

ArcelorMittal Solutions in Steel™ for Construction



ArcelorMittal

Recycling & Sustainability Fact Sheet

Shift to Green



ArcelorMittal Steel for Building Products

This fact sheet provides an overview of the production methods ArcelorMittal uses to produce steel, and describes the recycled content and other sustainable and environmental attributes of ArcelorMittal steels used to manufacture building products.

Today's steel is produced using two technologies both of which require "old" steel to make "new" steel. ArcelorMittal is a unique North American steelmaker in that we utilize both technologies. The combination of these technologies enables us the flexibility to produce a variety of steel grades for a wide range of consumer product applications.



ArcelorMittal Building Products Recycled Steel Content

Basic oxygen furnace (BOF) technology typically uses around 25% steel scrap ("old" steel) to make new steels. Many steels manufactured by the BOF method are used to produce products whose main material characteristic is formability. These products include automotive outer body panels, exterior panels for refrigerators and stoves, residential door skins, architectural panels, and packaging as used in soup cans.

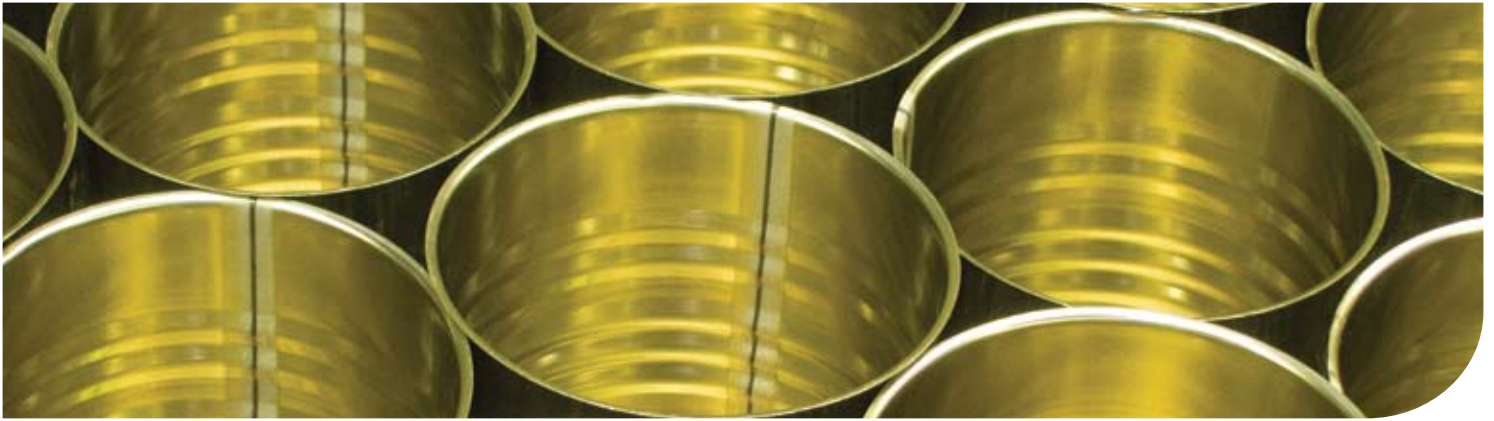
Scrap based electric arc furnace (EAF) technology can use close to 100% steel scrap as its feedstock and is used to produce products whose main material characteristic is strength. EAF steels are used to produce such products as structural beams, steel plates, and reinforcement bars.

Of the recycled steel used for both technologies, up to 50% is post consumer generated material, and the balance pre-consumer and home scrap. In addition, regardless of the technology used to make steel (BOF or EAF), both types of steel are fully recyclable, and one type should not be favored over the other.

- (1) *Post Consumer Content* – is defined as scrap steel resulting from end of life consumer products (e.g. steel cans, steel auto bodies, building materials)
- (2) *Pre-Consumer Content* – is defined as scrap steel resulting from product manufacturing operations (e.g. turnings, stampings from auto part manufacturers)
- (3) *Home Scrap* – is defined as internally generated scrap from our steel processing operations

World's Most Recycled Material

Steel is the world's most recycled material, and in North America alone, over 80 million tons of steel are recycled or exported for recycling annually¹. This is done for both economic and environmental reasons. It is always economical to recycle steel. However, it should be understood that many steel applications remain in service for decades. Even though two out of every three pounds or kilograms of new steel are produced from "old" steel, the fact that cars, buildings, appliances, and bridges have such long service lives makes it necessary to continue to mine some virgin ore to supplement the production of new steel. Economic expansion, here and abroad, also creates additional demand that cannot be fully met by available scrap supplies.



