

regarded as hazard material because of lead contained. Some company used the indicator to produce new CRT. The technologies for disposing non-metal usually involve landfill treatment, incineration, pyrolysis gasification and chemical recycling treatment.

5. 1. Landfill treatment

Landfill treatment is a sample method for disposing WEEE. This technology has been prevalent for period of time because it can dispose all kind of WEEE. However, the disadvantages of the landfill treatment emerge with the lapse of time and development of technology. Landfill treatment occupied plenty of land; moreover, there were usually no more than seven layer anti-leaking measures in most landfill sites. Thus, for long time exposure in relatively open space, the extravasate of WEEE could pollute ground water and soil with the infiltration of rainwater. The extravasate contain resistant-biodegradable material, such as non-chloride aromatic compounds, phosphate, phenolic compound and aniline compound. In addition, a lot of metallic ion are also contained in the extravasate. The concentration of iron, lead, zinc and calcium ion can be up to 2050 mg/l, 12.3 mg/l, 130 mg/l and 4200 mg/l, respectively (Wang *et al.*, 2005). At the same time, the circumjacent air quality was badly influenced by the garbage odor. Some towns have recognized the disadvantages of landfill treatment in recent years. A group of high-level landfill factories have been built to resolve these negative factors. However, some undesirable questions come into being, such as large investment, high operation cost and so on. The most crucial question is the limited processing capacity of landfill factory. The new landfill factory needed to rebuild after end of service of old one, and this will account for more investment and land. In the foreign country, this landfill treatment has gradually decreased and served as an assistant method to mainly dispose the unrecycling material.

5. 2. Incineration technology

Incineration is a traditional method to dispose waste material from Maya age to nowadays, and it still occupies the important position in disposing waste material. The incineration can not only generate electricity but also reduce the volume of waste material. The modern incineration

technology has come into being in the last several decades, and once been principal technology for disposing WEEE in many big city, such as Japan, Holland, Switzerland, Denmark, Sweden and so on. The incineration of WEEE accounted for 80% in Switzerland, and for 70% in Japan and Denmark. After the popularity of incineration in developed country for several decades, people found a more terrible dioxin derived from incineration, which can bring cancer to human and animal. The dioxin can exist in gas and solid state, and its chemical stability is high. It is stable for acid and alkali, and difficult to dissolve in water, difficult to decompose, difficult to combust, but easy to dissolve in fat. Therefore, the dioxin can not only cause cancer but also possess reproductive toxicity, immune toxicity and endocrine toxicity. Moreover, the uncontrolled incineration of electronic scraps has the potential to produce highly toxic heavy metals and metalloids, such as lead (Pb), cadmium (Cd), chromium (Cr), arsenic (As), as well as polyhalogenated pollutants, including Polycyclic aromatic hydrocarbons (PAHs) (Qiu *et al.*, 2004).

Based on the above causations, the researchers in Europe and Japan started to explore the third generation disposal technology of WEEE. Many developed country governments set out new and stricter waste emission standard. Japanese government has decided to gradually close 1800 incineration factory in the subsequent several years.

5. 3. Pyrolysis gasification technology

Based on the incineration technology, the third generation disposal technology of WEEE- pyrolysis gasification technology was developed, which was characteristic of pyrolysis gasification and melting solidification. This new technology has achieved innocuity, notable volume reduction, extensive material adaptability and high efficient energy and material recovery. Pyrolysis gasification technology began to prevail in the middle of 1990s.

Gasification melting technology processed in the follow steps. Firstly, the WEEE was gasified in the reductive atmosphere at temperature 450~600°C to produce fuel gas and easy recovering residue for metal iron, aluminum and so on. Secondly, the fuel gas burning to melt carbon-containing ash at temperature