



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604**

DATE: *June 22, 2021*

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Pilkington North America, Inc.

FROM: Emma Leeds, Environmental Engineer
AECAB (IL/IN)

THRU: Linda Rosen, Acting Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Pilkington North America, Inc.

Facility Location: 300 20th Street, Ottawa, Illinois 61350

Date of Inspection: Virtual Opening Conference: April 28, 2021
On-site Inspection: May 10, 2021
Closing Conference: May 10, 2021

EPA Inspector(s):

1. Emma Leeds, Environmental Engineer
2. Dakota Prentice, Environmental Engineer
3. Avery Bowers, Environmental Engineer
4. Brianna Fenzl, Environmental Engineer

Other Attendees:

1. Kent Purcell – Environmental Manager, Pilkington
2. Mike Radtke – Plant Manager, Pilkington
3. Pam Rygalski – Senior Regional Environmental Manager, Pilkington
4. Greg Chastain – North American Sustainability Director, Pilkington
5. Chris Miller – Operations Director, Pilkington

Contact Email Address: Kent.Purcell@nsg.com

Purpose of Inspection: To determine compliance with the Clean Air Act and Illinois State Implementation Plan.

Facility Type: Float glass plant

Arrival Time for On-site Inspection: 1:15 PM

Departure Time for On-site Inspection: 3:30 PM

Inspection Type:

- Unannounced Inspection
- Announced Inspection

OPENING CONFERENCE

- Presented Credentials
- Stated authority and purpose of inspection
- Provided Small Business Resource Information Sheet
- Provided CBI warning to facility

The following information was obtained verbally from Pilkington North America, Inc. personnel unless otherwise noted.

Process Description:

The process begins with the delivery of raw materials to the batch hall through truck or rail. The main raw materials include sand, dolomite, lime, soda ash, and cobalt oxide. The batch hall contains five floors and an elevator that separates and weighs material and adds water before sending materials to the furnace fill system via conveyor belt. Cullet (recycled broken glass) is also collected from numerous locations throughout the plant and introduced into the furnace fill system with the other raw materials. This mixture is then sent to the glass melting furnace. Emissions from the batch hall are controlled by 23 separate baghouses.

The glass melting furnace includes a mixing section, a melter, and a refiner, and is heated using natural gas. To increase the efficiency of combustion, pre-heated air is preserved using a hot gas flue that rotates air between the exhaust and the combustor in 15-minute cycles. Checker brick is used as a heat transfer medium to help preserve hot air. The furnace operates 24 hours per day, 7 days a week. Exhaust from the furnace is controlled with an ammonia and lime injected catalytic DeNOx filter.

Molten glass next moves from the furnace into a liquid tin bath. In a nitrogen-hydrogen atmosphere, molten glass spreads out and flattens as it floats on top of the molten tin. Rollers also operate within the liquid tin bath to move the glass through the unit and to slowly spread out the glass to the desired thinness before moving to the annealing Lehr. The Lehr serves to bring the temperature of the glass down from 1100° Fahrenheit (F) down to 72° F over an 800-foot distance. Gaseous sulfur dioxide (SO₂) is applied to the bottom of the glass as soon as it enters the Lehr to prevent any roll mark development.

A coating process sometimes occurs between the tin float bath and the annealing Lehr.

Finally, after coating and drying, glass is cut to the desired size and packaged before being shipped out to customers.

Staff Interview:

The Pilkington North America, Inc. (Pilkington) facility in Ottawa has been manufacturing glass for more than 100 years, transitioning specifically to float glass in the 1970's with the installation of float liners. Currently, 170 employees work at the facility, which runs for 24 hours, 7 days a week. The furnace runs anywhere from 470 to 530 tons draw per day, with varying amounts of glass being crushed and recycled as cullet depending on the market demands.

In 2017, a tornado hit the facility, forcing the facility to pause operations for a year as Pilkington rebuilt. A new batch hall was finished in 2018, and a new furnace and associated stack controls were finished by 2019. The furnace was also rebuilt in 2008 as part of a routine furnace shut down and repair that occurs every 10 to 15 years. Build up in the checker brick in the furnace is typically cleaned out every 5 years.

Pilkington is permitted to add chlorine to the liquid tin float bath, although according to Mr. Purcell, they never have. The purpose of the chlorine would be to condense contaminated tin in the atmosphere.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:

EPA inspectors went on a full tour of the plant guided predominantly by Mike Radkte. All units appeared to be operating during the tour. Inspectors first observed the furnace and liquid tin float bath. Mr. Radkte shared that approximately 90% of the tin float bath atmosphere is composed of nitrogen and 10% is composed of hydrogen. Occasionally the tin bath vents the nitrogen-hydrogen gas to the atmosphere.

