OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

CONSTRUCTION

AIR CONTAMINANT DISCHARGE PERMIT

Northwest Region
700 NE Multnomah St., Suite 600
Portland, OR 97232

This permit is being issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Owens-Brockway Glass Container Inc.
9710 NE Glass Plant Road
Portland, OR 97220

INFORMATION RELIED UPON:

Application No.: 034116
Date Received: 06/30/2022

PLANT SITE LOCATION:

Owens-Brockway Glass Container Inc.
9710 NE Glass Plant Road
Portland, OR 97220

LAND USE COMPATIBILITY FINDING:

Approving Authority: City of Portland
Approval Date: 03/14/1995

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Joshua Alexander
Joshua Alexander (Nov 9, 2022 19:31 PST)

Joshua Alexander, Northwest Region Air Quality Permit Manager

Nov 9, 2022
Date

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-8010):

Table 1 Code	Source Description	SIC	NAICS
Part B, 36	Glass and glass container manufacturing subject to a NSPS under OAR 340 division 238 or a NESHAP under OAR 340 division 244.	3221	327213

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1.0 CONSTRUCTION APPROVAL

1.1. Project

The Department of Environmental Quality (DEQ) grants approval to proceed with construction of the following project:

1.1.a. Install Catalytic Ceramic Filter (CCF) pollution control system to reduce PM emissions from Glass Melting Furnace No.4 (GM4).

1.1.b. Incorporate Sorbent Injection system within the CCF system to reduce sulfur dioxide (SO_2) emissions from Glass Melting Furnace No.4 (GM4).

1.1.c. Incorporate Ammonia Injection system within the CCF system to reduce nitrogen oxide (NO_X) emissions from Glass Melting Furnace No.4 (GM4).

1.1.d. The Catalytic Ceramic Filter (CCF) system designed to abate PM/PM_{10}/$PM_{2.5}$, SO_2, and NO_X pollutants includes the following auxiliary devices:

CCF Device Description	CCF ID	Pollutant(s)	Emission Point ID
Sorbent Silo with static dust filter (EU11)*	SS02	PM	SS02
Direct-fired, inline Duct Burner	Temperature control	Combustion by-products	CCF01
Sorbent Injection (in ductwork)	In ductwork	PM, SO_2	CCF01
Ammonia Storage tank	Storage Tank	NH_3	Enclosed sys.
Ammonia Injection (in ductwork): The injection rate controlled by measuring the inlet NOx rate	In ductwork	NH_3, NOx	CCF01
Catalytic Ceramic Filters	CCF	PM SO_2 NOx	CCF01
Pressure gauge	--	Pressure drop	Instrument device
Temperature gauge	--	Temperature	Instrument device
NOx monitoring device	--	NOx Concentration	Instrument device
Solids Handling (EU12)* Bulk bagging Weigh hopper Day bin [Note – PM control by Static Dust Filter, NOL-TEC Model 279 or equivalent]	BB03 WH04 DB05	PM	BB03 WH04 DB05

*EU11 and EU12 are part of CCF that will be identified as new EUs in Title V Permit.

1.2. NAAQS Verification Modeling

1.2.a. No later than 6 months after the CCF pollution control system is built and operating, unless otherwise approved by DEQ in writing, the permittee must perform air dispersion modeling analysis based on updated facility profile and emission points to demonstrate compliance with National Ambient Air Quality Standards (NAAQS).

1.2.b. The stack dimensions of the emission points of the proposed CCF air pollution control system identified in Condition 1.1.d shall be included with the construction completion notice submitted to DEQ per Condition 1.4.c.

1.2.c. A site survey, or similar documentation containing the as-built stack dimensions, shall be maintained on-site and kept for the life of the source.

1.2.d. The permittee shall sufficiently restrict public access to the source at the ambient air boundary relied upon in the air dispersion modeling analysis for the NAAQS compliance demonstration. The vertices of the boundary shall be located at the coordinates as referenced in the permittee's December 17, 2021, air dispersion modelling submittal.

1.2.e. A site survey, or similar documentation containing the locations of the boundary vertices, shall be maintained on-site and kept for the life of the source. If the boundary dimensions change (plus or minus 5 meters), the permittee must notify DEQ prior to start-up of any emission unit and, if requested, submit a revised air dispersion modeling analysis to DEQ to ensure that the source will not interfere with the attainment or maintenance of the ambient air quality standards.