A Car to a Can to a Roof and Back to a Car...

Steel possesses a unique material property unrivalled by other materials in that it can be recycled both up and down the product value chain. Open loop recycling allows, for example, an old car to be melted down to produce a soup can, and then, as the new soup can is recycled, it is melted down to produce a new appliance, car, roof, or perhaps a structural beam used in a bridge.

Unlike competing industries, recycling in the steel industry is second nature. The North American steel industry has been recycling steel scrap for over 160 years through 1,800 scrap processors and some 12,500 auto dismantlers².

As a result of the large quantities of “old” steel we supply to the EAF and BOF, ArcelorMittal is one of the largest recycled steel consumers in North America.



Environmental Benefits & Reduced Consumption

Recycling steel saves energy and natural resources, with an energy savings equivalent to the energy required to power 20 million households per year³. In addition, for every ton of steel recycled, 2500 pounds of iron ore, 1400 pounds of coal, and 120 pounds of limestone are conserved¹. (Or for every metric ton of steel recycled, 1250 kg of iron ore, 700 kg of coal, and 60 kg of limestone are conserved).

The North American Steel Industry has made significant strides to protect our environment and preserve our resources by:

- Reducing overall energy consumption per ton of steel by 29% since 1990³.
- Reducing green house gas (GHG) emissions (including CO₂) by more than 25% from 1994 thru 2003⁴.
- Reducing air toxics volumes by more than 70% from 1994 thru 2003, and total air & water discharges by 69%⁴.
- Collecting and reusing of steel making by products such as: slag for road building, railroad ballasts, fertilizer, glassmaking, & other applications; coke oven & steel making gases for fuel/heat generation, etc.⁵
- Increased steel manufacturing efficiencies now result in the production of 100 units of steel from 114 units of raw steel vs. 140 units previously⁵. This has resulted in a yield improvement of 16% to 87% from 71%.

Significant environmental investments continue to be made in the steel industry to reduce emissions, conserve resources, and develop new ways to reduce and/or sequester GHG's during steel production.

Better, Greener Buildings

In North America, the building environment accounts for approximately one-third of all green house gas emissions, energy, water, and material consumption, and generates similar proportions of pollution. With buildings having such a profound impact on our natural environment, economy, health, and productivity; a need arose for achieving sustainability and energy efficiency in building design and operation. This led to the creation of programs such as: Leadership in Energy and Environmental Design (LEED™) and Green Globes green building rating system.

These rating systems assess the architectural design and performance features of a commercial building for “green and sustainable” attributes. Due to steel's recycled content and functional properties (dimensionally stable, exact sizes & specifications, less building waste, tight building envelopes, etc.), building products made from ArcelorMittal steel can be credited for example, with the maximum number of points for the Materials & Resources Credit aspect of the LEED™ rating system (Sections 4.1 and 4.2).



Special Customer Note:

The information in this Fact Sheet is provided for the general guidance of customers and does not imply any warranty. Information provided is based on research conducted by ArcelorMittal and the Steel Recycling Institute. Interpretation and/or use of this information are the sole responsibility of the user. For further details, contact ArcelorMittal USA or Canada.

Through its core values of sustainability, quality and leadership, ArcelorMittal commits to operating in a responsible way with respect to the health, safety and wellbeing of its employees, contractors and the communities in which it operates. It is also committed to the sustainable management of the environment and of finite resources. ArcelorMittal recognizes that it has a significant responsibility to tackle the global climate change challenge: it takes a leading role in the industry's efforts to develop breakthrough steelmaking technologies and is actively researching and developing steel-based technologies and solutions that contribute to combating climate change.

References:

1. "55 Fun Facts About Steel", American Iron and Steel Institute website, http://www.steel.org/Content/NavigationMenu/MediaCenter/FactSheets/AISI_Fact_Sheets.htm
2. "2006 The Inherent Recycled Content of Today's Steel", The Steel Recycling Institute website, <http://www.recycle-steel.org/media.html>
3. "North American Steel Industry: Reducing Energy Consumption" The American Iron and Steel Institute, Steel The EnviroMetal™ website, <http://www.sustainable-steel.org/energy.html>
4. "North American Steel Industry: Emission Reduction" The American Iron and Steel Institute, Steel The EnviroMetal™ website, <http://www.sustainable-steel.org/emreduction.html>
5. "Material Efficiency in the North American Steel Industry" The American Iron and Steel Institute, Steel The EnviroMetal™ website, <http://www.sustainable-steel.org/matefficiency.html>

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