# APPENDIX 5

## THE MOST COMMONLY USED PLASTICS, METALS AND ALLOYS

### THE MOST COMMONLY USED PLASTICS

| | | Recycling code | Properties | Uses |
|---|---|---|---|---|
| Thermoplastics | Polyethylene terephthalate |   | • Resilient<br>• Impervious to gases and humidity<br>• Relatively heat-resistant | • Bottles (soft drinks, sports drinks, etc.)<br>• Containers (peanut butter, jam, etc.)<br>• Oven-proof packaging |
| | Polyethylenes |   | • Flexible<br>• Easy to cut<br>• Easy to shape<br>• Impervious to humidity | • Compressible bottles (mustard, dishwashing liquid, etc.)<br>• Garbage bags<br>• Grocery bags<br>• Plastic film for wrapping food<br>• Beach balls |
| | Polyvinyl chloride (PVC) |   | • Hard<br>• Resistant to penetration by grease, oil and many chemicals | • Tubes for medications<br>• Patio furniture<br>• Cassette cases<br>• Building materials (pipes, plumbing connections, window edging) |
| | Polypropylene |   | • Resilient<br>• Heat-resistant<br>• Resistant to penetration by oil and grease<br>• Waterproof | • Containers (margarine, yogurt)<br>• Water bottles<br>• Automotive products (bumpers)<br>• Geomembranes |
| | Polystyrene |   | • Excellent thermal insulator<br>• Can be a foam or a rigid plastic | • Insulation<br>• Plastic tableware (glasses, utensils, cups, dishes, etc.)<br>• Egg boxes |
| | Polyamides | Not currently recyclable | • Elastic<br>• Water-absorbent | • Textile industry (nylon)<br>• Electrical components |
| | Polymethyl methacrylate (also called *acrylic*) | Not currently recyclable | • Very rigid<br>• Wide variety of colours | • Transparent bowls<br>• Signs<br>• Dental prostheses |
| | Acrylonitrile butadiene styrene (ABS) | Not currently recyclable | • Resilient | • Pipes for plumbing |

| | | Recycling code | Properties | Uses |
|---|---|---|---|---|
| Thermosetting plastics | Phenol formaldehyde (often called *Bakelite*) | Not currently recyclable | • Heat-resistant<br>• Electrical insulator | • Electrical components<br>• Casings<br>• Jewellery |
| | Melamine formaldehyde (often simply called *melamine*) | Not currently recyclable | • Heat-resistant<br>• Abrasion-resistant<br>• Wide variety of colours | • Furniture coverings, cabinets and countertops<br>• Unbreakable plates and cups |
| | Polyesters | Not currently recyclable | • Electrical insulators<br>• Hard<br>• Resilient | • Boat hulls<br>• Cafeteria trays<br>• Fishing rods |

## THE MOST COMMONLY USED METALS

| Metal (chemical symbol) | Description and characteristics | Useful properties | Uses |
|---|---|---|---|
| Aluminum (Al) | • White<br>• Soft<br>• Very abundant in nature<br>• Most commonly used metal after iron | • Malleability<br>• Lightness<br>• Resistance to corrosion<br>• Very good electrical conductivity | • Watercraft<br>• Aluminum foil<br>• Cans<br>• Electrical products |
| Chromium (Cr) | • White, slightly bluish | • High degree of hardness<br>• Resistance to corrosion | • Coatings |
| Copper (Cu) | • Reddish brown<br>• One of the best electrical conductors | • Ductility<br>• Malleability<br>• Excellent electrical conductivity | • Electrical wires<br>• Musical instruments<br>• One-cent coins |
| Iron (Fe) | • Silvery<br>• Soft<br>• Can rust in the presence of oxygen<br>• Most commonly used metal | • Ductility<br>• Malleability | • Automobiles<br>• Building structures<br>• Utensils<br>• Cables<br>• Nails |
| Magnesium (Mg) | • Silvery white<br>• May burn on contact with air | • Lightness<br>• Flammability | • Fireworks and flares<br>• Cans |
| Nickel (Ni) | • Grey | • Hardness<br>• Malleability<br>• Resistance to corrosion | • Heating elements<br>• Coins |
| Tin (Sn) | • Silvery white | • Ductility<br>• Malleability<br>• Relatively low melting point | • Welding<br>• Utensils |
| Zinc (Zn) | • White, slightly bluish | • Ductility<br>• Malleability<br>• Resistance to corrosion | • Electrical wires<br>• Eavestroughs<br>• Coatings |

## THE MOST COMMONLY USED ALLOYS

| | Alloy | Composition and description | Useful properties | Uses |
|---|---|---|---|---|
| Ferrous alloys | Cast iron | • Mixture of iron and carbon (more than 2% carbon) | • Hardness | • Cooking pots<br>• Wood stoves<br>• Engine blocks |
| | Steel | • Mixture of iron and carbon (less than 1.5% carbon)<br>• Nickel, chromium and zinc are often added. | • Hardness<br>• Resilience<br>• Malleability | • Building tools<br>• Building structures<br>• Automotive industry |
| Nonferrous alloys | Aluminum alloys | • Aluminum alloys are numerous and contain small amounts of one or more other substances (copper, manganese, silicon, zinc, magnesium, etc.). | • Malleability<br>• Low density<br>• Resistance to corrosion<br>• Lightness | • Car parts<br>• Airplane parts<br>• Electronic parts |
| | Brass | • Mixture of copper and zinc<br>• Its colour varies (white, grey, pink or golden) depending on its composition. | • Ductility<br>• Malleability<br>• Resistance to corrosion<br>• Excellent electrical conductivity | • Decoration<br>• Automotive industry<br>• Electrical components |
| | Bronze | • Mixture of copper and tin<br>• Its colour varies from yellow to red to brown. | • Hardness<br>• Malleability<br>• High density<br>• Resistance to wear and corrosion | • Works of art<br>• Olympic medals<br>• Boat propellers |