1.3. Schedule to install and operate CCF system

The permittee must comply with the following schedule for installing and operating the CCF system set forth in and as may be modified by DEQ pursuant to Mutual Agreement and Final Order No. AQ/V-NWR-2020-208, fully executed on October 22, 2021:

1.3.a. Within 3 months of issuance of this permit, execute a contract to purchase the CCF system with a vendor and submit a copy of the contract to DEQ;

1.3.b. Within 10 months of issuance of this permit, complete construction drawings and submit a copy to DEQ;

1.3.c. Within 13 months of issuance of this permit, begin on-site construction at the Facility to install the CCF system and submit written notification of the construction start date to DEQ;

1.3.d. Within 18 months of issuance of this permit:

1.3.d.i. Complete the installation of the CCF system on GM4 and submit a Construction Completion Notice to DEQ; and

1.3.d.ii. Subject to DEQ's incorporation of changes in Title V Permit 26-1876-TV-01, operate the CCF system on GM4 in compliance with the modified Title V Permit.

1.4. Construction Approval Conditions

1.4.a. Permittee must construct the CCF system in conformance with approved plans and specifications and specified within this Construction ACDP. No major changes or deviations may be made without prior written approval from DEQ. [OAR 340-216-0052(4)(b)]

1.4.b. Granting approval does not relieve the permittee of the obligation to obtain required local, state, and other permits and to comply with the appropriate statues, administrative rules, standards and, if applicable, to demonstrate compliance. [OAR 340-216-0052(4)(c)]

1.4.c. The permittee must submit a Construction Completion Notice, Form R1004, within 30 days of completing the project. [OAR 340-216-0052(4)(h)]

1.4.d. This approval does not guarantee the adequacy of the proposed construction.

1.4.e. The permittee must not operate the CCF system prior to the issuance of a modification to Title V Permit 26-1876-TV-01 authorizing the operation of the CCF system. [OAR 340-216-0052(4)(j); OAR 340-218-0190]

2.0 SPECIFIC PERFORMANCE AND EMISSION STANDARDS

2.1. Filterable PM Efficiency: The CCF system must reduce filterable PM emissions by at least 95 percent (comparing the PM concentration in exhaust from the CCF stack to the PM concentration at the inlet to the CCF system filters). [Mutual Agreement and Final Order No. AQ/V-NWR-2020-208, fully executed on October 22, 2021]

2.2. Filterable PM Limit: The emissions of filterable particulate matter from the CCF stack must not exceed 0.1 grams per kilogram of glass produced (0.2 lb PM/ton glass). [40 CFR 60.292(a)(1), NSPS Subpart CC]

2.3. TOTAL PM LIMIT: The emissions of Total (filterable & condensable) PM from the CCF stack must not exceed 0.10 grains per dry standard cubic foot (gr/dscf). [OAR 340-226-0210]

2.4. NESHAP SUBPART 6S EMISSIONS LIMIT: The mass emission rate of production-based metal HAP emissions based on a 3-hour block average must not exceed 0.02 pounds per ton of glass produced (0.02 lbs HAP/ton glass); or the mass emission rate of production-based PM emission based on a 3-hour block average must not exceed 0.2 pounds per ton of glass produced (0.2 lbs PM/ton glass). [40 CFR 63.11451, NESHAP Subpart 6S]

2.5. VISIBLE EMISSIONS LIMIT: The permittee must not cause or allow the emissions of any air contaminant into the atmosphere that is equal to or greater than 20% opacity based on 6-minute average, excluding uncombined water, from the CCF stack. [OAR 340-208-0110]

3.0 PLANT SITE EMISSION LIMITS

3.1. Plant Site Emission Limits (PSEL)

This construction permit will not result in an increase or decrease of the Plant Site Emission Limits (PSELs) for $PM/PM_{10}/PM_{2.5}$, SO_2, and NO_X. However, operation of the CCF system will result in lower emissions. The permittee must operate below the Plant Site Emission Limits (PSELs) established in the Title V Permit 26-1876-TV-01.

3.2 Annual Period

The annual Plant Site Emissions Limits apply to any 12-consecutive calendar month period.

4.0 REPORTING REQUIREMENTS

4.1. Monthly Progress Report: Submit monthly progress reports to DEQ until the CCF system is installed and operating. The monthly progress reports must be submitted within ten business days after the close of the previous calendar month and must document progress on the engineering, permitting, purchasing, site preparation, construction and installation of the CCF system. [Mutual Agreement and Final Order No. AQ/V-NWR-2020-208, fully executed on October 22, 2021]

4.2. Submit all Notification and reporting requirements specified in the permit including but not limited to the following:

4.2.a. A copy of the contract to purchase the CCF system;

4.2.b. a copy of the complete construction drawings;

4.2.c. a written notification of the construction start date;

4.2.d. a Construction Completion Notice, Form R1004, within 30 days of completing the project per Condition 1.3.d.i; and

4.2.e. stack dimensions and emission points.

