



State of Utah

SPENCER J. COX  
*Governor*

DEIDRE HENDERSON  
*Lieutenant Governor*

Department of  
Environmental Quality

Kimberly D. Shelley  
*Executive Director*

DIVISION OF AIR QUALITY  
Bryce C. Bird  
*Director*

DAQE-AN157350003-24

April 23, 2024

Bobby Rakes  
Comfort Research, LLC  
1719 Elizabeth Avenue NW  
Grand Rapids, MI 49504  
bobby.rakes@comfortresearch.com

Dear Mr. Rakes:

Re: Approval Order: Minor Modification to Approval Order DAQE-AN157350001-17 to Increase  
Bead Pentane Content, Increase Boiler Operation Hours, and Reduce Production Limit  
Project Number: N157350003

The attached Approval Order (AO) is issued pursuant to the Notice of Intent (NOI) received on April 14, 2021. Comfort Research, LLC must comply with the requirements of this AO, all applicable state requirements (R307), and Federal Standards.

The project engineer for this action is **Christine Bodell**, who can be contacted at (385) 290-2690 or cbodell@utah.gov. Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number shown on the upper right-hand corner of this letter. No public comments were received on this action.

Sincerely,

Bryce C. Bird  
Director

BCB:CB:jg

cc: Bear River Health Department

**STATE OF UTAH**  
**Department of Environmental Quality**  
**Division of Air Quality**

**APPROVAL ORDER**  
**DAQE-AN157350003-24**  
**Minor Modification to Approval Order DAQE-AN157350001-17 to**  
**Increase Bead Pentane Content, Increase Boiler Operation Hours,**  
**and Reduce Production Limit**

**Prepared By**  
**Christine Bodell, Engineer**  
**(385) 290-2690**  
**cbodell@utah.gov**

**Issued to**  
**Comfort Research, LLC - Polystyrene Filled Products Manufacturing**

**Issued On**  
**April 23, 2024**

**Issued By**

A handwritten signature in blue ink, appearing to read 'Bryce C. Bird', is positioned above the printed name and title.

**Bryce C. Bird**  
**Director**  
**Division of Air Quality**

## TABLE OF CONTENTS

<b>TITLE/SIGNATURE PAGE .....</b>	<b>1</b>
<b>GENERAL INFORMATION .....</b>	<b>3</b>
CONTACT/LOCATION INFORMATION .....	3
SOURCE INFORMATION .....	3
General Description .....	3
NSR Classification.....	3
Source Classification .....	3
Applicable Federal Standards .....	4
Project Description.....	4
SUMMARY OF EMISSIONS.....	4
<b>SECTION I: GENERAL PROVISIONS .....</b>	<b>4</b>
<b>SECTION II: PERMITTED EQUIPMENT .....</b>	<b>5</b>
<b>SECTION II: SPECIAL PROVISIONS.....</b>	<b>6</b>
<b>PERMIT HISTORY .....</b>	<b>7</b>
<b>ACRONYMS .....</b>	<b>8</b>

## GENERAL INFORMATION

### CONTACT/LOCATION INFORMATION

**Owner Name**

Comfort Research, LLC

**Source Name**Comfort Research, LLC - Polystyrene Filled  
Products Manufacturing**Mailing Address**1719 Elizabeth Avenue NW  
Grand Rapids, MI 49504**Physical Address**350 West 1000 North  
Tremonton, UT 84337**Source Contact**Name: Bobby Rakes  
Phone: (616) 475-5000  
Email: bobby.rakes@comfortresearch.com**UTM Coordinates**402,350 m Easting  
4,620,180 m Northing  
Datum NAD83  
UTM Zone 12**SIC code** 3086 (Plastics Foam Products)

