Emission Sources - Maximum Allowable Emission Rates

Permit Number 31811

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

| Emission Point No. (1) | Source Name (2) | Air Contaminant Name (3) | Emission Rates (5) | |
|---|---|---|---|---|
| | | | lbs/hour | TPY (4) |
| AS-1 through AS-4<br>AS-6 through AS-9<br>AS-12 through AS-16<br>AS-18 through AS-22<br>BS-1 through BS-12<br>BS-16 through BS-20<br>BS-X<br>TO-1A, TO-1B,<br>TO-2, TO-3, TO-4A,<br>and TO-4B | Combined Non-Product of Combustion (POC) Process Emissions from:<br>FAB1 and FAB2 process sources and storage tank working and breathing emissions routed through RTOs and aqueous acid and base scrubbers.<br><br>*see footnote 6 for FAB1 and FAB2 process source information.<br>*see footnote 7 for storage tank information.<br>*see footnote 10 for RTO maintenance information | VOC | 99.35 | 146.89 |
| | | Exempt Solvents | 41.31 | 180.92 |
| | | Inorganics | 45.24 | 194.00 |
| | | Fluorine (9) | 0.45 | 1.98 |
| | | $NO_x$ | 0.92 | 4.03 |
| | | CO | 0.40 | 1.75 |
| | | $SO_2$ | 0.19 | 0.81 |
| | | PM | 4.09 | 17.92 |
| | | $PM_{10}$ | 4.09 | 17.92 |
| | | $PM_{2.5}$ | 4.09 | 17.92 |
| TO 1A and TO-1B<br>TO-2 and TO-3<br>TO-4A, and TO-4B | Combined POC Emissions from Thermal Oxidizers TO-1A, TO-1B, TO-2, TO-3, TO-4A, and TO-4B | VOC | 0.10 | 0.44 |
| | | $NO_x$ | 0.55 | 2.43 |
| | | CO | 6.30 | 27.60 |
| | | $SO_2$ | 0.26 | 1.14 |
| | | PM | 0.14 | 0.61 |
| | | $PM_{10}$ | 0.14 | 0.61 |
| | | $PM_{2.5}$ | 0.14 | 0.61 |

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| Emission Point No. (1) | Source Name (2) | Air Contaminant Name (3) | Emission Rates (5) | |
|---|---|---|---|---|
| | | | lbs/hour | TPY (4) |
| AS-1 to AS-4<br>AS-6 to AS-9, AS-19 to AS-22<br>AS-12 to AS-16, AS-18 | Combined POC Emissions from 1,070 FAB1/2 (0.037 MMBtu/hr) POU Control Devices<br><br>*see footnote 8 for POU information | VOC | 0.21 | 0.93 |
| | | NOx | 21.44 | 93.92 |
| | | CO | 29.88 | 130.88 |
| | | SO2 | 0.02 | 0.10 |
| | | PM | 0.15 | 0.64 |
| | | PM10 | 0.15 | 0.64 |
| | | PM2.5 | 0.07 | 0.32 |
| B-1 through B-3 | Combined POC Emissions from 32.66 MMBtu/hr Natural Gas Fired and Diesel Fired Boilers B-1 through B-3.<br><br>Only 1 boiler at a time may be fired on diesel fuel concurrently with 2 boilers being fired on natural gas, or all 3 boilers may be fired concurrently on natural gas<br><br>Boilers fired on diesel fuel are limited to a combined total of 720 hrs per year | VOC | 0.20 | 0.88 |
| | | $NO_x$ | 5.20 | 5.93 |
| | | CO | 3.53 | 15.88 |
| | | $SO_2$ | 1.72 | 1.31 |
| | | PM | 1.40 | 4.57 |
| | | $PM_{10}$ | 1.40 | 4.57 |
| | | $PM_{2.5}$ | 0.85 | 2.34 |
| GEN-1 through GEN-12 | Combined POC Emissions from Diesel Fired Emergency Generators GEN-1 through GEN-12.<br><br>Generators may be operated up to a total of 60 hours per year per generator.<br><br>All Generator engines may be operated on the same day. | VOC | 41.17 | 1.23 |
| | | $NO_x$ | 591.61 | 17.75 |
| | | CO | 70.63 | 2.12 |
| | | $SO_2$ | 16.67 | 0.50 |
| | | PM | 14.10 | 0.42 |
| | | $PM_{10}$ | 14.10 | 0.42 |
| | | $PM_{2.5}$ | 7.05 | 0.21 |
| BTLCRSH1 | Fugitive Emissions from Bottle Crusher 1 | VOC | 0.15 | 0.15 |
| BTLCRSH2 | Fugitive Emissions from Bottle Crusher 2 | VOC | 0.15 | 0.15 |
| NH3FUG | Ammonia Bulk Fugitive Emissions | $NH_3$ | <0.01 | 0.01 |
| BSGSFUG1 | Bulk Specialty Gas Storage Facility Fugitive Emissions Area 1 | Exempt Solvent | 0.22 | 0.04 |
| | | Inorganics | 0.21 | 0.04 |

Emission Sources - Maximum Allowable Emission Rates

| | | | | |
|---|---|---|---|---|
| BSGSFUG2 | Bulk Specialty Gas Storage Facility Fugitive Emission Area 2 | PM | 0.01 | <0.01 |
| | | $PM_{10}$ | 0.01 | <0.01 |
| | | $PM_{2.5}$ | 0.01 | <0.01 |
| TANKFUG1 | FAB1 Tank Farm Pipe and Fitting Fugitive Emissions | VOC | 0.49 | 2.16 |
| TANKFUG2 | FAB2 Tank Farm Pipe and Fitting Fugitive Emissions | VOC | 0.17 | 0.72 |
| All Emission Points at the Site | All Sources at the Site | Individual HAP | --- | <10.00 |
| | | Total HAPs | --- | <25.00 |

Acronyms

RTO - Rotary Concentrator Thermal Oxidizer
POC - Products of Combustion
POU - Point of Use Combustion Emission Control Device

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) Exempt Solvent - Those carbon compounds or mixtures of carbon compounds used as solvents which have been excluded from the definition of volatile organic compound.

VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code §101.1
$NO_x$ - total oxides of nitrogen
CO - carbon monoxide
$SO_2$ - sulfur dioxide
$NH_3$ - ammonia
PM - total particulate matter suspended in the atmosphere, including $PM_{10}$ and $PM_{2.5.}$
$PM_{10}$ - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5.}$
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations Part 63, Subpart C

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(5) The allowable emission rates include planned maintenance, startup, and shutdown activities.
(6) FAB1 and FAB2 process emission source information:

| EPN | Description |
|---|---|
| AS-1 to AS-4<br>AS-6 to AS-9<br>AS-12 to AS-16<br>AS-18 to AS-22 | FAB1 and FAB2 non-POC process emission sources (including criteria pollutants and inorganics) resulting from the manufacture of semiconductors. These process emission are routed through the aqueous acid scrubber EPNs listed. |
| BS-1 to BS-12, BS-X<br>BS-16 through BS-20 | FAB1 and FAB2 non-POC process emission sources (including criteria pollutants and inorganics) resulting from the manufacture of semiconductors. These process emissions are routed through the base scrubber EPNs listed. |
| TO-1A and TO-1B<br>TO-2 and TO-3<br>TO-4A and TO-4B | FAB1 and FAB2 non-POC process emission sources (including criteria pollutants and inorganics) resulting from the manufacture of semiconductors. These emissions are routed through the RTO EPNs listed. |

(7) Storage tank working and breathing emission source information

| FIN | Description | EPN |
|---|---|---|

Emission Sources - Maximum Allowable Emission Rates

| | | |
|---|---|---|
| ST-1 | 10,500 gallon storage tank | AS-1 through AS-4 |
| ST-2 | 2,100 gallon storage tank | AS-1 through AS-4 |
| ST-3 | 5,400 gallon storage tank | AS-1 through AS-4 |
| ST-8 | 4,200 gallon storage tank | TO-1A, TO-1B or TO-2 |
| ST-9 | 4,200 gallon storage tank | TO-1A, TO-1B or TO-2 |
| ST-10 | 4,200 gallon storage tank | TO-1A, TO-1B or TO-2 |
| ST-12 | 31,080 gallon storage tank | AS-1 through AS-4 |
| ST-14 | 7,560 gallon storage tank | AS-1 through AS-4 |
| ST-15 | 3,360 gallon storage tank | AS-1 through AS-4 |
| ST-16 | 3,500 gallon storage tank | TO-1A, TO-1B or TO-2 |
| ST-21 | 12,180 gallon storage tank | AS-6 through AS-9 |
| ST-22 | 9,660 gallon storage tank | AS-6 through AS-9 |
| ST-23 | 8,400 gallon storage tank | AS-6 through AS-9 |
| ST-24 | 6,300 gallon storage tank | TO-3, TO-4A or TO-4B |
| ST-26 | 6,300 gallon storage tank | AS-6 through AS-9 |
| ST-27 | 6,300 gallon storage tank | TO-3, TO-4A or TO-4B |
| ST-28 | 6,300 gallon storage tank | TO-3, TO-4A or TO-4B |
| ST-29 | 6,300 gallon storage tank | AS-1 through AS-4 |
| ST-30 | 11,500 gallon storage tank | AS-6 through AS-9 |
| ST-31 | 11,500 gallon storage tank | AS-6 through AS-9 |
| ST-32 | 5,650 gallon storage tank | AS-6 through AS-9 |
| ST-33 | 2,000 gallon storage tank | TO-3, TO-4A or TO-4B |
| ST-34 | 2,800 gallon storage tank | AS-6 through AS-9 |
| ST-35 | 16,380 gallon storage tank | AS-6 through AS-9 |
| ST-36 | 16,380 gallon storage tank | AS-6 through AS-9 |
| ST-37 | 16,380 gallon storage tank | AS-6 through AS-9 |
| ST-38 | 5,460 gallon storage tank | TO-3, TO-4A or TO-4B |

(8) POC emission sources from thermal POU control devices associated with FAB1 and FAB2

| | |
|---|---|
| AS-1 to AS-4 | 210 POU Combustion Control Devices in FAB1 |
| AS-6 to AS-9, AS-19 to AS-22 | 480 POU Combustion Control Devices in FAB2/MOD 1 |
| AS-12 to AS-16, AS-18 | 380POU Combustion Control Devices in FAB2/MOD 2 |

(9) Fluorine emissions are included in the allowable emission rates for inorganics.

(10 FAB1/2 manufacturing operations that vent to the rotary concentrator/RTO shall be limited to 120 hours/each of uncontrolled operation over a rolling 12-month period during times when the rotary concentrator/RTO is off-line for maintenance or repair.

Date: May 5, 2021