OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON TITLE V OPERATING PERMIT
REVIEW REPORT

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

Unassigned emissions		Special conditions		NESHAP	
Emission credits		Annual report	X	NSR	
Source test	X	Semi-annual report	X	PSD	
COMS	X	Quarterly report	X	RACT	
CEMS		Monthly report		Size	T-V
CAM		Excess emissions report		Major HAP source	
Ambient monitoring		NSPS	X	Federal major source	X
Compliance schedule					

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LIST OF ABBREVIATIONS

AQMA	Air Quality Management Area
ASTM	American Society of Testing and Materials
BDT	bone dry ton
CEMS	continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	continuous monitoring system
CO	carbon monoxide
COMS	continuous opacity monitoring system
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic feet
EF	emission factor
EPA	United State Environmental Protection Agency
EU	emissions unit
FCAA	Federal Clean Air Act
gr/dscf	grains per dry standard cubic feet
HAP	hazardous air pollutant
ID	identification code
I&M	inspection and maintenance
MB	material balance
Mlb	1000 pounds
MM	million
NA	not applicable
NESHAP	National Emission Standard for Hazardous Air Pollutants
NO_x	oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	$_o$xygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	operation and maintenance
Pb	lead
PCD	pollution control device
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
SO_2	sulfur dioxide
ST	source test
VE	visible emissions
VMT	vehicle mile traveled
VOC	volatile organic compound

INTRODUCTION

1. PERMIT ACTION SUMMARY: The proposed permit action is a Department initiated modification to incorporate the requirements of New Source Performance Standards, subpart CC into the existing Title V Permit 26-1876. The NSPS subpart CC is applicable to glass melting furnaces GM1 and GM4. The proposed permit also serves as a renewal of an existing permit originally scheduled to expire on July 1, 2007. There have been no significant physical changes to the facility during the current permit term. The plant site emissions limits, all of the applicable requirements and associated monitoring, recordkeeping, and reporting requirements set forth in the existing permit are retained in the proposed permit.

2. In accordance with OAR 340-218-0120(1)(f), this review report is intended to provide the legal and factual basis for the draft permit conditions. In most cases, the legal basis for a permit condition is included in the permit by citing the applicable regulation. In addition, the factual basis for the requirement may be the same as the legal basis. However, when the regulation is not specific and only provides general requirements, this review report is used to provide a more thorough explanation of the factual basis for the draft permit conditions.

3. The off-permit changes, 502(b)(10) changes, administrative amendments, and minor modifications that occurred during the current permit term include the following:

Date	Permit revision or notification	Brief explanation
August 2004	Type I modification approved by the Department on June 2, 2004	Installed Continuous Opacity Monitoring System (COMS) on glass melting furnace No.4 (GM4)
June 2006	Off permit change notification	Owens Brockway proposed to switch materials used in the hot end surface treatment (HEST) process. Owens Brockway currently uses tin-tetrachloride (SnCl4) but plans to replace it with monobutyltin trichloride (MBTT) and continue to use the existing HEST-A baghouse. The proposed change of materials also meets the definition of "insignificant change" described in OAR 340-200-0020.
September 2006	Type I modification – Required by NSPS subpart CC	Installed Continuous Opacity Monitoring System (COMS) on north stack of glass melting furnace No.1 (GM1)

4. New condition 14 through 17 set forth in the permit are NSPS (subpart CC) requirements applicable to glass melting furnaces GM1 and GM4. Consequently, some of the permit conditions are renumbered and reorganized.

New No.	Old No.	Description of change	Reason for change
7	7	The frequency of visible emissions monitoring increased from monthly to weekly for material handling activities.	The facility inspections conducted during the permit term determined OB could continue to improve the general housekeeping and reduce any potential fugitive emissions.
12	14	The grain-loading limit applicable to GM1 & GM4 changed from 0.2 to 0.1 gr/scf.	Correction
13	17	COMS required on both GM1 and GM4	Correction
14 - 17	--	New NSPS subpart CC requirements applicable to GM1 and GM4	NSPS subpart CC
18 - 28	11 - 22	Reorganization of EU-specific conditions	Update
29 - 33	23 – 29	Reorganization of Insignificant Activities conditions	Update

New No.	Old No.	Description of change	Reason for change
36	30	The Pb PSEL of 0.5 tons/yr established	The Pb emissions near de-minimis emission level set in OAR 340-200-0020
37	31	New Pb EF established for melting furnaces	
37	31	New MBTT EF in place of $SnCl_4$ EF	Process Change – Off permit change
38 - 40	32 - 34	Renumbering of Testing Procedures	Renumbering
41 - 54	35 - 48	Renumbering of Recordkeeping and Reporting Requirements	Renumbering
55 - 56	49 - 50	Renumbering of Non-applicable rules listing	Renumbering

