

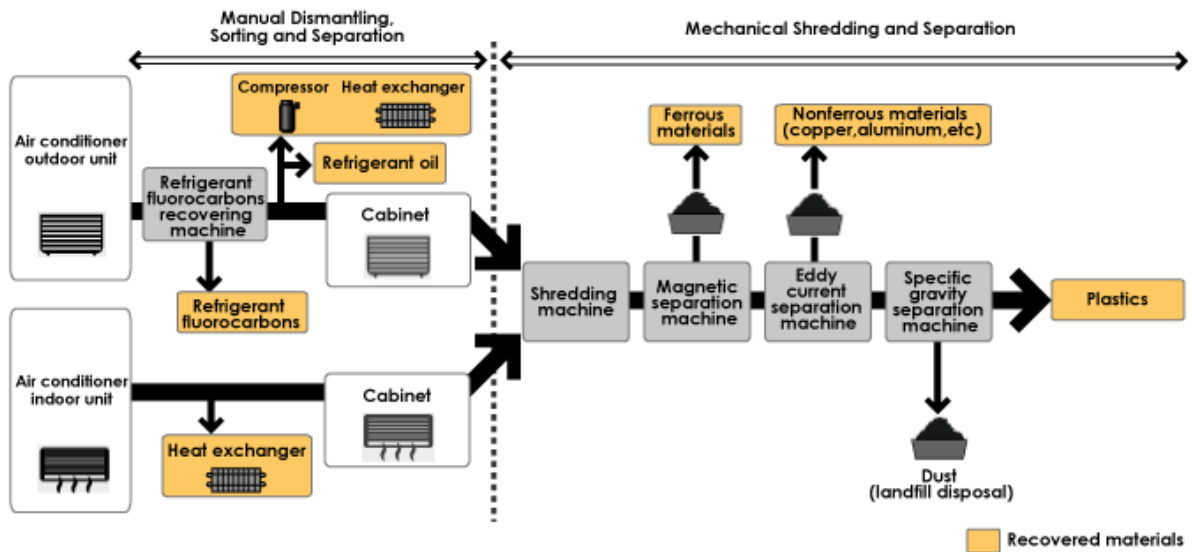
Home Appliances Recycling Process

As the Home Appliance Recycling Law went into effect in April 2001, electric home appliances manufactures in Japan have been obliged to recycle four designated home appliances: air conditioners, CRT (cathode-ray tube) television sets, refrigerators, and washing machines. In addition, freezers were added to the designated appliances in April 2004, and liquid crystal/plasma-type televisions and clothes dryers were also in April 2009.

In electric home appliance recycling plants, to recycle the various designated home appliances from each manufactures efficiently, first, major components are recovered by manual dismantling, sorting and separation and next, residual parts (cabinet etc.) are recovered by mechanical shredding and separation.

You can see the general recycling processes of the four designated home appliances and recovered materials by mechanical shredding and separation.

General Recycling Process of Air Conditioners



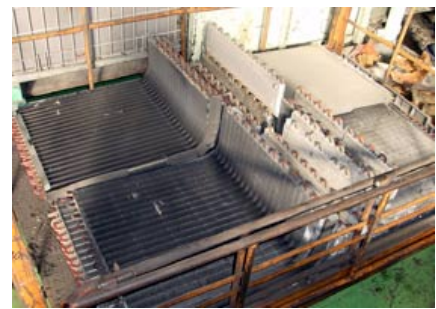
At a carry-in entrance of a home appliance recycling plant: Indoor and outdoor units are loaded in cargo containers.



Refrigerant fluorocarbons are recovered by dedicated equipment. Recovered fluorocarbons will be destroyed at designated treatment facilities.