5.0 DEQ CONTACTS / ADDRESSES

5.1. Business Office

The permittee must submit payments for invoices, applications to modify the permit, and any other payments to DEQ's Business Office:

Oregon Dept. of Environmental Quality
Financial Services – Revenue Section
700 NE Multnomah St., Suite 600
Portland, Oregon 97232-4100

5.2. Permit Coordinator

The permittee must submit all notices, reports (annual reports, source test plans and reports, etc.), and applications that do not include payment to the Permit Coordinator.

Oregon Dept. of Environmental Quality
Northwest Region
Air Quality Permit Coordinator
700 NE Multnomah St., Suite 600
Portland, OR 97232-4100
nwraqpermits@deq.oregon.gov

5.3. Report Submittals

Unless otherwise notified, the permittee must submit all reports (annual reports, source test plans and reports, etc.) to DEQ's Northwest Region. If you know the name of the Air Quality staff member responsible for your permit, please include it:

Oregon Dept. of Environmental Quality
Northwest Region Air Quality Permits
700 NE Multnomah St., Suite 600
Portland, OR 97232-4100

5.4. Web Site

Information about air quality permits and DEQ's regulations may be obtained from the DEQ web page at www.oregon.gov/deq/.

6.0 GENERAL CONDITIONS AND DISCLAIMERS

6.1. Permitted Activities

This permit allows the permittee to construct the CCF air pollution control system as listed in Condition 1.1 of this permit until this permit expires, is modified, or is revoked.

6.2. Other Regulations

In addition to the specific requirements listed in this permit, the permittee must comply with all other applicable legal requirements enforceable by DEQ.

6.3. Conflicting Conditions

In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply. [OAR 340-200-0010]

6.4. Masking of Emissions

The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety, or welfare of any person or otherwise violate any other regulation or requirement. [OAR 340-208-0400]

6.5. DEQ Access

The permittee must allow DEQ's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468.095.

6.6. Permit Availability

The permittee must have a copy of the permit available at the facility at all times. [OAR 340-216-0020(3)]

6.7. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

6.8. Permit Expiration

The permit expires 5 years from issuance and construction must cease after expiration of the permit.

6.9. Permit Termination, Revocation, or Modification

DEQ may terminate, revoke, or modify this permit pursuant to OAR chapter 340 division 216. [OAR 340-216-0082].

7.0 EMISSION FACTORS

DEQ will determine the emission factors from the source test performed after the CCF system is installed and operating per Condition 1.3; and will incorporate in the Title V Operating Permit 26-1876-TV-01.

8.0 ABBREVIATIONS, ACRONYMS, AND DEFINITIONS

ACDP	Air Contaminant Discharge Permit
ASTM	American Society for Testing and Materials
AQMA	Air Quality Maintenance Area
calendar year	The 12-month period beginning January 1st and ending December 31st
CAO	Cleaner Air Oregon
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic foot
EPA	US Environmental Protection Agency
FCAA	Federal Clean Air Act
Gal	gallon(s)
GHG	greenhouse gas
gr/dscf	grains per dry standard cubic foot
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040
I&M	inspection and maintenance
lb	pound(s)
MMBtu	million British thermal units
NA	not applicable
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	operation and maintenance
Pb	lead
PCD	pollution control device
PEMS	Predictive emission monitoring system
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
ppm	part per million
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
scf	standard cubic foot
SER	Significant Emission Rate
SIC	Standard Industrial Code
SIP	State Implementation Plan
SO_2	sulfur dioxide
Special Control Area	as defined in OAR 340-204-0070
TACT	Typically Achievable Control Technology
VE	visible emissions
VOC	volatile organic compound
year	A period consisting of any 12-consecutive calendar months

State of Oregon
Department of
Environmental
Quality

CONSTRUCTION AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

Owens-Brockway Glass Container Inc.
9710 NE Glass Plant Road
Portland, OR 97220

Source Information:

SIC	3221
NAICS	327213
EPA ICIS-Air ID	OR0000004105101876

Source Categories (Table 1 Part, code)	Part B, 36
Public Notice Category	III

Compliance and Emissions Monitoring Requirements:

FCE	
Compliance schedule	Yes
Unassigned emissions	
Emission credits	
Special Conditions	