PERMITTEE IDENTIFICATION

5. Owens-Brockway Glass Containers Inc. owns and operates a glass container manufacturing plant (#21) in Portland, Oregon. The Owens-Brockway Glass Plant #21 occupies approximately 78 acres of property located at 9710 NE Glass Plant Road. On April 30, 1990, "Owens-Illinois Brockway Glass, Inc.", a wholly owned subsidiary of the "Owens-Illinois Group, Inc.", merged with "Owens-Illinois Glass Container Inc.", another wholly owned subsidiary of the "Owens-Illinois Group, Inc.", and formed the (new) company "Owens-Brockway Glass Containers Inc." which is the current owner of the Portland plant regulated under this Title V permit. Mr. Dean Harris is the plant manager, and he is currently identified as the primary responsible official for the permitted activities.

FACILITY DESCRIPTION

6. The Owens-Brockway Glass Plant #21 produces a variety of glass bottles and jars from the post-consumer recycled glass with other essential raw materials. The glass-manufacturing comprises of the following areas of operations: Raw material and cullet receiving and storage, materials blending and transport, glass melting furnaces, glass forming, final bottle treatment, and the maintenance and support systems such as boiler and storage tanks.

Cullet Storage and handling

The cullet processors equipped with magnetic device separate metal and paper/labels from the post-consumer cullet. The paper and metal separated from the cullet are disposed off site. Post-consumer cullet and in-house (recycled) cullet are loaded into a hopper and then crushed to optimum (melting) size and conveyed to the cullet storage.

Material Blending/Mixing

The raw materials (e.g., sand, salt cake, limestone and soda ash) come to the plant in truck and railcars, and they are conveyed from the truck/rail unloading area to an elevator that transports them into silos. The raw materials and cullet from their respective storage silos are conveyed and loaded onto a weigh bin/hopper and the mixture is poured into a surge bin. The weighted raw materials and cullet from the surge bin are fed into the mixers along with liquid caustic pumped from storage tank. Color additives used in small quantities are manually added to the mixers as needed. The final mixture/batch is loaded into the batch charger that feeds the glass-melting furnace that operates continuously. The use of (recycled) cullet reduces the energy required to melt the batch of raw materials.

Glass Melting Furnaces

The Owens-Brockway facility has four continuous glass-melting furnaces GM1 through GM4 (A - D), of which only A (GM1) and D (GM4) furnaces are in operation. Furnaces B (GM2) and C (GM3) have shut down permanently and they are not likely to put back into service in the future. Furnaces burn natural gas as their primary fuel but they can also use fuel oil or propane as backup during the NG curtailment period. Furnace-A (and B) has two side-ports with alternating stacks whereas furnace-D (and C) has an end-port with a single stack. Molten glass drawn from the furnace pass through a refiner where the molten glass is heat conditioned prior to the bottle-forming process.

Forming

Semi-molten glass[-1-] from refiner is sheared, gobbed, and blown into a mold. Molded glass bottles and jars are further treated in the hot end surface treatment (HEST) process that applies mono-butyl-tin trichloride (MBTT). The HEST process deposits tin (Sn) compounds/radicals into the glass surface. The exhaust from HEST process units vent through an abatement system (baghouse HEST-A) where ammonia (NH_3) is injected. Ammonia combines with tin to form solid particulate that baghouse collects, and the PM (i.e., tin-compounds) collected is ship to off site recycler. Slightly excess ammonia is used to provide an optimum condition for the reaction. Following the HEST process, surface-treated bottles are annealed[-2-] in the lehr. The lehr is a long oven that controls the amount of heat supplied to bottles moving along the production line. The bottles moving through lehr gradually cools to prevent cracking. Reject bottles are purged from the production line and literally dunked into "dunk-tanks" filled with water located in the lower-level section of the plant. The oil/water separator treats and recirculates the catch water, and this is categorically insignificant activity.

Mold Preparation is an inherent part of the bottle-forming process. The mold preparation involves cleaning, lubricating, curing and heating. Operator periodically swabs molds with a graphite/oil solution as needed. The mold is periodically purged from the production line for maintenance and repair. A purged-mold is cleaned in the burnout ovens and grit blasters, and then solid film lubricant (1-gallon lasts about a week) is applied in the mold coating spray booth and cured in the mold curing ovens. The repaired mold's temperature is elevated in the mold heat ovens and quick fire ovens prior to re-entering the forming line.