### SOURCE INFORMATION

General Description

Comfort Research, LLC (Comfort Research) owns/operates a polystyrene-filled product manufacturing facility in Tremonton, Box Elder County. These products include bean bag chairs and other furniture filled with expanded polystyrene (EPS) foam beads. The facility operates three (3) production lines. The first production line inflates EPS beads using an expander unit. The EPS beads are inflated by blowing steam across the beads in a steam chamber. The steam is generated using a 6.28 MMBtu/hr boiler. After initial expansion, the beads move to the fluidized bed section of the expander unit for partial drying and are then transferred to the first-pass stabilization/holding tent. The beads are allowed to stabilize for several hours in porous tents. After stabilizing, the beads are transferred back to the expander unit for final expansion. The beads are then transferred to a porous holding tent for final curing. The second and third production lines are used for filling bean bag products with EPS beads, sewing, and packaging.

NSR Classification

Minor Modification at Minor Source

Source ClassificationLocated in Salt Lake City UT Particulate matter less than 2.5 microns in size NAA  
Box Elder County  
Airs Source Size: SM

Applicable Federal Standards

None

Project Description

Comfort Research has requested to following changes:

1. Increase the pentane content in the EPS beads processed on site from 4.5% by weight to 6.0% by weight (Condition II.B.1.c in Approval Order DAQE-AN157350001-17).
2. Reduce the throughput of raw bead material from 2.5 million pounds per rolling 12-month period to 2.25 million pounds per rolling 12-month period (Condition II.B.1.b (A) in Approval Order DAQE-AN157350001-17).
3. Increase the hours of operation for the boiler from 2,244 hours per rolling 12-month period to 4,488 hours per rolling 12-month period (Condition II.B.1.b (B) in Approval Order DAQE-AN157350001-17).

**SUMMARY OF EMISSIONS**

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

<b>Criteria Pollutant</b>	<b>Change (TPY)</b>	<b>Total (TPY)</b>
CO <sub>2</sub> Equivalent	843	1668.00
Carbon Monoxide	0.58	1.16
Nitrogen Oxides	0.69	1.38
Particulate Matter - Particulate matter less than 10 microns in size	0.04	0.11
Particulate Matter - PM <sub>2.5</sub>	0.04	0.11
Sulfur Dioxide	0.01	0.01
Volatile Organic Compounds	10.63	67.58

<b>Hazardous Air Pollutant</b>	<b>Change (lbs/yr)</b>	<b>Total (lbs/yr)</b>
Generic Hazardous air pollutant(s) (CAS #GHAPS)	0	2
Hexane (CAS #110543)	30	50
	<b>Change (TPY)</b>	<b>Total (TPY)</b>
Total HAPs	0.02	0.03

**SECTION I: GENERAL PROVISIONS**

I.1	All definitions, terms, abbreviations, and references used in this Approval Order conform to those used in the Utah Administrative Code R307 and 40 CFR. Unless noted otherwise, references cited in these Approval Order conditions refer to those rules. [R307-101]
I.2	The limits set forth in this Approval Order shall not be exceeded without prior approval. [R307-401]

I.3	Modifications to the equipment or processes approved by this Approval Order that could affect the emissions covered by this Approval Order must be reviewed and approved. [R307-401-1]
I.4	All records referenced in this Approval Order or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Director or Director's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this Approval Order or in other applicable state and federal rules, records shall be kept for a minimum of two (2) years. [R307-401-8]
I.5	At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Director which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this Approval Order shall be recorded. [R307-401-4]
I.6	The owner/operator shall comply with Utah Administrative Code R307-107. General Requirements: Breakdowns. [R307-107]
I.7	The owner/operator shall comply with Utah Administrative Code R307-150 Series. Emission Inventories. [R307-150]

## SECTION II: PERMITTED EQUIPMENT

### II.A THE APPROVED EQUIPMENT

II.A.1	<b>Comfort Research Plant</b>
II.A.2	<b>Steam Boiler</b> Rating: 6.28 MMBtu/hr Fuel: Natural Gas
II.A.3	<b>Expansion Line</b> Hirsch PX-18000 Expander Unit Rating: 5,000 lbs/hr
II.A.4	<b>Several Holding Tents</b>
II.A.5	<b>Filling, Sewing, and Packaging Lines</b> Two (2) production lines for filling, sewing, and packaging bean bag products. Listed for informational purposes only.

