ZincAL®

*Version 4 February 2016

The next generation **of Coated Steel**

SAFAL STEEL

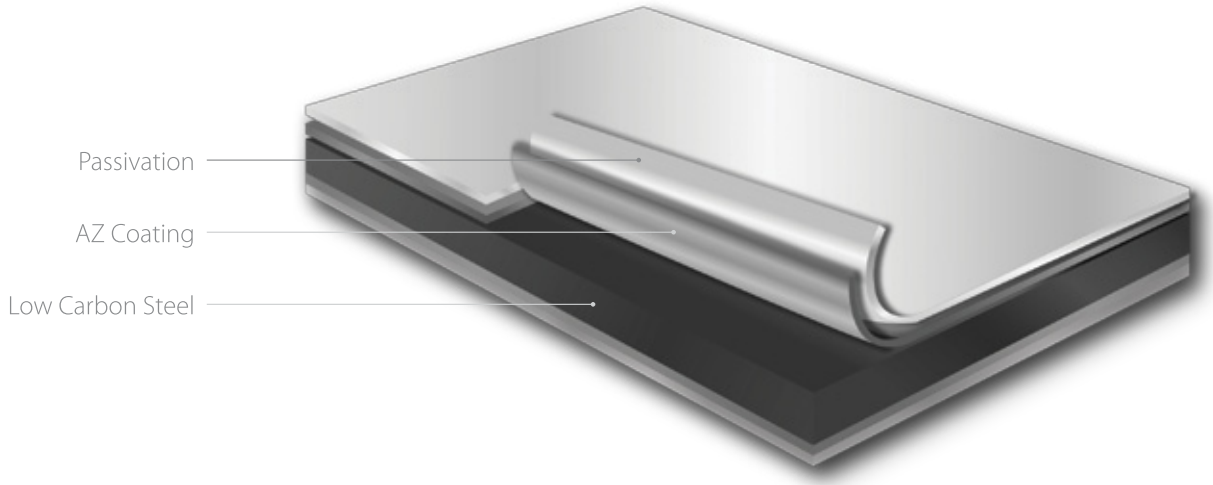
Innovative methods and production techniques are taking steel to new levels of strength, formability and versatility. In **ZincAL®**, the durability and service life of modern coated steel is extended even further.

ZincAL® is produced by a unique, efficient process whereby rolled steel is continuously hot dipped into a 55% Aluminium, 43.5% Zinc and 1.5% Silicon Alloy.

This patented coating protects the steel in two ways:

- The aluminium component of the coating provides a tough physical barrier between the extreme atmospheric conditions and the inner core of steel
- The zinc in the coating provides sacrificial protection and also protects the steel at the cut edges

Cross Section of **ZincAL®**



Steel: The most recycled material on earth

Steel's most valuable property is its ability to recycle itself over hundreds of years without any loss to its inherent qualities. On its journey of reincarnation from washing machines to cars, oil cans to ocean liners or railway tracks, steel saves precious raw materials and minimises energy consumption. With global recovery rates averaging more than 83%, steel is one of the most sustainable and environmentally important products made.

Did you know?

- All steel created as long as 150 years ago can be recycled into new products
- Steel is the most innovative, recyclable and sustainable material of the 21st century

*Source: worldsteel.org

Safal Steel, makers of **ZincAL®**, is a proud member of the Safal Group, which was the first in Africa to set up Aluminium-Zinc (AZ) Coating Technology. This is done under licence to BIEC International Inc., the worldwide licensor and acknowledged leader in technologies associated with 55% Aluminium-Zinc coated steel.

** The acronym **AZ** refers to steel which is coated in the patented alloy of 55% Aluminium, 43,5% Zinc and 1,5% Silicon, also referred to as **55% Aluminium-Zinc coating technology.***

Quality **Assurance**

ZincAL® is produced by **Safal Steel**, a company that is committed to deliver a long lasting, quality product that satisfies its valued clients. To achieve this, our brands are produced and tested in accordance to global standards. They are also subjected to:

- ISO quality system testing
- Quality inspection during production
- Quality assurance of the finished product (SABS product quality conformance)
- Artificial weather testing
- Live test sites

ISO Quality **System Testing**

At the core of our business is the aim to implement the ISO quality system. This ensures all processes are managed to ensure a consistent product is produced.

Quality **Inspection**

To ensure products sent to our customers are defect free, we have trained quality inspectors who are present during our various production processes.