Final Bottle Treatment & Warehouse Operations

The final bottle treatment processes include coding, labeling and packaging. A bottle coder (ink-jet printer) prints tiny identification numbers on the glass containers as they rapidly move through the conveyor. Methyl ethyl ketone (MEK) is used as cleanup solvent and as the ink (carrier) solvent. MEK Emissions are grouped under aggregate insignificant activities. Finally the finished glass containers are packed into cartons or bulk loaded for shipping.

Boiler

Owens Brockway operates a boiler (10.5×10^6 Btu/hr) and small space heaters strictly for space heating as needed. There are also hot water heaters to heat water for showers and restrooms. Space heaters and water heaters are categorically insignificant activities.

[-1-] Traditionally glass is defined as super cooled liquid because it does not behave like metal or ceramic upon cooling from the molten state: Glass does not undergo structural changes. (Solid) Glass can be described as being a very viscous liquid. The classic verification of the super-cooled-liquid theory is that if a windowpane of very old house is measured, the bottom will be thicker than at the top – indicating (very slow) flow has occurred (over a long period of time).

[-2-] Heated glass is slowly cooled (annealed) in order to reduce the possibility of delayed cracking.

Miscellaneous Activities

Maintenance activities include four "Safety-Kleen" parts cleaners, small/portable compressors, welding operations, and minor machining and painting activities. The plant has one vertical fixed roof storage tank for storing fuel oil and several horizontal tanks storing propane. There are also storage tanks for used oil, machine lube oil, and ammonia. The Quality and Standards (Q/S) lab uses bench scale laboratory equipment for chemical and physical analysis.

EMISSIONS UNIT AND POLLUTION CONTROL DEVICE IDENTIFICATION

7. Emissions units identified in this permit are grouped primarily with respect to the common applicable requirements and the associated monitoring protocols:

EU ID		EU Description	SCC	Year Installed	PCD Description	PCD ID	Year Inst.
EU1	RMU1-3	Raw material handling - conveyor/elevator, silos.	30510405 30510499	1956	Raw material baghouse Batch baghouse	RMBH-1 RMBH-2	1978 1956
EU2	CC1-5 CP1-4	Cullet crushers Cullet processors	30501413	1956 1979	none	-- --	-- --
EU3	RMB1-3	Conveyors, weigh bins, surge bin, mixers chargers.	30510199 30510299	1956	Batch baghouse	RMBH-2	1956
EU4	**GM1** GM2 GM3 **GM4**	Glass Melting Furnaces **A**, B, C, **D**	30501401	1956 1956 1962 1970	None	--	--
EU5	HEST1-4 SOT-1 MS1-4	hot-end surf. treatment SO_2 treatment Mold swabbers	30501406	pre-1975 pre-1975 1956	HEST Abatement (NH_3 injected baghouse)	HEST-A -- --	1982
EU6	R1-4 FH1-4 LH1-4 MO-1 MH-1 QF-1	Refiners Forehearths Lehrs Mold burnout/cure ov. Mold heat oven Quick fire oven	30590003	1956 1956 1956 1956 1956 1956	none	--	--
EU7	B1	Boiler	10100602 10100501	1956	none	--	--
EU10	Machine repair dust collector. Mold bench dust collector		--			MRD-1 MBD-1	1956 1956

Emissions Unit 1 (EU1) groups raw material transport and storage activities excluding the cullet handling. A small (9-bags) baghouse RMBH-1 is located inside the truck-unloading shed and it operates when truck unloads raw materials.

Emissions Unit 2 (EU2) includes five cullet crushers (CC1 through CC5) and four cullet processors (CP1 through CP4). The PM/PM_{10} emissions from the in-house cullet crushing (including storage piles) total about 3.4 tons/yr, and approximately 17.1 tons/yr are from the post-consumer cullet crushing processes.

Emissions Unit 3 (EU3) includes raw-material blenders (RMB1 through RMB3) and transport and auxiliary equipment such as conveyors, surge bins, weigh bins, mixers and chargers. Particulate emissions from raw material silos, weigh bin, mixers, and chargers are collected and routed to a "batch" baghouse RMBH-2

(240 bags) that operates continuously. All raw materials handling equipment are either enclosed or located in underground area.

