

TABLE I-2 TO SUBPART I OF PART 98—EXAMPLES OF FLUORINATED GHGS USED BY THE ELECTRONICS INDUSTRY

Product type	Fluorinated GHGs and fluorinated heat transfer fluids used during manufacture
Electronics .....	CF <sub>4</sub> , C <sub>2</sub> F <sub>6</sub> , C <sub>3</sub> F <sub>8</sub> , c-C <sub>4</sub> F <sub>8</sub> , c-C <sub>4</sub> F <sub>8</sub> O, C <sub>4</sub> F <sub>6</sub> , C <sub>3</sub> F <sub>8</sub> , CHF <sub>3</sub> , CH <sub>2</sub> F <sub>2</sub> , NF <sub>3</sub> , SF <sub>6</sub> , and fluorinated HTFs (CF <sub>3</sub> -(O-CF <sub>3</sub> )-CF <sub>2</sub> ) <sub>n</sub> -(O-CF <sub>2</sub> ) <sub>m</sub> -O-CF <sub>3</sub> , C <sub>n</sub> F <sub>2n+2</sub> , C <sub>n</sub> F <sub>2n+1</sub> (O)C <sub>m</sub> F <sub>2m+1</sub> , C <sub>n</sub> F <sub>2n</sub> O, (C <sub>n</sub> F <sub>2n+1</sub> ) <sub>3</sub> N).

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TABLE I-3 TO SUBPART I OF PART 98—DEFAULT EMISSION FACTORS (1-U<sub>ij</sub>) FOR GAS UTILIZATION RATES (U<sub>ij</sub>) AND BY-PRODUCT FORMATION RATES (B<sub>ijk</sub>) FOR SEMICONDUCTOR MANUFACTURING FOR 150 MM AND 200 MM WAFER SIZES

Table I-3 to Subpart I of Part 98—Default Emission Factors (1-U<sub>ij</sub>) for Gas Utilization Rates (U<sub>ij</sub>) and By-Product Formation Rates (B<sub>ijk</sub>) for Semiconductor Manufacturing for 150mm and 200 mm Wafer Sizes

Process Type/ Sub-Type	Process Gas i												
	CF <sub>4</sub>	C <sub>2</sub> F <sub>6</sub>	CHF <sub>3</sub>	CH <sub>2</sub> F <sub>2</sub>	C <sub>2</sub> HF <sub>2</sub>	CH <sub>3</sub> F	C <sub>3</sub> F <sub>8</sub>	C <sub>4</sub> F <sub>8</sub>	NF <sub>3</sub>	SF <sub>6</sub>	C <sub>4</sub> F <sub>6</sub>	C <sub>5</sub> F <sub>8</sub>	C <sub>4</sub> F <sub>8</sub> O
<b>ETCHING/ WAFER CLEANING</b>													
1-U <sub>i</sub>	0.81	0.72	0.50	0.13	0.064	0.51	NA	0.14	0.19	0.55	0.17	0.072	NA
BCF <sub>4</sub>	NA	0.10	0.085	0.079	0.077	NA	NA	0.11	0.0040	0.13	0.13	NA	NA
BC <sub>3</sub> F <sub>6</sub>	0.046	NA	0.030	0.025	0.024	NA	NA	0.037	0.025	0.11	0.11	0.014	NA
BC <sub>4</sub> F <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>4</sub> F <sub>8</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>3</sub> F <sub>8</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>3</sub> F <sub>8</sub>	0.0012	NA	0.0012	NA	NA	NA	NA	0.0086	NA	NA	NA	NA	NA
BCHF <sub>3</sub>	0.10	0.047	NA	0.049	NA	0.0034	NA	0.040	NA	0.0012	0.066	0.0039	NA
<b>CHAMBER CLEANING</b>													
<b>In situ plasma cleaning</b>													
1-U <sub>i</sub>	0.92	0.55	NA	NA	NA	NA	0.40	0.10	0.18	NA	NA	NA	0.14
BCF <sub>4</sub>	NA	0.21	NA	NA	NA	NA	0.20	0.11	0.050	NA	NA	NA	0.13
BC <sub>3</sub> F <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.045
BC <sub>3</sub> F <sub>8</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Remote plasma cleaning</b>													
1-U <sub>i</sub>	NA	NA	NA	NA	NA	NA	NA	NA	0.018	NA	NA	NA	NA
BCF <sub>4</sub>	NA	NA	NA	NA	NA	NA	NA	NA	0.015	NA	NA	NA	NA
BC <sub>3</sub> F <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>3</sub> F <sub>8</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>In situ thermal cleaning</b>													
1-U <sub>i</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BCF <sub>4</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>3</sub> F <sub>6</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BC <sub>3</sub> F <sub>8</sub>	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: NA = Not applicable; i.e., there are no applicable default emission factor measurements for this gas. This does not necessarily imply that a particular gas is not used in or emitted from a particular process sub-type or process type.

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