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Aluminium recycling: a technical process

At the processing centres distributed throughout Switzerland, the aluminium packaging is separated from the steel packaging with a magnetic separator. An eddy current separator is used to remove extraneous matter from the aluminium packaging. All of the packaging collected in the communes is then compressed into bales and transported by rail to remelting works located near the border. There they are used for manufacturing new aluminium products, such as beverage containers or car components, without reducing their quality.

As the collected aluminium packaging is remelted at a temperature of approximately 660°C, recycling uses only about 5% of the total energy required to produce primary aluminium (i.e. aluminium is mined and then the ore is processed through electrolysis).

It makes no difference if the packaging contains food residues, colour print or other impurities. Facilities that use the pyrolysis procedure first vaporize the organic components at 500°C. The gases generated during vaporization are combusted at high temperatures, supplying energy and heat for the pyrolysis process. Pyrolysis is conducted without oxygen. Accordingly, the aluminium will not oxidise, even as a thin foil, and all of the aluminium can be recovered. In addition, recycling plants have statutory flue gas purification facilities that are as high tech as those at waste incineration plants.