Emissions Unit 4 (EU4) consists of four glass melting (~2,600 [redacted]) furnaces GM1 through GM4. Furnace B (GM2) has been shut down permanently and furnace C (GM3) has been taken out of service indefinitely. Only the Furnace A (GM1) and furnace D (GM4) will be operating in any foreseeable future.

EU4 Furnaces	Rated Capacity 10^6 Btu/hr	Glass-Batch melted: average "tons/yr"	Year Installed	Year Modified
GM1	52.88	115,941	1956	1982
GM2	<100	0	1956	--
GM3	27.4	60,118	1962	--
GM4	44.1	96,618	1970	1986

Emissions Unit 5 (EU5) includes numerous process equipment that include four hot end surface treatment equipment (HST1 to HST4), four mold swabbers (MS1 to MS4: manual operation with bloom-sized swabs that apply graphite/oil mixture), and a sulfur dioxide treatment unit (SOT1). An ammonia injected HEST abatement device (baghouse HEST-A) controls Sn released during the hot end surface treatment. All EU5 equipment is located inside the building. The sulfur dioxide treatment is only for the bottles and jars used in the medical field, and the SOT1 process has not been conducted in many years. In general, a small portion of SO_2 gas would be injected into the bottle just before the Lehr (ovens), where excess SO_2 would be released along with the other combustion gases. The permittee estimated about 600 lbs of SO_2 would be used during any given month, if used at all.

EU5 Devices	Material Type	Material usage	Year Installed
HEST1-4	$SnCl_4$	70,000 lbs/yr	Pre-1975
MS1-4	graphite/oil mix.	60,000 lbs/yr	1956
SOT-1	SO_2	600 lbs/mo. max.	Pre-1975

Emissions Unit 6 (EU6) includes miscellaneous NG-combustion sources such as furnace refiners (R1 to R4), forehearths (FH1 to FH4), Lehrs (LH1 to LH3), Mold burnout and curing oven (MO-1), Mold heat oven (MH-1), Quick fire oven (QF-1), and space heaters[-3-]. The fourth lehr (LH4) is an electrical unit.

EU6 Device:	R1-4	FH1-4	LH1-4	MO-1	MH-1	QF-1
Capacity 10^6 Btu/hr, each	2.5	5.0	2.5	< 2.0	< 2.0	< 2.0
Year Installed	1956	1956	1956	1956	1956	1956

Emissions Unit 7 (EU7) is a "Kewanee, Type-C" boiler with the rated capacity of 10.5 x 10^6 Btu/hr. The Kewanee boiler is primarily fueled by natural gas but it is capable of burning fuel oil as a back-up fuel. The boiler is used for space heating and it is not designed to generate any process steam. The boiler was installed in 1956 and no modification has been made to it since.

Emissions Unit 10 (EU10) consists of a small machine repair dust collector (MRD-1) and a mold bench dust collector (MBD-1) that both discharge inside the building. The machine repair and mold grinding operations are needed infrequently, and consequently MRD-1 and MBD-1 are operated sporadically.

[-3-] Space heaters w/ the capacity less than 2 MMbtu/hr are grouped under categorically insignificant activities.

Pollution Control Devices (PCD): Owens Brockway operates baghouses of various size and type. The HEST-A baghouse injects ammonia to control tin-compounds released from the HEST1-4 process.

PCD ID	Baghouse Type (EU controlled)	Number of bags	Design flow (acfm)	Rated efficiency	Year Installed
RMBH-1	Baghouse (EU1)	9	--	99%	1978
RMBH-2	Baghouse (EU1, EU3)	240	9,000	99%	1956
HEST	NH_3 injected Bag-	144	3,500	99%	1982
HEST-A	house (EU5)	NH_3 inj.	30 to 35/unit	99%	1982
MRD-1	Baghouse (EU10)	--	1,400	--	1956
MBD-1	Baghouse (EU10)	--	2,100	--	1956

8. Categorically insignificant activities include the following:

- Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under Divisions 20 through 32 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year
- Evaporative and tailpipe emissions from on-site motor vehicle operation
- Distillate oil, kerosene, and gasoline fuel burning equipment rated at less than or equal to 0.4 million Btu/hr
- Natural gas and propane burning equipment rated at less than or equal to 2.0 million Btu/hr
- Office activities
- Food service activities
- Janitorial activities
- Personal care activities
- Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance
- On-site recreation facilities
- Instrument calibration
- Maintenance and repair shop
- Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment
- Refrigeration systems with less than 50 pounds of charge of ozone depleting substances regulated under Title VI, including pressure tanks used in refrigeration systems but excluding any combustion equipment associated with such systems
- Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities
- Temporary construction activities
- Warehouse activities
- Accidental fires
- Air vents from air compressors
- Demineralized water tanks
- Pre-treatment of municipal water, including use of deionized water purification systems
- Electrical charging stations
- Fire Brigade training
- Instrument air dryers and distribution
- Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking
- Electric motors
- Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids

