**Appendix 10 Chemical Substances to be Analyzed and High-accuracy Analysis Equipments**

1. Components for which high-accuracy analysis data must be analyzed

| Target Components/Region | Cd | Pb | $Cr^{6+}$ | Hg | PBB | PBDE | Remarks |
|---|---|---|---|---|---|---|---|
| Resin (including rubber) | ○ | ○ | ○ | ○ | ○ | ○ | |
| Ink, paint, pigment and dye (when no volatile component exists) | ○ | ○ | ○ | ○ | ○ | ○ | |
| Components with chromate conversion treatment completed<br>Plating components | ○ | ○ | ○ | ○ | — | — | |
| Lead-free solder | ○ | ○ | ○ | ○ | — | — | |
| Other metal materials | ○ | ○ | ○ | ○ | — | — | |

2. Chemical substances and approved high-accuracy analysis equipments

| Names of Target Chemical Substances | Analysis Equipments |
|---|---|
| Cadmium (Cd)<br>Lead (Pb)<br>Mercury (Hg) | ICP emission spectrophotometer (ICP-AES)<br>ICP mass spectrometer (ICP-MS)<br>Atomic absorption spectrometer AAS) |
| Hexavalent chrome ($Cr^{6+}$) | Ion chromatography spectrophotometer<br>Ultraviolet-visible spectrophotometer (UV-VIS) |
| Polybrominated biphenyl (PBB)<br>Polybrominated diphenyl ether (PBDE)<br>Phthalate ester | Gas chromatography mass spectrometer (GCMS) |

## 【Pretreatment Method】

(1) For resin, paint, ink, pigment, lead (Pb) and cadmium (Cd) contained in dye

① Wet digestion (including pressure decomposition and microwave method)

Decompose samples under the existence of sulfuric acid, nitric acid, hydrochloric acid, hydrofluoric acid, hydrogen peroxide, etc. and prepare solution samples.

② Low-temperature ashing digestion

Apply ashing digestion to samples under the existence of sulfuric acid. Decompose samples through oxygen plasma irradiation and prepare solution samples.

However, if a precipitation is generated, complete analysis by re-melting the precipitation with methods of fluorine decomposition, alkali fusion decomposition, etc. and bringing it into solution.

Pretreatment methods include EN-13346, EPA3052 and EPA3050B.

(2) For lead (Pb) contained in lead-free solders, zinc and zinc alloy, other metals and Cadmium (Cd)

Apply wet digestion (including pressure decomposition and microwave method) to samples under the existence of sulfuric acid, nitric acid, hydrochloric acid, hydrogen peroxide, etc. and prepare solution samples.

However, if a precipitation is generated, complete analysis by re-melting the precipitation with an alkali fusion decomposition method and bringing it into solution.