

ELECTRONIC WASTE - A THREAT TO WORLD

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ABSTRACT

Electronic waste is discarded electrical and electronic devices like computers, bulbs etc. This scrap is recycled for some purposes. In this process some hazardous elements, carcinogenic products and gases are generated which causes health problems and environmental pollution. In the recycling process of CRTs Lead, Beryllium and brominated retardants are produced. The estimated electronic wastage is 50 million tons per year. As per the report of United Nations Environment Programme 2011-12 India is producing 2.7 Million tons of e- waste and it will reach to 500 Million Tons by the year 2030. Sometimes some security problems may arise. For example when unerased hard disc is given back, some personnel information regarding financial accounts, some passwords, any other important official information may be hijacked by cyber criminals. So it is the duty of every one to minimise the e-waste. The Governments of all countries should implement strict Acts and Punishments to save environment and living organism. Standards are to be maintained by the companies in designing a new product so as to increase its life period. Recycling process should be done only by some registered companies under strict vigilance. No doubt one should welcome the technological development but at the same time we should dream for healthy world. Every one's motto should be "LIVE AND LET LIVE".

Key words:- electro coagulation, electrode material, Fe-Fe electrode.

1. INTRODUCTION

Electronic waste is discarded, out dated , unused and damaged electrical or electronic equipment like Televisions, Computers, Mobile phones , bulbs batteries and Cathode ray tubes .Un technical recycling of this scrap material causes serious health problems , air pollution and soil pollution. Scrap contents of CRTs contains Lead, Beryllium and Brominated flame retardants. It is estimated that approximately 50 million tons of e- waste is produced and dumped in the world. USA discards 30-35 million computers every year. About 100 million phones are disposed in Europe every year. Only some portion of this scrap is recycled and the rest is dumped. If this quantity is increased year by year, the earth will soon become a dumping yard. Recycled parts are exported to China, India and parts of Africa. These developing countries are becoming toxic dump yards of e-waste. China is named as the waste dump yard of the world. Guiya in Shantou region is a huge e- waste processing area and is known as e- waste capital of world. Over two lack e-waste workers works there. They work 16 hours per day.

2. PROBLEMS OF RECYCLING:

E-waste contains hazardous but valuable and scarce materials. Up to 60 elements were found in complex electronics. E-waste workers grind plastic computer cases into tiny particles, disassembles old computers. After that usable parts are utilised again or sells them in secondary market. They dip circuit chips into acid baths to dissolve Lead, Cadmium and other toxic materials. Uncontrollable burning takes place which leads to environmental pollution. The children living there are affected more. Their concentration of Lead in their blood is found very high. High levels of Lead in the body leads to blood poisoning and decreasing brain IQ .Some scientific experimental results says that the dust, soil., and water is full of metal toxins and organic contamination. The burning of e- waste releases carcinogens and neurotoxins.

3. INFORMATION SECURITY:

E-waste produces potential security threat to individuals, companies and country Governments. When computers are disposed, one may neglect to erase the information in the hard disk properly. In this case there is a possibility of stealing the information by cyber criminals. The information regarding the credit cards, private security numbers, passwords and on line transactions will be in the hands of criminals, then this will become a problem

4. CONSUMER AWARENESS:

All the consumers do not aware of the quality and service. Most of us are attracted by the discount offers given by the companies and propaganda given in papers and media. Consumers while purchasing electronic goods, they should concentrate on the following.

- 1) Quality of the product
- 2) Buy back facility
- 3) Servicing facility
- 4) Durability
- 5) Materials used in preparing that equipment.
- 6) Company reputation
- 7) Radiation problems
- 8) Battery condition and durability
- 9) Guaranty given by the company.
- 10) Whether it is made of recycled materials
- 11) Eco friendliness
- 12) How discounts are given

After purchasing we have to test the quality of the product and its functioning. One should not change the equipment frequently. One should prefer to upgrade the software or hardware instead of buying a new one. One should not throw the e-waste into open air because it may cause air pollution. As far as possible it should be given to a recognised recycler.