- On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles
- Natural gas, propane, and liquefied petroleum gas (LPG) storage tanks and transfer equipment
- Pressurized tanks containing gaseous compounds
- Emissions from wastewater discharges to publicly owned treatment works (POTW) provided the source is authorized to discharge to the POTW, not including on-site wastewater treatment and/or holding facilities
- Fire suppression and training
- Paved roads and paved parking lots within an urban growth boundary
- Health, safety, and emergency response activities
- Emergency generators and pumps used only during loss of primary equipment or utility service
- Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems
- Industrial cooling towers that do not use chromium-based water treatment chemicals
- Oil/water separators in effluent treatment systems
- Combustion source flame safety purging on startup

EMISSION LIMITS AND STANDARDS, TESTING, MONITORING, AND RECORDKEEPING

9. Oregon Administrative Rules with specific requirements (e.g., emission limits or standards) that have been determined to be applicable to the Owens-Brockway facility are identified in this section. The applicable requirements along with the associated monitoring, recordkeeping, and reporting that are necessary to determine compliance with the aforementioned applicable requirements are incorporated in this Title-V permit.

10. Facility-wide applicable requirements

10.a. Source Emission Reduction Plan (SERP), OAR 340-206-0050;
10.b. Fugitive dust control requirements, OAR 340-208-0210;
10.c. Particulate matter (> 250 micron) fall-out standard, state-only enforceable, OAR 340-208-450; and
10.d. Nuisance standards, state-only enforceable, OAR 340-208-0300.

11. Emissions Unit specific Standards

11.a. Opacity standard of OAR 340-208-0110 applicable to EU6, EU7, GM1 through GM4;
11.b. grain loading limit (0.1 gr/scf) of OAR 340-226-0210 applicable to glass melting furnaces GM1 and GM4, batch baghouse RMBH-2 and HEST-A baghouse;
11.c. Opacity standard of OAR 340-208-0600 applicable to non-fuel burning equipment RMBH-1, RMBH-2, HEST-A, MRD-1;
11.d. Grain loading limit (0.2 gr/scf) of OAR 340-228-0210 applicable to GM2, GM3, EU7, RMBH-1, MRD-1;
11.e. Sulfur dioxide emissions standard, state-only enforceable, OAR 340-208-0630, applicable to SOT-1 when medical bottles are produced; and
11.f. the fuel oil sulfur contents, OAR 340-228-0110 applicable to EU7 boiler and GM1 through GM4 furnaces when they burn fuel oil.

12. NSPS subpart CC Requirements applicable to GM1 and GM4

The melting furnace GM1 was installed on 1956 and it was modified during the year 1983. The GM1 furnace-area was enlarged from 566 square-feet to 786 square-feet and (2) gas-firing ports were installed. The melting furnace GM4 was installed on 1970 and it was modified during the year 1986. The GM4 electric furnace was converted to a gas fired, endport, regenerative furnace. Any glass melting furnace that

commences 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"

12.a. Both GM1 and GM4 furnaces burn natural gas as their primary fuel but are capable of burning distillate oil as back-up fuel during the natural gas curtailment period. These furnaces utilize the combination of gas/fuel firing ports with electric-booster. Owens Brockway uses post consumer cullet in excess of 50% of total material input. The GM1 and GM4 furnaces are considered glass melting furnace with "modified processes" subject to the PM emissions limit of 0.5 g/Kg specified at 40 CFR 60.293 (b)(1).

12.b. The GM1 and GM4 furnaces are required to install, calibrate, maintain, and operate Continuous Opacity Monitoring (COM) system to measure the visible emissions discharged into the atmosphere. For GM1 furnace with two stacks, COM is required on each stack.

13. Emissions limits applicable to Insignificant Activities: This facility has insignificant emissions units (IEUs) that include categorically insignificant activities and aggregate insignificant emissions, as defined in OAR 340-200-0020. For the most part, the standards that apply to IEUs are for opacity (20% limit) and particulate matter (0.1 gr/dscf limit). The Department does not consider it likely that IEUs could exceed an applicable emissions limit or standard because IEUs are generally equipment or activities that do not have any emission controls (e.g., small natural gas fired space heaters) and do not typically have visible emissions. Since there are no controls, no visible emissions, and the emissions are less than one ton per year, the Department does not believe that monitoring, recordkeeping, or reporting is necessary for assuring compliance with the standards.