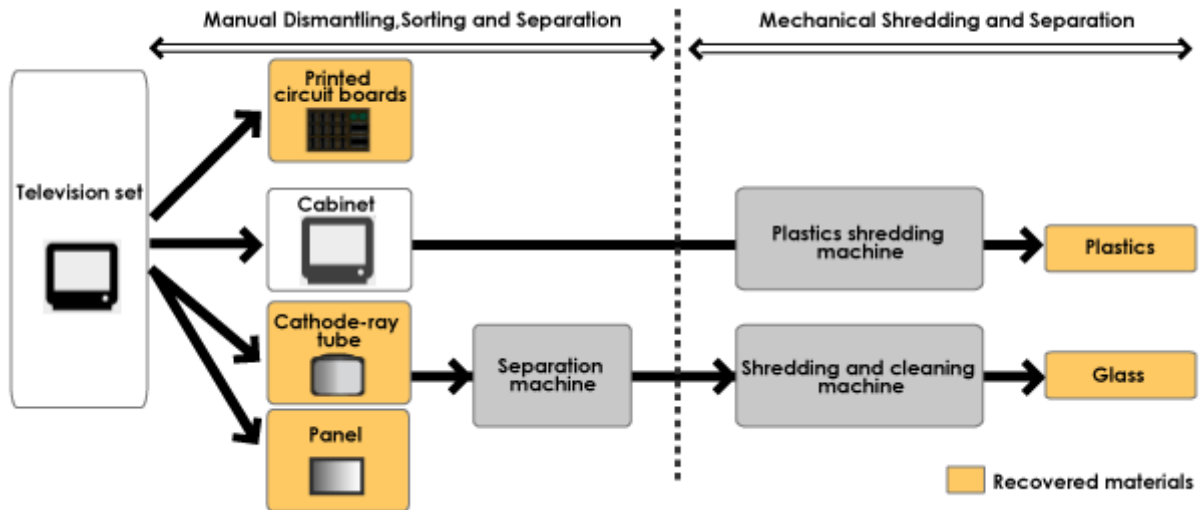


Major components of outdoor units such as printed circuit boards, compressors, and heat exchangers are manually removed after recovering refrigerant fluorocarbons.



Removed heat exchangers: They will be also recycled to materials.

General Recycling Process of Television Sets



At a carry-in entrance of a home appliance recycling plant: Television sets are loaded in cargo containers so as not to break the cathode-ray tubes.



After back covers are removed, major components such as CRTs and printed circuit boards are manually removed.



Removed CRTs: They are recycled as glass after separation, crushing and cleaning.



Large-sized LCD TVs are effectively dismantled on a designated workbench.

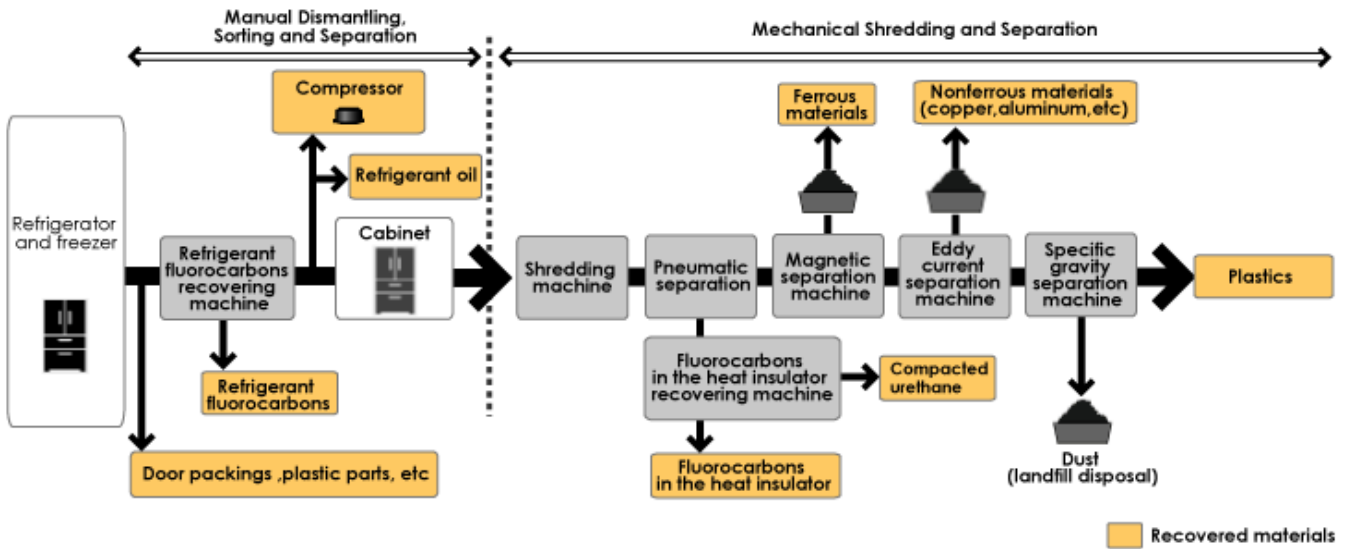


Printed circuit boards removed from LCD TVs: They will be recycled at designated treatment facilities.