Quality **Testing**

During the quality testing of the product we focus on various characteristics such as mechanical properties and coating performance. **ZincAL®**is tested using the following methods:

Mechanical property testing

- Hardness testing (HRB and HR30T)
- Tensile and Yield testing (MPa)
- Elongation (%)

Coating performance

- Impact testing
- Bend testing (0T to 3T)
- Coating mass (g/m^2)
- Cupping test
- Lock forming testing

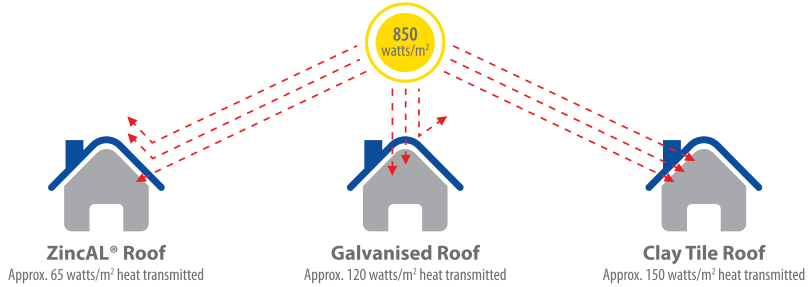
Atmospheric **Exposure**

To ensure we produce a product that not only satisfies quality standards but also performs under weathering conditions we have commissioned the following test methods:

- **Salt Spray Testing (Q Fog Testing)**
  Products are exposed for predetermined time periods to salt fumes at fixed temperatures. The time periods are determined by the various coating categories
- **Live Test Stations**
  Live test stations have now been installed at various locations for monitoring the visual performance of **ZincAL®** under everyday weathering conditions

Thermal **Attributes**

The thermal mass of **ZincAL®** is significantly lower than traditional galvanised steel and clay tile roofs due to the addition of aluminium. This increases the reflection of the sun's rays creating a cooler building in summer and a warmer building in winter.



Solar radiation at 850W/m^2 equivalent to 30°C ambient temperature

Product Selection **Guide**

	Inland (C1-C2) Medium commercial or mild marine 40km from the splash zone	Coastal (C3-C4) Large commercial or average marine 1-40km from the splash zone	Severe Coastal (C5-CX) Large commercial or severe marine zones less than 1km from the splash zone
AZ 100			
AZ 150			
AZ 200			

*Zone classification per SANS 9223 and SANS 10400-L:201X

Technical **Specifications**

Safal Steel **ZincAL®** AZ 100/AZ 150/AZ 200 (refer to product selection guide overleaf) Grade G550 or G275.

*Mechanical Properties**

	G550	G275
Yield strength, MPa	550	275
Tensile strength, MPa	570	380
Elongation on 50mm GL%	-	16

*Guaranteed minimum at ambient temperature

Fire Rating

Property	Grading	Standard
Combustibility	Non-Combustible	SANS 10177-5
Flame Spread (FS)	No Flame Spread	SANS 10177-9
Fire Resistance Rating (FRR)	>30 minutes*	SANS 10177-2

*Based on 0,55mm thickness

Standards *Grades*

A792/M	G550 and G275
SANS 9364	G550

Coil Width

Range	Tolerance
760mm - 1220mm	+5 / -0

Supply Conditions

Surface Condition	Spangled
Surface Treatment	Passivated* and resin coated*
Flatness	ASTM 924 M and SANS 16163

*Ensure material is stored under cover and in dry conditions

Coating Adhesion - 180° Bend Test

Coating Class	Guaranteed Minimum	
	G550	G275
AZ 100/AZ 150/AZ 200	2t	1t

*Total Coated Thickness (TCT)**

Range	Tolerances	
	Width ≤ 1200	Width >1200
≤ 0.30	± 0.02	NA
> 0.3 - 0.5	± 0.03	± 0.04
> 0.5 - 0.8	± 0.04	± 0.05

*Specific requirements possible on agreement

*Coating Weight**

Coating Class	Minimum (g/m^2)	AZ Coating Thickness/microns
AZ 100	100	27
AZ 150	150	40.5
AZ 200	200	54

*Triple spot testing

Typical Reflective Index

Total Solar Reflectance	63%

Please note this figure may vary depending on AZ coating weight

Branding

SAFAL STEEL ZINCAL 925 X 0.5 TCT (x0.46 BMT) AZ 150 45187-1-1-2

Old Main Rd (R103), Cato Ridge, 3680, South Africa | 031 782 5500
www.safalsteel.co.za | Proudly South African Manufacturers