5. FUNCTIONS OF A GOVERNMENT:

- 1) It is the duty of the Government to prevent e-waste. Strict rules and Acts are to be made and followed to minimise the e-waste
- 2) Serious action should be taken against the companies who violate the rules and regulations.
- 3) An authorised Quality Assessment Committee should work independently within a strict frame work. It should be very keen on the quality and standards regarding the imported and exported electronic goods.
- 4) Government should prohibit all types of recycled imported electronic goods
- 5) There should be no scope for Political or official corruptions
- 6) Government should permit the recycling of electronic waste material to a recognised and reputed company only
- 7) All the Governments should often arrange consumer awareness programmes to educate the people.

6. FUNCTIONS AND RESPONSIBILITIES OF A MANUFACTURING COMPANY:

- 1) All the companies should follow standard norms and quality while preparing the electronic equipment.
- 2) They should mention the date of manufacture and date of expiry sincerely
- 3) Companies should prepare their equipment with eco-friendly materials and recyclable materials.
- 4) Every company should take back their product after the consumer's usage and should take the responsibility of sending the e-waste to the recognised recycling factory.
- 5) Instead of introducing the new model in electronic field, they should concentrate on the installation or up gradation of the software or hardware.
- 6) Companies should send qualified expert engineers to the consumer's house and educate them about the correct usage of the product.

7. GOOD PROCESSING UNIT:

NADIN Electronic Waste Corporation is a good example for qualitative processing of e-waste. It establishes its plant in Novilskar in Bulgaria. They used advanced techniques to separate the different materials with high standard machines. It contains dust collecting system. Leaded glass from CRTs is reused in car batteries and ammunition. Costly metals like Copper, Gold, Palladium, Silver and Tin are sold to smelters for recycling. Hazardous smokes are caught and their effects are minimised.

8. NON-HAZARDOUS METALS

There are some non-hazardous metals used in electronic systems. They are 1) Copper 2) Aluminium 3) Germanium 4) Gold 5) Silver 6) Lithium 7) Nickel 8) Silicon 9) Silicon 10) Zinc 11) Tin

9. HAZARDOUS METALS - EFFECTS

There are some Hazardous elements and their bad effects are given here under.

- 1) Americium: A radioactive source used in smoke alarms – It is a carcinogenic element.
- 2) Mercury: It is found in fluorescent bulbs- It causes sensory impairment, dermatitis, and memory loss and muscle weakness.
- 3) Sulphur: It is in lead acid batteries. It causes liver damage, kidney damage, heart damage, eye and throat irritation.
- 4) BFRs: They are used in flame retardants – They cause thyroid problems, nervous weakness, and liver contraction.
- 5) Cadmium: It is used in light sensitive resistors, nickel-cadmium batteries. It disrupts soil eco system, lungs damage, kidney damage and nervous disorders.
- 6) Lead: It is in monitor glass of CRTs and lead-acetate batteries. It causes behavioural disturbance, hyper activity, and impaired cognitive functions.
- 7) Beryllium oxide: It is in thermal grease, heat sinks, CPUs and power transistors.. It causes many health problems
- 8) Perfluorooctanoic acid: It is in non-stick cookware, anti-static additives. It causes hyper toxicity, pre births, abortions and low weight births.

10. A SURVEY

A recent report by BBC says the e-pollution is causing severe damage to health for millions of peoples around the world mostly in developing countries like Africa, Europe, and Asia. 23% of deaths are caused by the e-waste. More than 200 million peoples are at risk of toxic exposure.

Some scientists examined the blood samples of some people who are exposed to e-waste. Results show IL-8 and ROS levels are significantly increased. This is a symbol to cause inflammatory response and oxidation stress.

Some samples contain P53 gene which is an evidence of cell damage.

Another survey report says 50 well-known companies are taking back the 'end of life' equipment. AP is producing 4268.42 MT of e-waste and WB is producing 34124 MT of e-waste as per the year 2011 report. E-waste in India will go up by 500 times by 2030.

11. CONCLUSION:

One should not hesitate to welcome the electronic and technology development but at the same time we should not ignore the health of millions of people. Proper e- waste management methods are to be innovated. Reduce, Reuse and Recycle the e- waste for the pavement of healthy world .Being an Indian we swear to make India zero pollution and full health country.

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