

Profiles in Garbage

BY CHAZ MILLER

Steel Cans

Steel cans contain one third less metal than they did 20 years ago.

Steel containers may have originated in 14th century Bohemia. In 1809, a Frenchman invented a process to package preserved food in cans. Three years later, tinplated cans were produced in Britain. In 1938, the first steel beer can was produced.

Steel cans are made from tinplate steel, which is produced in basic oxygen furnaces. A thin layer of tin is applied to the can's inner and outer surfaces to prevent rusting and to protect food and beverage flavors. As a result, steel cans are often called "tin cans." However, a chromium wash is replacing tin in the canmaking process.

Most steel cans are used for food products, followed by paint, aerosols and other products. Steel cans account for more than 90 percent of food cans. More than 600 shapes, styles and sizes of containers are used. The steel can recycling rate has skyrocketed, but the amount and percentage of steel cans in municipal solid waste has declined dramatically in the last 40 years due to competition from lighter aluminum and plastic containers.

Electric arc furnaces primarily use scrap steel while basic oxygen furnaces primarily use virgin raw materials. ■

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SOURCES:

American Iron & Steel Institute, www.steel.org
"Measurement Standards and Reporting Guidelines,"
National Recycling Coalition, www.nrc-recycle.org
"Municipal Solid Waste in the United States: 2007 Facts
and Figures," U.S. EPA, Office of Solid Waste, 2008, www.epa.gov/osw
Scrap Specifications Circular 2008, Institute of Scrap
Recycling Industries, Washington, D.C., www.isri.org
Steel Recycling Institute, Pittsburgh, www.recycle-steel.org

Data is from 2007 EPA estimates, except where noted.

STEEL CANS MSW FACTS

Generated:

- 2.44 million tons, or 1.0% by weight.
- 16.18 pounds per person per year.
- 30 billion cans or 100 per person.
- An average can weighs 2.7 oz. (industry data).

Recycled:

- 1.73 million tons, or a 64.3% recycling rate.
- Recycling rate of 65% in 2007 (industry data).

Recycled Content:

- Steel can sheet is produced in a basic oxygen furnace using at least 25% recycled content.
- Steel produced

in an electric arc furnace can have almost 100% recycled content.

Composted:

- Steel cans do not compost but rust and are biodegradable when exposed to the elements.

Incinerated or Landfilled:

- 0.87 million tons, or 0.5% of discarded MSW by weight.
- Noncombustible.
- Magnets remove steel cans from incineration.

Landfill Volume:

- 4.03 million cubic yards or 1%

of landfilled MSW in 1997.

Density:

- Whole, unflattened steel cans weigh 150 pounds per cubic yard (lbs/cu.yd.).
- Baled cans weigh 850 lbs/cu.yd.
- Landfilled cans weigh 560 lbs/cu.yd.

Source Reduction:

- Steel cans have one third less metal than 20 years ago.
- Tinplate thickness reduced by 30% in the last 25 years.

Recycling Markets:

- Steel mills are the largest market.

■ The basic oxygen process makes tinplate, appliances, car bodies and steel framing.

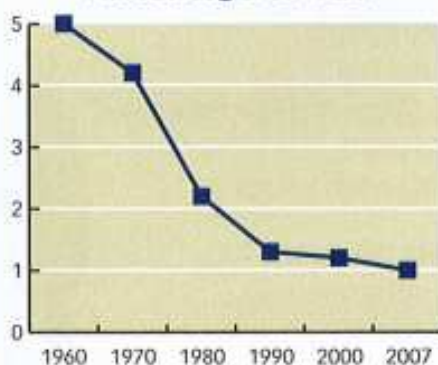
- Electric arc furnaces make steel shapes such as railroad ties and bridge spans.
- Foundries use scrap to make castings and molds.

End Market Specifications:

- ISRI Ferrous Scrap Guidelines FS 213, "Steel Can Bundles." Cans may be baled without removal of paper labels, but must be free of other non-metallics. Non-ferrous metals and large pieces of plastic can create safety and production problems.

Steel Cans MSW and Recycled

Percentage of MSW



Percentage Recycled