14. General Monitoring Requirements: Section 70.6(a)(3)(i) requires that all monitoring and analysis procedures or test methods required under applicable requirements be contained in Title V permits. In addition, where the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirement to include in a permit testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, then in this instance, the status quo (i.e., **no monitoring**) will meet section 70.6(a)(3)(i).

The monitoring frequency (i.e., daily, weekly, monthly, or yearly) specified in the monitoring condition is the time elapsed between two subsequent monitoring performed by the permittee. It may not be practical to interpret the frequency specified in the permit as being exact calendar time frame. For example, the permittee is required to monitor their production and fuel usage on a monthly basis to show compliance with the PSEL set forth in the permit. The term "monthly" is not meant to be strictly limited to interpretation as a "calendar month" as the production cycle may either end before or extend beyond the last day of a calendar month. Within reason (common sense), the permittee is allowed to use the alternative monitoring frequency such as an "accounting month" following their production cycle. This "accounting" period similarly applies to all monitoring frequencies specified in the permit.

15. PSEL monitoring: Emission factors and empirical formulas used to estimate the plant site emissions for purpose of determining compliance with the PSEL are not, by themselves, enforceable limits. These emissions factors and formulas need to be reviewed on an on-going basis, as they are subject to change if

data that are more accurate become available. For example, the permit contains source test requirements to verify the accuracy of emission factors used to calculate the emissions from the glass melting furnaces. Pending source test results, the permit EF and/or PSEL may be modified.

16. Test Methods and Procedures section of the permit provides the permittee and Department exact test methods to be used to measure pollutant emissions in the event that testing is conducted for any reason. This section does not by itself require the permittee to conduct any more testing than those specified in the permit. Although the permit may not require testing because other routine monitoring is used to determine compliance, the Department and EPA always have the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may volunteer to conduct testing to confirm the compliance status. In any case, the methods to be used for testing in the event that testing is conducted are included in the permit.

17. Recordkeeping requirements in this permit are drafted pursuant to OAR 340-218-0050(3)(b). The records of all monitoring specified in the Oregon Title-V Operating Permit must be kept at the plant site for at least 5 years, unless longer period is specified (for certain NSPS data). All records necessary to determine compliance with any permit condition shall be made available to the DEQ/EPA inspectors upon request.

18. Reporting requirements in this permit are drafted pursuant to OAR 340-218-0050(3)(c). The permittee is required to submit reports to the Department twice per year. The semi-annual reports are for certifying compliance with the permit requirements. The annual report consists of the second semi-annual compliance certification; in addition to the product throughputs, and other relevant data needed to determine compliance with the PSEL. The NSPS reporting requirements added to this permit renewal include excess emissions reporting as specified in the permit.

PLANT SITE EMISSION LIMITS

19. Provided below is a summary of the baseline emissions rate, netting basis, plant site emission limits, and emissions capacity.

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limit (PSEL)			Capacity (tons/yr)
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)	
PM_{10}	132	132	132	132	132	0	132
SO_2	313	313	313	313	313	0	313
CO	17	17	17	99	99	0	36
NO_x	711	711	711	711	711	0	711
VOC	12	12	12	39	39	0	7
Pb	0.1	0.1	0.1	--	0.5	0.5	0.5

19.a. Baseline Emission Rate is an estimate of actual pollutant emissions that occurred during the baseline period of 1978. Emissions Detail Sheets at the end of this review report provide the 1978 production data and emission factors used to estimate the baseline PSEL.

19.b. Netting Baseline equals the baseline emission rate adjusted down with respect to any emission reductions required by rules or through voluntary measures, plus any emission increases approved through New Source Review. For Owens-Brockway, there have been no regulatory or (permanent) voluntary reductions of PSEL and there have been no PSEL increases approved through NSR. The

generic-level PSEL is used for CO, VOC, and Pb for PTE for these pollutants are less than their respective SER. The netting basis for CO, VOC, and Pb remains the same as their baseline emissions rate.

19.c. PSEL for PM_{10}, SO_2 and NO_x remain the same as the baseline emissions rate. All PM and PM_{10} emitted at the Owens Brockway plant are considered PM_{10}.

