



# Buying sustainable stainless steel: Five things you need to know

Price used to be the most important factor when choosing between different suppliers – but times are changing. With world leaders signing up to climate targets, stainless steel products now need to come with a clean bill of health when it comes to sustainability.



It's a big change of mindset. Everyone knows that contracts can have hidden costs and it's the same when it comes to hidden sustainability costs. If you use these five principles, you can be confident that you are comparing stainless steel providers on equal terms.

1. Define the carbon footprint according to a recognised standard
2. Compare recycled content
3. Check the environmental impacts of manufacturer's production
4. Ask for expert advice in choosing the right stainless steel grade
5. Check certifications and reporting

# 1. Define the carbon footprint according to a recognised standard

When you invite suppliers to tender, ask them to report their carbon footprint and other environmental data. This should take the form of Environmental Product Declarations (EPDs) developed based on the ISO 14040 standard which assesses the environmental aspects of a product in its entire life cycle.

This standard breaks the carbon footprint into three scopes:

- **Scope 1** accounts for a supplier's direct carbon dioxide (CO<sub>2</sub>) emissions. For a stainless steel supplier, this could be from burning fuels to heat furnaces.
- **Scope 2** covers indirect emissions from generating electricity that the supplier uses to power equipment such as electric arc furnaces and motors in rolling mills.
- **Scope 3** emissions are from the production of raw materials, including mining and processing of ores, or sourcing and sorting of scrap for recycling. For stainless steel, this is often the largest source of emissions.

The total emissions from all three scopes is the most important figure as scopes 1 to 3 can vary widely between suppliers, see Figure 1.

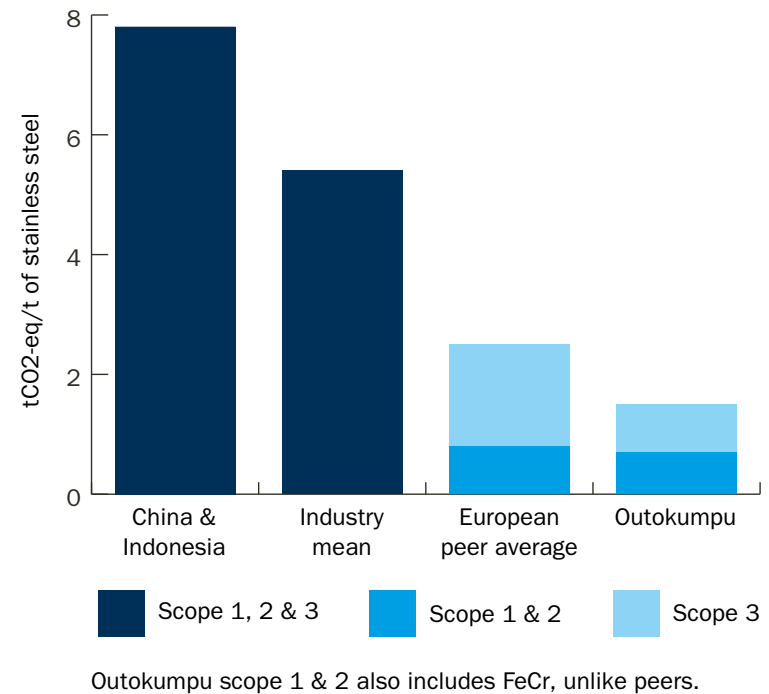



Figure 1. Value chain emission comparison.

Read more about comparing carbon footprints of stainless steel:

[Read more](#)





However, it's also important to know that the data is reliable. That's where the EPDs help as it is required to have the EPDs certified by third-party – a stringent measure that Outokumpu has implemented.

It's also important to see what a company plans to do in the future. Leading companies, like Outokumpu, have set ambitious climate targets according to the requirements set by the Science Based Targets initiative. Targets are considered 'science-based' if they are in line with what the latest climate science deems necessary to limit global warming to well below 2 °C above pre-industrial levels. The most ambitious companies pursue a 1.5 °C target, something that Outokumpu committed to in May 2021.



Download EPDs for  
Outokumpu's products:

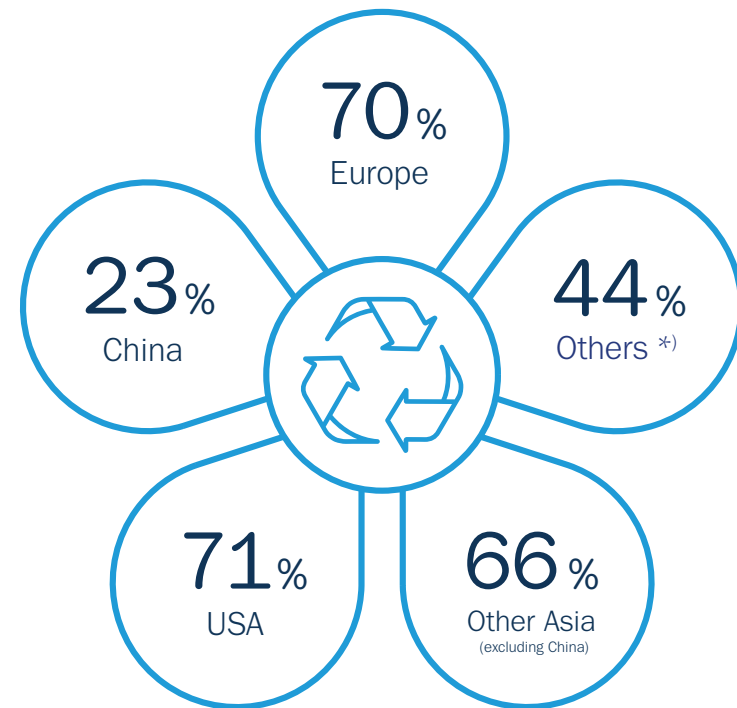
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## 2. Compare recycled content

