



## Minimization of Waste in Everyday Life: The "SEPARATE" Principle

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### Abstract

Recommendations: buy quality, durable equipment that will last for many years. Repair, don't throw away and dispose of properly. 70% of mobile phone materials can be recycled. Many stores accept used equipment and even give a discount for it when buying a new product. Old laptops, computers and telephones can be used for spare parts

**Keywords:** Waste; Permafrost Soils; Depositing, Composting

### Hazardous waste in everyday life

- Wastes are considered hazardous if they fall into one of the characteristics of the worldwide classification specified in Annex III to the Basel Convention.
- Hazardous waste: mercury lamps, residues of drugs, cosmetics and household products, plastic bottles and bags, electrical waste and batteries, varnishes and paints, car tires.
- Mixing of hazardous waste is prohibited in order to prevent risks to human health.

In everyday life, hazardous waste is constantly generated: mercury lamps, residues of drugs, cosmetics and household products, plastic bottles and bags, electrical waste and batteries, varnishes and paints, car tires. Let us dwell on the most hazardous waste in everyday life, which poses a threat to human health and the environment. They contain substances with properties such as toxicity, explosiveness, flammability, high reactivity (explode spontaneously, cause corrosion, rust). Wastes are considered hazardous if they fall into one of the characteristics of the worldwide classification specified in Annex III to the Basel Convention. Hazardous waste is classified based on its biological, chemical and physical properties. More than 500 substances are included in the list of hazardous waste. This list is still under review and is constantly updated.

Classes	1 <sup>st</sup> class	2 <sup>nd</sup> class	3 <sup>rd</sup> class	4 <sup>th</sup> class
Degree of danger to the environment	Extremely dangerous	Highly dangerous	Moderately dangerous	Negligibly dangerous
Environment recovery time	Indefinitely long	30 years and more	Minimum 10 years	Up to 3 years
Examples	Transformers, capacitors, mercury-containing lamps, thermometers	Car tires, lithium batteries	Copper wires, engine oil, acetone and its analogues, fresh manure	Sawdust, wooden furniture, shards of natural glass, various construction waste

**Table 1:** Classes of hazardous waste.

There are 4 classes of waste according to the degree of hazard.

The mixing of hazardous substances is prohibited in order to prevent risks to human health.

Batteries - mega-hazardous waste. Moreover, any batteries are dangerous (in industrial accumulators, in remote controls, in watches, etc.), because they contain heavy metals (lead, cadmium and mercury). For example, the most popular A1, as it is called, the finger battery, is capable of contaminating 20 square meters of soil or poisoning 400 liters of water with heavy metals. At the same time, every year the inhabitants of the earth throw 450 tons of batteries into waste. What to do? Used batteries should only be taken to designated collection points, such as household chemicals stores, or disposed of in special containers. Whenever possible, avoid using low-capacity batteries and switch to rechargeable batteries.

Failed computers, electronics, household appliances are dangerous. Refrigerators contain freon, which causes ozone holes in the atmosphere. Old electronic boards and wires in landfills undergo various chemical reactions when they come into contact with moisture. Phones with lithium-ion batteries release lead and mercury. The metal (cadmium) is found in all types of electronics. Large doses of it cause deformation of the human skeleton, fractures, accumulating in internal organs, it causes cancer. Lead is also used in computer technology, and when it gets into living chains, for example, with water, it can cause nervous disorders, kidney and brain diseases.

### Recommendations

buy quality, durable equipment that will last for many years. Repair, don't throw away and dispose of properly. 70% of mobile phone materials can be recycled. Many stores accept used equipment and even give a discount for it when buying a new product. Old laptops, computers and telephones can be used for spare parts.

- The EU Waste Directive prescribes the separate collection of at least four fractions of MSW: glass, plastic, metal, paper (cardboard). Bio waste (5th fraction) is collected separately.
- Used glass products are sorted by color (white and colored separately, including empty glass bottles without corks and glass jars) and placed in separate containers that are taken out by the recycling service when filled. It is forbidden to dump heat-resistant glass, building glass blocks and window glass, filled bottles, glass waste from laboratories, mirror glass into this container.

The EU Waste Directive prescribes the separate collection of at least four fractions of MSW: glass, plastic, metal, paper (cardboard). I will show this with an example. Before you is waste generated in everyday life. First, we will form 4 piles of waste in accordance with EU requirements

- Shards of glass separately (window glass and other high strength is not suitable, collected separately and disposed of separately),
- Tin can separately in the 2nd pile,
- Plastic bottle separately,
- Paper separately.