These are removed panels from LCD TVs.

General Recycling Process of Refrigerators and Freezers



At a carry-in entrance of a home appliance recycling plant: Refrigerators and freezers are loaded in cargo containers.



Plastic parts such as a vegetable case are removed manually.

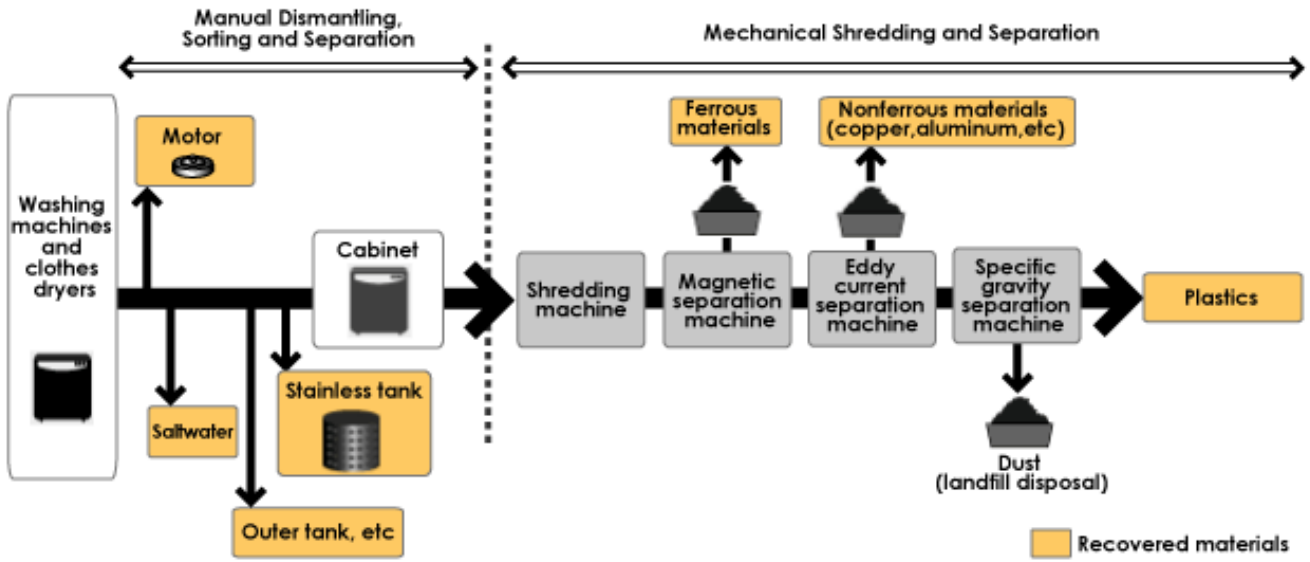


Refrigerant fluorocarbons are recovered by dedicated equipment. Recovered fluorocarbons will be destructed at designated treatment facilities.



After recovering refrigerant fluorocarbons, compressors are removed by cutting pipes.

General Recycling Process of Washing Machines and Clothes Dryers



At a carry-in entrance of a home appliance recycling plant: Washing machines are loaded in cargo containers.



After removing motors and printed circuit boards, top covers are removed.



To keep shredding machines and recycled metals from rusting, salt water in the ring element at the top of the washing tank is taken out by cutting machines.



Washing tanks are removed from the washing machine.

Recovered Materials after Shredding and Separation Processes



Recovered ferrous materials.



Recovered mixture of metals: They are included aluminum and copper.



Recovered plastics: They will be sorted to obtain better quality for recycling.



Recovered urethane: Urethane, utilized for heat insulation in refrigerators, is compacted after its pulverization. Fluorocarbons which are contained in heat insulation are recovered in a sealed shredder.