

CHAPTER V

CONCLUSION

In this research, investigated toxic contaminants in polyethylene, polystyrene, and polypropylene are lead, cadmium, mercury, and styrene monomer. Through there are five sources of contaminants; namely: color additives, municipal waste, air pollution, closure filling and recycling plant, the main contaminant source revealed in this research is color additives. The amount of color which added into plastics during pelleting process is 0.01 to 0.02 percent by weight or 100 ppm to 200 ppm. Styrene monomers and degradation of polystyrene.

The average lead content of polyethylene, polystyrene, and polypropylene are 143.15 ppm, 6.38 ppm, and 158.14 ppm, respectively. The average cadmium content of polyethylene, polystyrene, and polypropylene are 55.00 ppm, 16.50 ppm, and 76.18 ppm, respectively. The average mercury content of polyethylene, polystyrene, and polypropylene are 311.03 ppm, 416.50 ppm, and 606.36 ppm, respectively. The average styrene monomer content of polystyrene is 850.60 ppm.

There are twelve out of forty plastic samples containing toxic contaminants exceed of the limited value, namely, 1)PE 17-001, 2)PE 22-001, 3)PE 12-001, 4)PE 23-001, 5)PE 53-001, 6)PE 33-001, 7)PS 16-101, 8)PS 111-001, 9)PP 17-001, 10)PP 17-101, 11) PP 17-102, and 12) PP 17-103.

Recycled resin produced from plant number 2, 3, 6, and 7 contain relatively high amount of heavy metal. This indicates that the washing process in these plants should be improved.