Source test	
COMS	
CEMS	
PEMS	Yes
Ambient monitoring	

Reporting Requirements

Annual report (due date)	
Quarterly report (due dates)	

Monthly Progress report	10th
Excess emissions report	
Other (specify)	

Air Programs

Synthetic Minor (SM)	
SM -80	
NSPS (list subparts)	CC
NESHAP (list subparts)	SSSSSS
CAO	
NSR (by pollutant)	

PSD (by pollutant)	
Type A or B State NSR	N/A
GHG	
RACT	
TACT	
Other (specify)	

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PERMITTING

PERMITTEE IDENTIFICATION

1. Owens-Brockway Glass Container Inc.
   9710 Glass Plant Road
   Portland, OR 97220

PERMITTING ACTION

2. The proposed permit is a new construction approval permit (ACDP 26-1876-CS-01) for an existing source currently operating under Title V Permit 26-1876-TV-01. Owens-Brockway is proposing to install and operate a new catalytic ceramic filter (CCF) pollution control system to abate PM, NO_X, and SO_2 emissions from the glass melting furnace No. 4 (i.e., GM4 or Furnace D). Furnace D is the only functioning furnace at the facility that can physically and legally operate to manufacture container glass. This proposed construction ACDP 26-1876-CS-01 includes requirements, including a timeline, for the construction of the CCF system.
3. Once this construction ACDP is issued, the Title V Operating Permit 26-1876-TV-01 that Owens-Brockway is currently operating under will be modified to incorporate additional regulatory requirements that will include operational conditions of the new CCF system. The Title V permit modification will be combined with a reopening of the TV permit to address various other issues including Cleaner Air Oregon (CAO), short term National Ambient Air Quality Standard (NAAQS) compliance, and EPA Petition Order No. X-2020-2. The issuance of the modified Title V permit will follow its own separate track from this construction ACDP issuance and will also include a public notification process.

OTHER PERMITS

4. The permittee is currently operating under Title V Operating Permit 26-1876-TV-01 that is scheduled to expire on December 1, 2024, which will remain in effect until it is re-issued as described in item 3 above.

   In addition to the air quality Title V Operating Permit 26-1876-TV-01, other permits issued by DEQ for this source include the following:

   - NPDES Permit 1200-Z for stormwater discharge; and
   - Registered small quantity (i.e., 220 – 1,200 lbs/month) HW Generator, #ORD009026618

ATTAINMENT STATUS

5. The source is located in a maintenance area for ozone and Carbon Monoxide (CO). The area is in attainment for all other criteria pollutants. The facility is a minor (< 100 tons/yr) source of Volatile Organic Compounds (ozone precursor) and CO.

SOURCE DESCRIPTION

OVERVIEW

6. Owens-Illinois, Inc., through its subsidiaries, manufactures and sells glass containers to food and beverage manufacturers all over the world. Owens-Brockway Glass Container, Inc., a subsidiary of Owens-Illinois, Inc., owns and operates a glass container manufacturing plant in Portland, Oregon regulated under Title V permit No. 26-1876-TV-01. The Owens-Brockway plant occupies approximately 78 acres of property located at 9710 NE Glass Plant Road, adjacent to Interstate-205.

   The facility currently operates a single glass-melting furnace D (GM4) which is a continuous regenerative furnace capable of producing up to about 82,125 tons/yr of glass. Furnace A (GM1), which was the largest furnace at this facility with the 98,550 tons/yr capacity, was permanently shut down in June of 2020. There are also inoperable shells of furnaces B (GM2) and C (GM3) that were shut down in 1978 and 1990 respectively. The only remaining furnace GM4 is currently operating without any pollution control equipment.

7. Pursuant to Mutual Agreement and Final Order (MAO) No. AQ/V-NWR-2020-208, by June 30, 2022, Owens-Brockway was required to either notify DEQ that Furnace D (GM4) had been shut down, or submit a Notice of Approval application and permit modification application, including complete engineering specifications and vendor design, to install pollution control devices on Furnace D (GM4) that would reduce filterable PM emissions by 95% (comparing the PM concentration in exhaust from the CCF stack to the PM concentration at the inlet to the CCF system filters) and ensure continuous compliance with applicable PM and opacity limits. On June 30, 2022, Owens-Brockway submitted an application to install a catalytic ceramic filter (CCF) system to the Furnace D exhaust stack, to control emissions of PM, as well as NOx and SO_2. The Construction ACDP has a term of 5 years. However, Owens-Brockway must comply with the construction schedule from the MAO, which is also included in the Construction ACDP.