19.d. PSEL for CO, VOC, and Pb are set at their respective generic level in accordance with OAR 340-222-0040. The generic PSEL level for CO and VOC is equal to Significant Emission Rate (SER) for that pollutant minus 1 ton. The generic level for Pb equals its SER minus 0.1 ton at 0.5 tons/yr. The PSEL must be established for all regulated pollutants listed in Table 2 of OAR 340-200-0020 that are emitted above the de-minimis levels defined in 340-200-0020. The de minimis level for Pb is only 0.1 tons/yr, and this permit renewal moves the lead emissions grouped under aggregate insignificant emissions in the previous permit to the PSEL section of the permit.

19.e. The NO_x PSEL History: The Portland area has attained compliance with the federal Ozone standard and the Department has developed the Portland AQMA Ozone Maintenance Plan. In an effort to alleviate concerns that existing sources with unused or excess PSEL would increase their emissions up to the permitted level, the Department instituted a PSEL donation program for NO_x and VOC. Owens-Brockway participated and signed into "Voluntary PSEL Reduction Agreement" on August 8, 1996. In the agreement, Owens-Brockway agreed to temporarily donate 132 tons per year of (unused) NO_x PSEL for a period of 4 years, or until October 1, 2000. In return for the NO_x PSEL reduction, the Department exempted Owens-Brockway from participating in Employee Commute Option (ECO) Program that is part of the Portland AQMA Ozone Maintenance Plan. The ECO program requirements will apply for the full duration of the Portland AQMA Ozone Maintenance plan. The NO_x PSEL has been reverted to the netting baseline level when the former Title V permit was issued on September 5, 2002, and it has not been changed since.

SIGNIFICANT EMISSION RATE

20. The proposed PSEL for all regulated pollutants other than lead (Pb) is not greater than the previous netting basis as shown below. The Pb PSEL is equal to its generic level and it is less than SER for Pb.

Pollutant	SER	Requested increase over previous netting basis	Increase due to utilizing capacity that existed in the baseline period	Increase due to physical changes or changes in the method of operation
PM_{10}	15	0	0	0
CO	100	0	0	0
NO_x	40	0	0	0
SO_2	40	0	0	0
VOC	40	0	0	0
Pb	0.6	0.5	0.5	0

HAZARDOUS AIR POLLUTANTS

21. The Owens-Brockway facility is a minor source of hazardous air pollutants (HAPs): The estimated PTE of all individual HAP is less than the 10 tons/yr individual HAP threshold limit, and aggregate HAPs emission total less than the 25 tons/yr aggregate threshold limit.

CAS Number	Chemical Name	Estimate (tons/yr)	CAS Number	Chemical Name	Estimate (tons/yr)
7440382	Arsenic	1.04×10^{-2}	7439965	Manganese	1.74×10^{-3}
71432	Benzene	4.63×10^{-3}	7440020	Nickel	1.91×10^{-3}
7440439	Cadmium	1.85×10^{-2}	7782492	Selenium	0.34
50000	Formaldehyde	1.58×10^{-5}	108883	Toluene	2.83×10^{-3}
0	Hex Chromium	1.97×10^{-4}	7439921	Lead	0.19
		Total Aggregate:	**Less than 1 ton/year**		

A review of the AQ source files indicates Owens-Brockway removed "Wrap Shrink Labeler" from their process in 1998 that eliminated 9.78 tons/yr of Hydrochloric Acid, 0.65 tons/yr of Methylene Chloride, and 0.4 tons/yr of Methyl Ethyl Ketone (MEK). On December 13, 2005, the Environmental Protection Agency (EPA) issued a final rule that removes methyl ethyl ketone (MEK) from the list of toxic air pollutants the Agency is required to regulate under the Clean Air Act.

22. Toxic and Flammable Substance Usage for Accidental Release Prevention

		ESTIMATED ANNUAL USAGE (lbs)			
CAS No.	**Chemical**	**Insignificant**	**1,001 - 10,000**	**10,001 - 20,000**	**> 50,000**
7664417	Ammonia		X		
7440382	Arsenic	X			
71432	Benzene	X			
7440439	Cadmium	X			
7440473	Chromium	X			
7440484	Cobalt	X			
7440508	Copper	X			
50000	Formaldehyde	X			
7439921	Lead	X			
7439965	Manganese	X			
74828	Methane (nat. gas)				X
7440020	Nickel		X		
74986	Propane				X
7782492	Selenium	X			
108883	Toluene	X			

71556	Trichloroethane	X			
790106	Trichloroethylene	X			
108054	Vinyl acetate	X			
1330207	Xylene	X			

23. Stratospheric Ozone Depleting Substances: The permittee does not use any of the listed ozone depleting substances, and the permittee is exempt from the federal requirements of 40 CFR Part 82, Subpart E; The Labeling of Products Using Ozone-depleting Products. Service on motor (fleet) vehicles is not performed at the plant site, and the permittee does not handle any refrigerants in the motor vehicle air conditioner (MVAC). Therefore the permit omits the applicable requirements specified in 40 CFR Part 82, Subpart B; Servicing of Motor Vehicle Air Conditioners.

