

VOC= 249.0 Potential TPY

Reference(s): used VOC emission rate of 68 lb/hr for uncontrolled calcs and requested VOC limit of 249 TPY from C-1065-01A application