8. The proposed CCF system consists of high temperature, light-weight ceramic filters impregnated with vanadium pentoxide catalyst to reduce NO_x emissions from the furnace exhaust-gas. Aqueous ammonia is injected upstream into ductwork to react with NO_x in the presence of catalyst to convert into nitrogen and water. Hydrated lime (sorbent) is also

injected upstream of the filters to react with SO_2 gases and convert to sulfates/sulfites solid particles to be removed as particulates. The filters also remove heavy metals in particulates with the help of sorbent. The solid particulate matters removed from the filters are either reused in the glass making process or bagged and transfer to off-site.

PROCESS AND CONTROL DEVICES

9. The proposed CCF process and control devices include the following:

Duct Burner: Flue gas exiting GM4 stack first passes through a direct-fired inline duct burner that only comes on during low flow/temperature conditions which occur infrequently. Duct burner comes on as needed to elevate the temperature for optimal chemical reaction (e.g., NO_X to N_2 & H_2O) to occur. Natural gas fired duct burner has a maximum capacity of 7.5 MMBtu/hr, and its natural gas combustion by-products (e.g., NOx, GHG) exhaust through CCF stack along with GM4 flue gas. (emission point CCF01)

Ammonia Injection: Ammonia reacts with NOx in the presence of catalyst and convert to nitrogen and water compounds. The 10,000-gallons pressurized storage tank (9 ft. diameter by 25 ft. height) will be constructed to store 19% aqua ammonia. A compressed-air atomizer will inject the aqua ammonia (NH_3) into the ductwork. The NH_3 injection rate is controlled by measuring the mass rate of NOx in flue gas, and less than 10 ppmv ammonia slip is expected. The NOx control rate is estimated to be about 90%. (emission point CCF01)

Dry Sorbent injection: Hydrated lime (e.g., calcium hydroxide) or similar chemicals will be injected in the ductwork to convert SO_2-gas in flue gas to form solid calcium sulfate that is captured by the CCF (filters) system. A new 2,250 cubic foot storage silo will be constructed to store dry sorbents. The PM emissions during silo filling or product transfer operations will be controlled by a side-entry dust collector with static cartridge filters. (emission points CCF01 & SS02 for silo).

CCF System: The combined exhaust gas containing the required levels of dry sorbent and aqua ammonia flows to the inlet plenum of the CCF system. The retention within the ductwork provides vaporization of aqua ammonia, mixing of sorbent and ammonia gas with the process/flue gas, and the first step of the gas reaction with the dry sorbent. The exhaust gas stream is then routed to the filter housing array, divided equally between the housings, and flows through the ceramic filter elements within each housing. The filtered PM is removed, the SO_2 gas is further reacted by the sorbent cake that formed on the filters, and the NO_X and ammonia are converted to nitrogen and water vapor by contact with the catalyst contained within the filter element walls.

The catalytic ceramic filters are capable of reducing inlet filterable PM by at least 95%. (comparing the PM concentration in exhaust from the CCF stack to the PM concentration at the inlet to the CCF system filters). Treated gas stream that exits each of the filter

housings is combined to a single stream in the outlet plenum, and then the combined gas stream is pulled through the fan and discharged to the CCF stack. (emission point CCF01).

Solid Handling: Processed solids generated by the CCF system are collected from each filter housing and transferred from the hopper of each filter housing into a common collection auger (enclosed screw conveyor). At the collection auger discharge, a diverter valve will be used to convey material to either a bulk bagging station or to an existing silo located in the Batch House to be recycled in the glass bottle manufacturing process as calcium sulfate. New project equipment associated with the solids handling includes bulk bagging, a weigh hopper and day bin (emission points BB03, WH04, and DB05 respectively). All these emission points will have static dust filters to control PM emissions.

The table below provides the initial design parameters for the CCF system. Certain parameters may change and Owens is required to submit construction drawings and other information to DEQ:

CCF Devices Description	CCF ID	Pollutant(s)	Emission Point ID
Sorbent Silo with Static Dust Filter (EU11)	SS02	PM	SS02
NG direct-fired, inline Duct Burner: Max. capacity = 7.5 MMBtu/hr	Temperature control	Combustion by-products	CCF01
Sorbent Injection (in ductwork) Inject rate = 155 lbs/hr	In ductwork	PM, SO2	CCF01
Ammonia Storage tank	Storage Tank	NH_3	Enclosed sys.
Ammonia Injection (in ductwork): The injection rate controlled by measuring the inlet NOx rate	In ductwork	NH_3, NO_X	CCF01
CCF rated efficiency > 95% Inlet PM Design inlet = 26,365 acfm Design air to cloth ratio 2.0-2.7 Total 510 bags **Pressure drop 1 – 20 inches H_2O	CCF	PM SO_2 NO_X	CCF01
Pressure gauge	--	Pressure drop	Instrument device
Temperature gauge	--	Temperature	Instrument device
NOx monitoring device	--	NOx Concentration	Instrument device
Solids Handling (EU12) Bulk bagging Weigh hopper Day bin [Note – PM control by Static Dust Filter,	 BB03 WH04 DB05	 PM	 BB03 WH04 DB05

