The emission standards of pollutants for semiconductor industry

(Second draft version for comment)

Abstract:

1. This is the first amendment of *The emission standards of pollutants for semiconductor industry* (DB31/374-2006). The main revises include: (1) adjust the standard classes for wastewater effluent standards; (2) adjust the control methods for air emission standards; (3) add new pollutant control items; (4) tight up the standard limits for some pollutant items; (5) add concentration limits at reference point for air pollutants at enterprise boundary; (6) update analytical methods for some pollutant items.
2. This standard stipulate the monitoring and supervision of water discharge and air emission for semiconductor industry, which include discrete device and IC manufacturing, packaging & testing facilities.
3. For new semiconductor facilities, they must implement the standard when it comes into effect. For existing semiconductor facilities, they must begin to implement the standard, one or two years after.
4. The wastewater effluent limits are:

| **No.** | **Item** | **Efflunet limit for direct effluent(mg/L)** | **Efflunet limit for indirect effluent(mg/L)** | **Sampling point** |
| --- | --- | --- | --- | --- |
| 1 | pH | 6-9 | 6-9 | The final discharge point |
| 2 | SS | 50 | 400 |
| 3 | Oil | 3 | 15 |
| 4 | CODCr | 60 | 500 |
| 5 | BOD5 | 20 | 300 |
| 6 | TOC | 20 | 150 |
| 7 | NH3-N | 5 | 45 |
| 8 | TN | 15 | 70 |
| 9 | TP | 0.5 | 8 |
| 10 | LAS | 3 | 20 |
| 11 | Cyanide | 0.2 | 0.5 |
| 12 | Sulfide | 1 | 1 |
| 13 | Fluoride | 8 | 20 |
| 14 | Cu | 0.5 | 1 |
| 15 | Zn | 1.5 | 1.5 |
| 16 | Boron | 2.0 | 3.0 |
| 17 | Pb | 0.1 | | The treatment equipment discharge point |
| 18 | Cd | 0.05 | |
| 19 | Cr | 0.5 | |
| 20 | Cr6+ | 0.1 | |
| 21 | As | 0.2 | |
| 22 | Ni | 0.1 | |
| 23 | Ag | 0.1 | |
| 24 | Co | 1.0 | |
| 25 | Sn | 2.0 | |
| 26 | Tl | 0.005 | |

1. From Jan. 1st 2024, the semiconductor concentrated wastewater treatment facilities must meet the standard limit for toxicity as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Item** | **Reference limits** | **Sampling point** |
| 1 | Acute toxicity of zebra fish eggs | ≤6 | The final discharge point |

1. The air pollutants emission standards are:

| **No.** | **Item** | **Emission limits（mg/m3）** | **Emission rate（kg/h）(1)** | **Sampling point** |
| --- | --- | --- | --- | --- |
| 1 | H2SO4 | 5 | 2.6 | Vent stacks of waste gas treatment facilities |
| 2 | HCl | 10 | 1.4 |
| 3 | HF | 1.5 | 0.59 |
| 4 | Cl2 | 3 | 1.5 |
| 5 | HCN | 0.5 | 0.05 |
| 6 | Tin and its compounds | 1 | 0.1 |
| 7 | Ammonia | 15 | 4.9 |
| 8 | Benzene | 1 | 0.1 |
| 9 | Benzene homologues | 8 | 0.8 |
| 10 | VOCs**(2)** | 40 | 4 |
| 11 | NMHC | 40 | 4 |
| 12 | PM | 10 | 2.4 |
| 13 | NOx | 50 | 4 |
| 150 | - | Vent stacks of waste gas thermal oxidation treatment unit |
| Note：  (1) No apply to IC manufacturing facilities manufacturing of 12-inch wafers on 40nm and less process. (Comply with the approved EIA reports)  (2) Apply to IC manufacturing facilities only. | | | | |

1. The concentration limits at reference point for air pollutants at enterprise boundary are:

|  |  |  |
| --- | --- | --- |
| **No.** | **Item** | **Emission limits（mg/m3）** |
| 1 | HCN | 0.024 |
| 2 | Cl2 | 0.1 |
| 3 | HCl | 0.15 |
| 4 | NMHC | 4.0 |