Another way to measure sustainability is by comparing the percentage of recycled content used in the manufacture of stainless steel.

It's worth knowing that the level of recycled content in steel is closely linked to its carbon footprint. That's because it uses less energy to recycle stainless steel than it does to produce new material by mining and processing virgin raw ores. According to Germany's Fraunhofer Institute, every tonne of austenitic scrap used in the production of stainless steel saves 4.3 tonnes of CO<sub>2</sub> emissions.

However, [according to a recent report by Yale University](#), the global average of recycled content in stainless steel is only 44 percent. Outokumpu's total input of recycled material rate is more than 90 percent, and in 2020 the input of recycled material reached a record high level of 92.5%.



\* ) Others includes Russia, Ukraine, South Africa & Brazil.

**Figure 2.** Comparative recycled content of stainless steels by region according to a Yale University report.





**Figure 3.** An avid hobby beekeeper along with other Outokumpu team members have created a wildflower meadow to support the protection of endangered insect species and foster biodiversity at Outokumpu plant premises in Dillenburg, Germany.

### 3. Check the environmental impacts of their production

You can also compare steel producers by asking about the impact they have on the local environment around their own mills. Steel production generates dust and scale, consumes energy and uses water. All three can impact the quality of air, water and land habitats and the quality of life for local communities.

To protect the environment, stainless steel producers must take many small actions that influence different parts of their processes and measure the outcomes.

For example, dust should be collected before it can escape to air. Dust itself contains valuable raw materials, so passing it through a special recovery plant helps to recycle and reuse raw materials as much as possible.

Outokumpu has implemented various ways to minimize the impact on the environment. In production, water is carefully metered and re-used to minimize water taken from the environment.

Outokumpu is also active in minimizing the impact on the land, and the wildlife that lives on it with many sites devoting land areas to preserve biodiversity. For example, at the Dillenburg site an enthusiastic beekeeper has created a wildflower meadow to foster biodiversity (see Figure 3).



**Figure 4.** Lead Technical Manager Andrew Backhouse from Outokumpu giving a presentation at the Stainless Steel World Exhibition and Conference 2019.

## 4. Ask for expert advice

While production is an important aspect of sustainable stainless steel, it's only a small part of the picture.

Engineers used to choose products and systems based on purchase cost. But today, many now base their decisions on Life Cycle Costing, which covers the monetary cost of purchase, operation, maintenance and end-of-life disposal.

Choosing the right grade can extend the useful life of an installation by years or even decades. For example, Tokyo Water Board adopted stainless steel pipes for its water distribution network. These are designed to last 100 years, in comparison with a 20-year lifespan of other modern materials. The reduced risk of system failure is not only limiting leakage, but it also drastically reduces the need for disruptive street works.

With this in mind, the next step is to purchase material based on Life Cycle Assessment, which considers the environmental cost of the asset itself, as well as the environmental cost to the wider society during the lifetime of that installation.

Choice of grade can make a big difference to lifetime of a product or system. That's particularly true in applications with corrosive atmospheres. Outokumpu's experts have helped engineers around the world to choose the right grade in marine, sour gas and many more corrosive environments.

So, if you need a solution for an exceptionally corrosive environment, Outokumpu's experts can evaluate it and suggest a solution.





## 5. Desk research to check certifications and reporting


The final area where you can compare suppliers is to check whether they are listed in [industry indexes and ratings](#) among the top-performing companies.

It is a simple way for you to find out if they follow through on their sustainability commitments. That is because international bodies and industry organizations set high standards for suppliers to meet.

You can also be certain that your stainless steel supplier takes sustainability seriously if they publish an annual sustainability report with verified data and in accordance with globally recognized reporting frameworks.

For example, Outokumpu's latest recognitions include selection in the S&P Sustainability Yearbook, above industry average score in CDP climate rating and top 1% performance in EcoVadis supplier sustainability assessment.

Outokumpu also publishes annually a [Sustainability Review](#) in accordance with the leading Global Reporting Initiative (GRI) framework. All GRI data in the report has been assured by a third-party auditor.



Learn more about  
Outokumpu's leading  
approach to sustainability:

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