

Emission Sources - Maximum Allowable Emission Rates

Permit Number 20162

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	
			lbs/hour (6)	TPY (7)
All Emission Points Covered by this Permit	All Sources Covered by this Permit	Inorganics (4)		50.00
		VOC		85.00
		Exempt Solvent (5)		40.00
		PM		50.00
		SO ₂		20.00
		NO _x		80.00
		CO		50.00
		Ozone		2.00
All Emission Points at the Site	All Sources at the Site	Individual HAP		<10.00
		Total HAPs		<25.00

- (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) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
 NO_x - total oxides of nitrogen
 SO₂ - sulfur dioxide
 PM - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}
 PM₁₀ - 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
 CO - carbon monoxide
 HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations (40 CFR) Part 63, Subpart C
- (4) Inorganics - inorganic compounds not otherwise falling into subcategories listed on the maximum allowable emission rates table, with annual maximum allowable emissions for the following pollutant within this subcategory: **(10/13)**

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Chemical Name	Annual Emission Limit (lbs/year)
Sulfur Hexafluoride (SF ₆)	750

- (5) Exempt Solvent - Those carbon compounds or mixtures of carbon compounds that have been excluded from the definition of volatile organic compound, with annual maximum allowable emissions for the following pollutants within this subcategory: **(10/13)**

Chemical Name	Annual Emission Limit (lbs/year)
Tetrafluoromethane (CF ₄)	12,600
Hexafluoroethane (C ₂ F ₆)	5,500
Trifluoromethane (CHF ₃)	560
Octofluorocyclobutane (C ₄ F ₈)	580
Fluoromethane (CH ₃ F)	50

- (6) See Special Condition Nos. 19J and 23B.
 (7) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period.
 (8) Emissions of the six compounds listed in Footnotes (4) and (5) shall be calculated using the emission factors in 40 CFR Part 98, Table I-3 (Default Emission Factors (1-U_{ij}) for Gas Utilization Rates (U_{ij}) and By-Product Formation Rates (B_{ijk}) for Semiconductor Manufacturing for 150 mm and 200 mm Wafer Sizes) as follows:

Chemical Name	CVD In-Situ Plasma Cleaning				Etching		Implan
	Default	CF ₄ By-Product	C ₂ F ₆ By-Product	Default	CF ₄ By-Product	C ₂ F ₆ By-Product	Defa
CF ₄	0.92			0.69			
C ₂ F ₆	0.55	0.19		0.56	0.23		
CHF ₃				0.38	0.026		
C ₄ F ₈	0.10	0.11		0.25	0.19	0.084	
CH ₃ F							
SF ₆				0.20			1.

Date: October 31, 2013