GENERAL BACKGROUND INFORMATION

24. Other permits issued or required by the Department of Environmental Quality for this source include:

- Wastewater disposal General Permit 0100-J, file No. 65610;
- NPDES Permit 1200-H;
- Registered HW Generator, EPA RCRA ID #ORD0090266; and
- DOT Hazardous Material Registration '96, '97, Reg No. 052996 002 003E.

25. A Land Use Compatibility Statement signed by the City of Portland on March 14, 1995 granted approval of the facility operations.

26. The source located in a maintenance area for ground-level ozone and Carbon Monoxide (CO). The permitted facility is a major source of (ozone precursor) NO_x but a minor source of CO.

27. Aggregate Insignificant Activities identified by Owens-Brockway include the following:

Aggregate Insignificant Activities	Pollutant	Estimate (tons/yr)
Grit blasting (part of mold cleaning) process	PM_{10}	6.4×10^{-3}
Nickel spray welding		0.12
Unpaved road emissions		0.74
		Total PM_{10} [redacted]
Solid film lubricant (spray coating on molds)	VOC	0.41
Solid film lubricant cleaning		0.15
Bottle coding		0.12
Safety-Kleen parts cleaners (parts cleaning)		0.31
Used oil storage		1×10^{-5}
		Total VOC [redacted]1
Nickel	HAP	0.12
Xylene		0.05
		Total HAP < 0.2

The permit does not limit "aggregate insignificant activities" to only those identified in this permit review, as they tend to be a moving target. The AIA limits established in the permit simply reflect the rule limits as defined in OAR 340-200-0020. The permittee may add (or reduce) more insignificant activities to the

existing list, provided total aggregate emissions of any individual (regulated) pollutant do not exceed the aggregate insignificant limit for that pollutant. While insignificant activities, including categorically insignificant activities (CIA) identified in item 8 of this review report, are subject to applicable requirements such as the visible opacity standard, emissions from insignificant activities does not need to be included in the PSEL calculations. Also no routine monitoring is specified for requirements applicable to insignificant activities.

COMPLIANCE HISTORY

28. The Department issued NON AQ-04-008 on February 25, 2004 for exceeding the 20% opacity limit on multiple occasions and for a failure to conduct visible emissions monitoring on Furnace D (i.e., GM4) as required in the permit. The Department issued another NON (AQ-NWR-04-025) on April 28, 2004 for once again missing the required visible emissions monitoring on Furnace D. The Department requested Owens-Brockway to submit a Notice of Construction (NC) with a time line to install Continuous Opacity Monitor (COM) on Furnace D. The case was referred to the Department's enforcement section with a recommendation to proceed with civil penalty assessment. Owens-Brockway in response installed Continuous Opacity Monitoring System (COMS) on glass melting furnace No.4 (GM4) on August of 2004. On April 20, 2005, Owens-Brockway also paid the civil penalty in the full amount of $7,200.

    On August 18, 2006, the Department issued a warning letter (WL–NWR-AQ-06-077) for exceeding the 20% opacity limit on multiple occasions. The duration of the opacity excursions were all relatively short with the longest being 21 minutes, and the environmental impact due to these opacity excursions were determined to be minimal. No further enforcement action was required.

PUBLIC NOTICE

29. Pursuant to OAR 340-218-0210, the proposed permit followed a Category-III permit review process, and the draft permit was placed on public notice from January 13, 2007 to February 20, 2007. The Department received a comment from Mr. Raymond Osborne Jr. of NE Portland, who believes the company should cease to operate if they continue to violate the air quality regulations such as the opacity violations discussed in compliance history section above - review item No. 28. The Department will continue to inspect the source to ensure compliance with the permit terms and will continue to enforce the applicable rules to minimize the reoccurring opacity excursions.

30. The proposed permit was forwarded to EPA on February 27, 2007 for their expedited permit review. The Department received a confirmation from EPA on March 5, 2007 indicating that they do not object to the issuance of the proposed permit review.

EMISSIONS DETAIL SHEETS

See Attached Excel Spread-sheets A1 – A4

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