



# Brass Recyclability: Environmental & Economic Advantages

Brass has the capacity to be recycled an infinite number of times which has significant environmental and economic advantages. Brass is a copper-based alloy that does not lose its chemical or physical properties in the recycling process.



## Environmental Advantages:

The recycling process for brass is less energy-intensive as compared to aluminum and steel and yields a smaller carbon footprint. The ability to reuse brass from recycled materials is a tribute to an industry that is environmentally conscious regarding its use of natural resources.

## Economic Advantages:

The entire economy of the brass industry is dependent on the economic recycling of any surplus products. There is a wide range of brass materials made for a large variety of applications. To use the most suitable and low cost feedstock for making components gives the most economic value.

Brass for extrusion and hot forging is normally made from a basic melt of scrap of similar composition with minor adjustments. The use of brass scrap means that the cost of the fabricated brass is considerably less than it might otherwise be.

## Value Comparison:

Superior recyclability also offsets the off-the-shelf price of brass which may sometimes be higher than alternative materials. Raw material cost is only part of the overall cost picture, and brass turnings can be reclaimed for 75-85% of the original value. The unmatched secondary value of brass scrap creates an advantageous net material cost for customers compared to alternative materials.

The superior machinability of brass also means higher productivity and lower per-part cost. This, combined with the high value of scrap makes brass a cost-effective material choice.

The numbers say it all. In terms of finished part cost, the example below demonstrates that **free-cutting brass is 37% less expensive than 12L14 leaded steel.**

## Finished Part Cost Comparison Production Data\*



	Brass (UNS C36000)	Steel (AISI 12L14)
Part Weight	0.013 lbs	0.01196 lbs
Turnings Ratio**	63%	63%
Cycle Time	3.65 sec/part	7.66 sec/part
Efficiency Factor†	0.80	0.70
Material Cost <sup>1</sup>	\$3.19/lb	\$0.76/lb
Turnings Value <sup>1</sup>	\$2.53/lb	\$0.12/lb
<b>Total Cost per 1,000 Parts<sup>1</sup></b>	<b>\$138.47</b>	<b>\$219.68</b>

\* Data obtained from Midwestern machine shop in 2014

\*\*Percentage of raw material in the form of scrap

† Accounts for tool changes, restocking time, maintenance

<sup>1</sup> Costs of both brass and steel fluctuate with market conditions, but the assumptions made here are consistent with prices that have existed in recent years. There is no intent to imply that the prices assumed here are current; however, they reasonably represent the metals' relative market prices.