Remaining are the tangerine rind, eggshells, potato peels, onion skins, and moldy bread. This can be composted, a valuable organic fertilizer and soil structure improver. We add these ingredients to the fourth pile (where paper waste is), then grind the mixture and put it in a container with ventilation and a filter. In addition to the organic component, moisture, oxygen and bacteria are also important for proper composting, which provide rotting and decomposition of the mixture. The moisture content of the mixed mass should be the same as that of the wrung out sponge. You can also add plant residues to the mixture, and to speed up the process, ordinary yeast. Compost is formed in the container, which can be used to feed indoor flowers, to fertilize the soil of flower beds. In small volumes, compost is prepared at room temperature (but not higher than 30 °C), within two weeks (the container can be placed on the balcony, in the loggia of a city apartment. To prepare compost in a country house with a garden and a kailyard, you must choose a place on the site - you can use a compost pit, or you can build a compost area with boards of wood. At the bottom of a pit or site, sand or fine gravel is usually poured for drainage, then a layer of humus, manure should be laid out so that the heap is actively supplied with bacteria and microorganisms. In the compost heap, you can add cuttings, weeds, sawdust and wood waste, food residues of plant origin, herbivore manure and bird droppings, chalk, ash, coal, eggshells. The decay process needs to be kept up with enough moisture, so it will be appropriate to spill the pile with water in dry weather. The composting process can take from several months to two to three years, depending on the size of the components and the fermentation mode. In this case, there is only one drawback - the long maturation process. You can shorten the composting time of the mass with the help of manure: it is a rich source of nitrogen, and this is a necessary condition for a high rate of decay.

What should be collected in a biowaste container (lid with bio-filter) for composting leftover bread and bakery products, kitchen waste and food leftovers - cheese, sausages, meat and fish (boiled), dairy products, salads, fruits and vegetables, as well as eggshells, bones, tea bags and coffee filters, flowers and compostable waste (paper bags and towels, napkins). It is not allowed to throw flower soil, wood debris, plastic bags, straw, litter of litter boxes for cats, non-compostable products and plastic bags, diapers, waste containing harmful substances, such as batteries, into the container.

Bag for packing materials. Collected here: packaging made of artificial materials (cups for yogurt, sour cream, tubes of paste, bottles for shampoo, packaging film, nets for vegetables and fruits), metal packaging (aluminum film, foil, canned food cans, aluminum bowls, beverage bottles, screw caps), non-woven packaging (milk and juice bags, vacuum coffee packaging, frozen food packaging). Artificial materials and metals that were not packaging (scrap, glass, paper, residual debris), aerosol cans, PVC tiles, food remains must not be thrown into the yellow bag.

Residual waste - in a separate container. Residual waste – cinder, cigarette butts and ashes, bandages, cotton wool, plaster and tampons, plaster and rubber, ceramics and porcelain, ballpoint pens and felt-tip pens, fish and meat leftovers (raw), cat litter and bird sand, candle residues and self-adhesive labels, cosmetic wipes and condoms, clay pots and pans, silk stockings, tights and socks, diapers, toothbrushes, wallpaper, cloths for cleaning and mopping, vacuum cleaner bags, light bulbs. Waste that can be reused (glass, paper), as well as problematic waste containing toxic materials (solvents, heavy metals) and construction waste, stones, electrical appliances must not be thrown into the specified container.

Problematic and hazardous waste (waste oil, batteries, paints, varnishes, cleaning agents, plant protection products and poisons, medicines, fluorescent lamps, spray cans, edible oils) are taken to recycling points.

Expired medicines – a hazardous medical waste.

Fluorescent (energy saving) lamps and mercury thermometers contain mercury. Each lamp contains from 3 to 7 mg of mercury, and in a household thermometer - up to one milligram of mercury [1].

Bulky waste is collected at the side of the road and removed separately. These are furniture, beds, baby carriages, bicycles, suitcases, stairs, cages for small animals, sports equipment, carpets/ floor coverings, as well as electrical appliances: players, TVs, computers, printers, monitors, refrigerators, electric and gas stoves, microwave ovens, vacuum cleaners, VCRs, dishwashers and washing machines, waste from the garden and balconies. The actual garden waste (foliage, branches, grass cuttings) is packed in special bags designed for 25 kg, and taken out simultaneously with bulky waste.

Thus, the correct disposal of environmentally hazardous waste is very important for the environment and for human health. Minimization of household waste, their separate collection, recycling contribute to effective waste management and provide a high environmental impact. With regard to waste, both in everyday life and at work, the SEPARATE principle must apply. Such a separate collection of waste allows you to preserve in them valuable components and raw materials necessary for obtaining other materials, products and goods.

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