CCF Devices Description	CCF ID	Pollutant(s)	Emission Point ID
NOL-TEC Model 279 or equivalent]			

** The optimum pressure drop range to be determined during compliance testing

CONTINUOUS MONITORING DEVICES

10. The CCF pollution control system will include the operation of continuous parametric monitoring devices. The specific requirements for continuous monitoring and the parameters to be measured will be incorporated in the Title V Operating permit 26-1876-TV. The operating requirements will include:

    a. In-stack temperature monitor to detect the flue gas temperature. When temperature drops to levels below the set-point, the duct burner will ignite to elevate the flue gas temperature to an optimum level needed for chemical reactions (i.e., SO_2 & NO_X abatement) to occur.

    b. The NO_X monitor detects the NO_X concentration in the GM4 flue gas and/or the CCF01 stack, and determines the amount of aqua-NH_3 feed-rate for the NO_X abatement.

    c. Pressure gauges installed across each CCF-filter will be set to monitor the pressure-drop at 15-minutes interval.

COMPLIANCE HISTORY

11. On April 22, 2019, DEQ issued Notice of Civil Penalty Assessment and Order No. AQ/V-NWR-2019-016, citing the permittee for violations of the 20% opacity limit and ordering the permittee conduct source testing to evaluate PM emissions. The order became final by default, and the permittee conducted PM source tests in May 2019.

12. On January 24, 2020, DEQ issued Notice of Civil Penalty Assessment and Order No. AQ/V-NWR-2019-260, citing the permittee for additional violations of the 20% opacity limit, ordering the permittee conduct additional source testing, and to reset the NSPS opacity values for its furnaces based on more recent source testing. The order became final by default, and the permittee reset the NSPS opacity value for Furnace D (GM4) to 4.7%, which was the 99 percent upper confidence level of a normal distribution of 6-minute average opacity values from the May 2019 source test that demonstrated compliance with the NSPS Filterable PM limit (1 lb PM/ton glass). The 4.7% opacity value for Furnace D was approved by DEQ on February 26, 2020.

13. On March 19, 2020, DEQ issued Notice of Civil Penalty Assessment and Order No. AQ/V-NWR-2020-042 for one additional violation of the 20% opacity limit at Furnace D (GM4).

14. On June 3, 2021, DEQ issued Notice of Civil Penalty Assessment and Order No. AQ/V-NWR-2020-208, citing the permittee for violations of the Total PM limit (0.10 gr/dscf) and two additional violations of the 20% opacity limit at Furnace D, and requiring the permittee to install PM pollution controls Furnace D (GM4). On October 22, 2021, DEQ and the permittee resolved the enforcement action in Mutual Agreement and Final Order (MAO) No. AQ/V-NWR-2020-208. The MAO required the permittee to either shut down or install PM pollution controls on Furnace D (GM4) according to a compliance schedule.

15. On June 30, 2022, Owens-Brockway submitted an application to install a catalytic ceramic filter (CCF) control device to satisfy the MAO requirement requiring control of PM emissions. In addition, Owens-Brockway proposed to control and abate SO_2 and NO_X emissions from the glass melting furnace D (GM4).

EMISSIONS

16. Summary of CCF-controlled projected Emissions:

Pollutant	GM4 Uncontrolled Emissions	CCF Project Emission Sources					
		Sorbent Silo (SS02)	Bulk Bagging (BB03)	Weigh Hopper (WH04)	Day Bin (DB05)	CCF * (CCF01)	Total Emissions
NO_X	152	--	--	--	--	42	42
CO	7	--	--	--	--	7	7
VOC	7	--	--	--	--	1	1
$PM/PM_{10}/PM_{2.5}$	33	$< 1x10^{-4}$	$< 1x10^{-4}$	$< 1x10^{-4}$	$< 1x10^{-4}$	7	7
SO_2	127	--	--	--	--	28	28
GHG (CO_2e)	23,214	--	--	--	--	24,381	24,381
HAP	< 2	--	$1x10^{-4}$	$1x10^{-4}$	$1x10^{-4}$	< 0.5	< 0.5