## SECTION II: SPECIAL PROVISIONS

### II.B REQUIREMENTS AND LIMITATIONS

II.B.1	<b>Site-Wide Requirements</b>
II.B.1.a	<p>The owner/operator shall not allow visible emissions from the following emission points to exceed the following values:</p> <ul style="list-style-type: none"> <li>A. Hirsch expander unit exhaust point - 10% opacity.</li> <li>B. Boiler exhaust points - 10% opacity.</li> <li>C. All other points - 20% opacity.</li> </ul> <p>[R307-401-8]</p>
II.B.1.a.1	Opacity observations of emissions from stationary sources shall be conducted according to Title 40 of the Code of Federal Regulations 60, Appendix A, Method 9. [R307-401-8]
II.B.1.b	The owner/operator shall not process more than 2.25 million pounds of raw bead material per rolling 12-month period. [R307-401-8]
II.B.1.b.1	<p>The owner/operator shall:</p> <ul style="list-style-type: none"> <li>A. Determine the raw bead material throughput by purchase records.</li> <li>B. Record raw bead material throughput on a daily basis.</li> <li>C. Use the monthly raw bead material throughput data to calculate a new 12-month total by the 20th day of each month using data from the previous 12 months.</li> <li>D. Keep the throughput records for all periods the plant is in operation.</li> </ul> <p>[R307-401-8]</p>
II.B.1.c	The pentane content in the EPS beads processed on site shall not exceed 6.0% by weight. [R307-401-8]
II.B.1.c.1	<p>The owner/operator shall maintain the following records for each load of raw bead material that is received for processing:</p> <ul style="list-style-type: none"> <li>A. Date received.</li> <li>B. Percent by weight of pentane in the raw bead material.</li> <li>C. Weight of raw bead load.</li> </ul> <p>[R307-401-8]</p>
II.B.2	<b>Boiler Requirements</b>
II.B.2.a	The owner/operator shall use only natural gas as fuel in the boiler. [R307-401-8]
II.B.2.b	The owner/operator shall not operate the boiler for more than 4,488 hours per rolling 12-month period. [R307-401-8]

II.B.2.b.1	<p>The owner/operator shall:</p> <ul style="list-style-type: none"><li>A. Determine hours of operation with a supervisor monitoring and maintaining an operations log.</li><li>B. Record hours of operation each day.</li><li>C. Use the hours of operation to calculate a new rolling 12-month total by the 20th day of each month using data from the previous 12 months.</li><li>D. Keep hours of operation records for all periods the plant is in operation.</li></ul> <p>[R307-401-8]</p>
------------	---

## PERMIT HISTORY

This Approval Order shall supersede (if a modification) or will be based on the following documents:

Supersedes  
Is Derived From  
Incorporates

AO DAQE-AN157350001-17 dated June 20, 2017  
NOI dated April 14, 2021  
Additional Information dated February 27, 2024



## ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by Environmental Protection Agency to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent - Title 40 of the Code of Federal Regulations Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ/UDAQ	Division of Air Quality
DAQE	This is a document tracking code for internal Division of Air Quality use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - Title 40 of the Code of Federal Regulations 52.21 (b)(49)(i)
GWP	Global Warming Potential - Title 40 of the Code of Federal Regulations Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/YR	Pounds per year
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
National Ambient Air Quality Standards	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO <sub>x</sub>	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
Particulate matter less than 10 microns in size	Particulate matter less than 10 microns in size
PM <sub>2.5</sub>	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
Potential to emit	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO <sub>2</sub>	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
Tons per year	Tons per year
UAC	Utah Administrative Code

VOC

Volatile organic compounds