Next, EPA inspectors moved outside to observe the furnace pollution control system, followed by the batch hall and its associated dust collectors. According to Mr. Radkte, there were upset conditions with the furnace pollution control system in 2018, but no violation was reported. At the batch hall, no raw material deliveries appeared to be occurring at the time of observations. EPA inspectors observed a baghouse at the top of the batch hall enclosure, as well as dust control on the elevators within the batch hall. When asked about ways that the facility ensures the baghouse is operating properly, Mr. Radkte explained that plant personnel look for visible emissions using Method 22 and monitor the pressure drop at the bag house daily. Before moving back inside, EPA inspectors also observed the coating enclosure and coating pollution control system. Approximately 60% of the glass manufactured at the facility receives a coating.

Inside again, EPA inspectors next observed the annealing Lehr followed by the glass cutting process. Mr. Radkte shared that the cutting oil is composed of kerosene and mineral oil. There are no emissions controls for the cutting process, meaning some cutting oil evaporates into the atmosphere.

EPA Inspectors brought a Forward Looking InfraRed (FLIR) GF320 Camera through the tour and observed the following units with the FLIR camera to detect possible hydrocarbon or

volatile organic compound (VOC) emissions: the furnace and furnace pollution control system, the liquid tin float bath, the batch hall, the coating building and coating pollution control system, the annealing Lehr, and the glass cutting system. No hydrocarbon or VOC emissions were detected and no FLIR videos were taken.

Photos and/or Videos: were taken during the inspection.

Field Measurements: were not taken during this inspection.

RECORDS REVIEW

- Illinois Clean Air Act Permit Program 2020 permit
- Facility process flow diagram
- Emission units and controls

CLOSING CONFERENCE

- Provided U.S. EPA point of contact to the facility

Requested documents:

- 2019 performance test for the float furnace
- 2020 performance test for the coating machinery
- Construction Permit 17070007 for the new 2018 furnace

SIGNATURES

X Emma Leeds Digitally signed by Emma Leeds
Date: 2021.06.22
11:15:51 -05'00'

Emma Leeds
Report Author

X Rosen, Linda Digitally signed by Rosen, Linda
Date: 2021.06.23
08:21:04 -05'00'

Linda Rosen
Acting Section Chief

Facility Name: Pilkington North America, Inc.
Facility Location: 300 20th Street, Ottawa, Illinois
Date of Inspection: May 10, 2021

APPENDICES AND ATTACHMENTS

1. Digital Image Log

Contains Items Claimed as CBI – Non-Releasable

Facility Name: Pilkington North America, Inc.

Facility Location: 300 20th Street, Ottawa, Illinois

Date of Inspection: May 10, 2021

CONFIDENTIAL BUSINESS INFORMATION ATTACHMENT

Facility Name: Pilkington North America, Inc.

Facility Location: 300 20th Street, Ottawa, Illinois

Date of Inspection: May 10, 2021

A coating process sometimes occurs between the tin float bath and the annealing Lehr. The coating machinery is inserted and removed from the annealing Lehr each time a different coating chemical is used. Coating is applied through a chemical vapor deposition process that created a microscopic layer of coating on the glass. The system operates under negative pressure, using a fan to pull any chemical vapor that does not react and oxidize during the coating process into a thermal oxidizer.

About 60% of the glass manufactured at the facility will receive some type of coating.

Facility Name: Pilkington North America, Inc.
Facility Location: 300 20th Street, Ottawa, Illinois
Date of Inspection: May 10, 2021

APPENDIX A: DIGITAL IMAGE LOG

1. Inspector Name: Brianna Fenzl	2. Archival Record Location: https://usepa.sharepoint.com/:f:/r/sites/R5_Work/r5erc/ecad/AECAB%20Library/Enf_Pilkington_IL_2
---	--

Image Number	File Name	Date and Time (incl. Time zone and DST)	Latitude and Longitude	Description of Image
1	IMG_1093	05/10/21, 02:16 CST		Furnace doghouse
2	IMG_1094	05/10/21, 02:49 CST		Batch hall section batch plant
3	IMG_1095	05/10/21, 02:40 CST		Coating pollution control system
4	IMG_1096	05/10/21, 03:10 CST		Cullet dust collector