* includes NG combustion by-products emissions from duct burner

TITLE V MAJOR SOURCE APPLICABILITY

17. A major source is a facility that has the potential to emit 100 tons/year or more of any criteria pollutant or 10 tons/year or more of any single HAP or 25 tons/year or more of combined HAPs. Owens-Brockway is a major source currently operating under a Title V Permit 20-1876-TV-01. Once the CCF construction is complete, the permitted facility will not have potential to emit above the major source threshold level for any regulated air

pollutant; and DEQ will continue to regulate the permitted facility under a Title V permit as a Title V minor source because they are subject to NESHAP 6S.

HAZARDOUS AIR POLLUTANTS

18. The Owens-Brockway facility is a minor source of hazardous air pollutants (HAPs) because the estimated (uncontrolled) emission of any individual HAP is less than the 10 tons/yr threshold and total aggregate HAPs emission is less than the 25 tons/yr threshold.

CAS Number	Chemical Name	Estimate (tons/yr)*
7440382	Arsenic Compounds	1.01×10^{-2}
71432	Benzene	1.51×10^{-3}
7440417	Beryllium Compounds	2.48×10^{-5}
7440439	Cadmium Compounds	1.38×10^{-2}
25321226	Dichlorobenzenes (mixed isomers)	8.69×10^{-4}
7440484	Cobalt Compounds	6.09×10^{-5}
100414	Ethylbenzene	1.84×10^{-3}
50000	Formaldehyde	5.43×10^{-2}
110543	Hexane	1.30
7647010	Hydrochloric Acid	2.43×10^{-2}
7439921	Lead Compounds	2.85×10^{-1}
7439965	Manganese Compounds	1.05×10^{-2}
7439976	Mercury Compounds	3.80×10^{-4}
7440020	Nickel Compounds	4.60×10^{-3}
91203	Naphthalene	4.42×10^{-4}
1330207	Xylenes (isomers)	8.76×10^{-3}
7782492	Selenium Compounds	3.06×10^{-2}
0	Chromium Compounds	1.71×10^{-1}
0	Hex-Chromium	1.97×10^{-4}
	Total Aggregate HAPs:	**Less than 2 ton/year**

* The HAP estimate in this table came from the previous permit action when two furnaces were operating. The current HAP emissions with only one furnace (GM4) operating would be much less and will be updated in the next Title 5 permit renewal.

ADDITIONAL REQUIREMENTS

NEW SOURCE PERFORMANCE STANDARDS APPLICABILITY

19. 40 FR Part 60, Subpart CC – Standard of Performance for Glass Manufacturing Plants

The electric melting furnace GM4 was installed in 1970 and it was converted to gas-fired furnace during the year 1986. A glass melting furnace that commenced construction or modification after June 15, 1979 is subject to the NSPS requirements of 40 CFR, subpart CC, Standards of Performance for Glass Manufacturing Plants.

The GM4 furnace burns natural gas and utilizes electric boost. Owens Brockway currently uses post-consumer cullet in excess of 70% of total material input. The GM4 furnace without control is currently regulated as a glass melting furnace "with modified processes" subject to the PM emissions limit of 0.5 g PM/kg glass produced (1 lb PM/ton glass) specified at 40 CFR 60.293(b)(1). The standard for a modified process also requires Continuous Opacity Monitoring System (COMS) to measure the visible emissions discharged into the atmosphere from GM4. The modified-processes means using any technique designed to minimize emissions without the use of add-on pollution controls.

After the CCF air pollution control system is installed and operating on GM4, the more stringent NSPS PM limit of 0.1 grams per kilogram of glass produced (0.2 lb PM/ton glass) becomes applicable, as specified at to 40 CFR 60.292(a)(1). The COMS requirement will be no longer applicable after the CCF control is installed and operating. DEQ expects no visible emissions from the CCF controlled furnace.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS APPLICABILITY

20. 40 CFR Part 63, Subpart SSSSSS - NESHAP for Glass Manufacturing Area Source

National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources (NESHAP subpart 6S) applies to Furnace D (GM4) because the permittee adds iron chromite to the batch as a raw material when it produces green glass. Iron chromite contains chromium. No other metal HAPs listed in subpart 6S are added to the glass batch as raw materials.

GREENHOUSE GAS REPORTING APPLICABILITY

21. OAR Chapter 340 Division 215 is applicable to the source because emissions of greenhouse gases exceed 2,500 metric tons (2,756 short tons) of CO_2 equivalents per year.

