bruynzeel
creating space for a healthy planet

February 2023

Introduction:

To calculate the CO2 impact to produce 1KG of steel applied for shelving two main elements are included.

1. The impact of Material
2. The impact of process & company operation

Material impact:

The main component is steel. The second key material is powder coating. Since data on CO2 impact of powder coating is not yet available, below calculation excludes this impact.

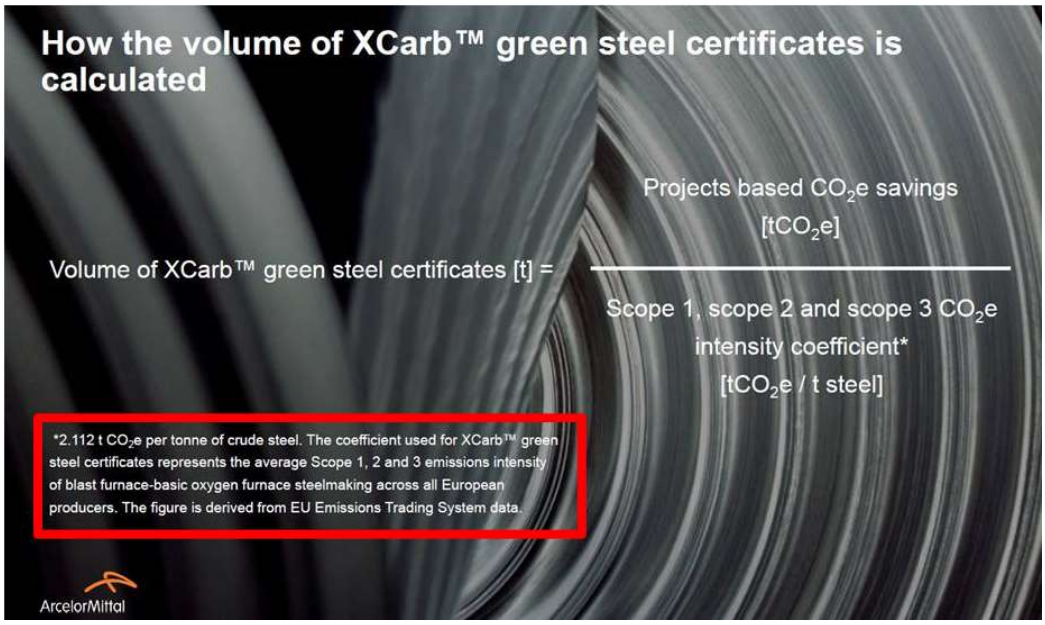
To produce 1 Kg	Galvanized Steel	Non-Galvanized Oiled Steel	Bruynzeel Non-galvanized/ Unoiled	Bruynzeel GreenSteel	Bruynzeel GreenSteel 2.0
Material Impact	Source	Source	Source	Source *	**
Kg CO2 per Kg Steel Kg Co2 impact powder coating - Not yet available	2,57	2,38	2,38	0,27	0,05
Total Material	**2,57**	**2,38**	**2,38**	**0,27**	**0,05**

Sources additional:

*** What is Bruynzeel GreenSteel?**

- Steel producers are investing in a broad range of initiatives to reduce carbon emissions from the blast furnace, their current production method.
- These first, effort-intensive investments on their journey to zero emission steel have resulted in considerable CO2 savings.
- These savings are being aggregated, independently verified, and converted into green steel certificates.

Calculation Bruynzeel GreenSteel: 2,38 – 2,112 (see XCarb™) = 0,27 Kg CO2 (per 1 Kg of steel)



** **What is Bruynzeel GreenSteel 2.0?**

- Steel producers are expected to introduce low carbon steel in the market between 2025-2030 by using Hydrogen based technology.
- Launch of a premium product without fossil CO2 footprint. This means no fossil CO2 emissions when producing this steel.

Calculation Bruynzeel GreenSteel 2.0: We estimate ~0,05 Kg CO2 (per 1 Kg of steel). Although hydrogen based technology will eliminate the majority of its current CO2 impact, we still anticipate a small residual impact. When available we will share hard data based Environmental Product Declarations (EPD).

Impact process & company operation:

To produce building blocks for mobile shelving (Shelf, Uprights, Mobile base) there are two main impact factors:

1. **Pretreatment impact:** some steel variations (Galvanized and/or oiled steel) require pretreatment with water and chemicals before being able to get powder coated.
2. **Impact of company operation:** every production company has emissions (electricity & gas) from its production process. The actual impact of those emissions (Scope 1 & 2 according the GreenHouse Gas protocol) determines its CO2 impact.

To produce 1 Kg	Galvanized Steel	Non-Galvanized Oiled Steel	Bruynzeel Non-galvanized/ Unoiled	Bruynzeel GreenSteel	Bruynzeel GreenSteel 2.0
Process Impact					
Pretreatment*	0,152	0,152	0	0	0
Company operation – Bruynzeel**			0	0	0
Company operation – Industry standard***	0,21	0,21			
Total Process	**0,362**	**0,362**	**0**	**0**	**0**

*Source: the impact of pretreatment is based on Bruynzeel's internal reference data switching predominantly to non-galvanized unoiled steel. The pretreatment process and its CO2 impact for both galvanized & oiled steel is similar.

**Source: Bruynzeel is climate neutral in its own operations (Scope 1 & 2), validated with an official audit report of Deloitte, and therefore its operational impact is 0.

*** Source: Bruynzeel's own impact from its operations (source 2021) per kg steel was 0,21 before becoming climate neutral in our own operations (scope 1 & 2). This impact in 2021 was already more than 20% lower than 2014 with our year-on-year continuous improvements. This on top of modernizing our production facilities since 2000 allowing to predominantly switch to Bruynzeel Non-galvanized unoiled steel. We therefore estimate our own impact in 2021 to represent at least the very minimum impact of the "Industry standard" today.

Total summary:

To produce 1 Kg	Industry Standard		Bruynzeel Standard	Bruynzeel New standard	
	Galvanized Steel	Non-Galvanized Oiled Steel	Bruynzeel Non-galvanized/ Unoiled	Bruynzeel GreenSteel	Bruynzeel GreenSteel 2.0
Material Impact	2,57	2,38	2,38	0,27	0,05
Process Impact	0,362	0,362	0	0	0
Total Impact – Kg CO2	**2,93**	**2,74**	**2,38**	**0,27**	**0,05**

To produce 1 shelf (~3 Kg)	Industry Standard		Bruynzeel Standard	Bruynzeel New standard	
	Galvanized Steel	Non-Galvanized Oiled Steel	Bruynzeel Non-galvanized/ Unoiled	Bruynzeel GreenSteel	Bruynzeel GreenSteel 2.0
Total Impact – Kg CO2	**8,8**	**8,2**	**7,1**	**0,8**	**0,2**

To produce 1m² mobile storage (~130 Kg)	Industry Standard		Bruynzeel Standard	Bruynzeel New standard	
	Galvanized Steel	Non-Galvanized Oiled Steel	Bruynzeel Non-galvanized/ Unoiled	Bruynzeel GreenSteel	Bruynzeel GreenSteel 2.0
Total Impact – Kg CO2	**381**	**356**	**309**	**35**	**7**