REASONABLY AVAILABLE CONTROL TECHNOLOGY APPLICABILITY

22. The facility is located in the Portland AQMA but it is not one of the listed source categories in OAR 340-232-0010, thus the RACT rules do not apply.

TYPICALLY ACHIEVABLE CONTROL TECHNOLOGY APPLICABILITY

23. The proposed CCF air pollution control equipment will meet and exceed the requirements of OAR 340-226-0130 Highest and Best Practicable Treatment and Control and Typically Achievable Control Technology (TACT).

SOURCE TESTING

24. After a Construction ACDP permit is issued for the proposed CCF air pollution control equipment, and the CCF construction is complete and the CCF is operating, source testing will be conducted for regulated air pollutants (e.g., PM_{10}, SO_2, NO_X, Pb, As, etc.) to ensure all applicable requirements are met. All relevant production and control device parameters will be recorded during the tests, as will be specified in the modified Title V Operating Permit 26-1876-TV.

PUBLIC NOTICE AND HEARING

25. Pursuant to OAR 340-216-0052(5)(a), the proposed Construction Air Contaminant Discharge Permits followed a Category-III public review process in accordance with OAR 340-209-0030(3)(c), which required DEQ to provide notice of the proposed permit action and a minimum of 35 days for interested persons to submit written comments. In addition, a hearing was held on November 3, 2022, to allow interested persons to submit oral or written comments. The public comment period ended on November 7, 2022, at 5:00 p.m.

    A collective group representing Cully Air Action Team, Earthjustice, Neighbors for Clean Air, Northwest Environmental Defense Center, Oregon Environmental Council, Portland Clean Air, and Verde submitted written comments generally in support of the proposed construction permit.

    The comments also noted: “While we appreciate the significant projected reduction in emissions for NO_X and SO_2 that the ceramic catalytic filter will deliver at Owens-Brockway, the public notice states that installing a ceramic catalytic filter system will result in a projected increase in greenhouse gas emissions and ammonia emissions. To ensure that public health is not adversely impacted, we encourage DEQ to strengthen the permit to ensure that these increases are avoided or minimal.”

DEQ Response: DEQ will address the greenhouse gas and ammonia emissions from operating the ceramic catalytic filter system in the Title-V permit modification to ensure they're in compliance with environmental laws. Once DEQ has drafted this permit, it will go through a public process.

DEQ also received one oral comment during the public hearing. The commenter expressed support for Cleaner Air Oregon and for the installation of controls.

DEQ received no other comments.

gy:YP

Oregon
Kate Brown, Governor

Department of Environmental Quality
Northwest Region Portland Office
700 NE Multnomah St., Suite 600
Portland, OR 97232
(503) 229-5696
FAX (503) 229-6945
TTY 711

November 10th, 2022

Owens-Brockway Glass Container Inc.
Attn: Jacob Wendler, Plant Manager
9710 NE Glass Plant Road
Portland, OR 97220

Re: Issuing a new Construction Air Contaminant Discharge Permit #.: 26-1876-CS-01
Multnomah County

Greetings:

The Oregon Department of Environmental Quality (DEQ) has completed processing your application for your new Construction Air Contaminant Discharge Permit (ACDP) No.: 26-1876-CS-01. Based on the material contained in the application we have issued the enclosed permit with a review report, including comments and responses to those comments.

The permit became effective the date it was signed. If you wish to appeal any of the conditions or limitations contained in the attached permit or if you have any questions, please contact the permit writer, George Yun, at: (503) 863-6945, or by e-mail at: george.yun@deq.oregon.gov. If issues related to the permit conditions cannot be resolved to your satisfaction, you may request a hearing before the Environmental Quality Commission or its authorized representative, pursuant to ORS Chapter 183 and OAR division 216. Such request for hearing shall be made in writing to the Director on or before 20 days following the date of permit issuance.

A copy of the current permit must be available at the facility at all times. Failure to comply with permit conditions may result in a civil penalty. You are expected to read the permit carefully and comply with all conditions to protect the environment of Oregon.

Sincerely,

Joshua Alexander
Joshua Alexander (Nov 9, 2022 19:31 PST)

Joshua Alexander
NWR-Air Quality Permit Manager

Encl: Copy of Construction Permit & Review Report

Cc: GY/DEQ: HQ/File

Owens Brockway Glass C. permit no: 26-1876-CS-01 & RR, Issuance Letter

Final Audit Report 2022-11-10

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