



Quality Assurance

COLORPLUS® is produced by **Safal Steel**, a company that stops at nothing to produce a long lasting, quality product that satisfies its demanding 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. **COLORPLUS®** is tested using the following methods:

- Impact Testing
  - Bend Testing (0T to 3T)
  - Paint Thickness
  - Cross Hatch
  - Cupping Test
- Scratch Test
  - MEK Rub Test
  - Pencil Hardness
  - CIE Lab values and Gloss %

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:

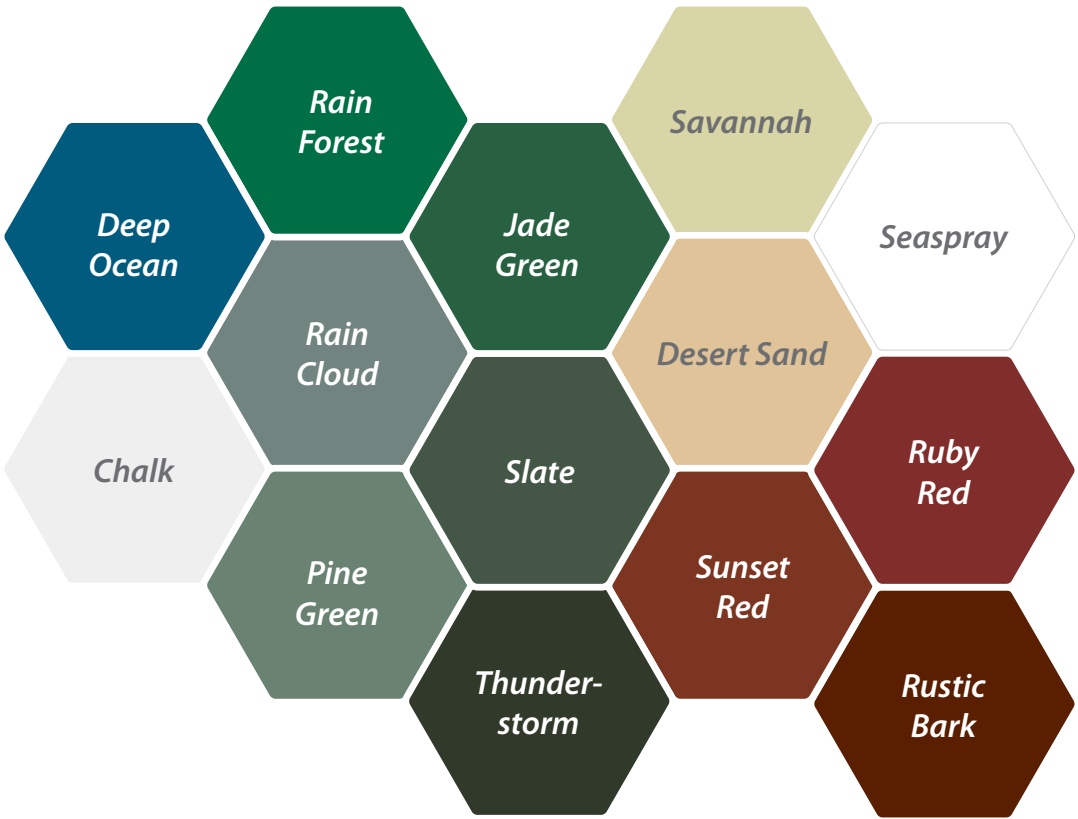
- **QUV / QUB testing**  
The polymer characteristics of the **COLORPLUS®** material is exposed for predetermined time periods to UVA and UVB rays at fixed temperatures
- **Live Test Stations**  
Live test stations have now been installed at various locations for monitoring the visual performance of **COLORPLUS®** under everyday weathering conditions



COLORPLUS® is available in a variety of vibrant colours:

Adding colour not only offers aesthetic appeal, but also increases solar reflection. Tests have proven that based on the colour spectrum, light colours offer a higher reflectance compared to dark colours.

\*Please note the colours represented may vary and may not be an exact match to the metal swatch.  
\*Certain colours are available in specialised paint systems such as Polyurethane and PVDF - terms and conditions apply.



Product Selection Guide

	Inland (C1-C2)	Coastal (C3-C4)	Severe Coastal (C5-CX)
	Medium commercial or mild marine 40km+ from the splash zone	Large commercial or average marine 1-40km from the splash zone	Large commercial or severe marine zones less than 1km from the splash zone
Pre-painted			
AZ100			
AZ150			
AZ200			

\* Zone classification C1-C5 as per SANS 10 400L

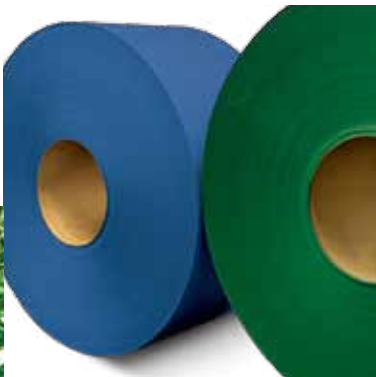


\*Version 4 February 2016

The next generation of Colour Coated Steel







Architects and builders are looking for ways to bring individuality, style and character to their projects.



## Steel: The most recycled material on earth

Steel's most valuable property is its ability to be recycled many times 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

**COLORPLUS®** brings modern innovation to pre-painted steel roofing - not to mention a range of colours that are as visually appealing as they are durable.

**COLORPLUS®** 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 protects the steel at the cut edges

### Colour that takes whatever the climate throws at it

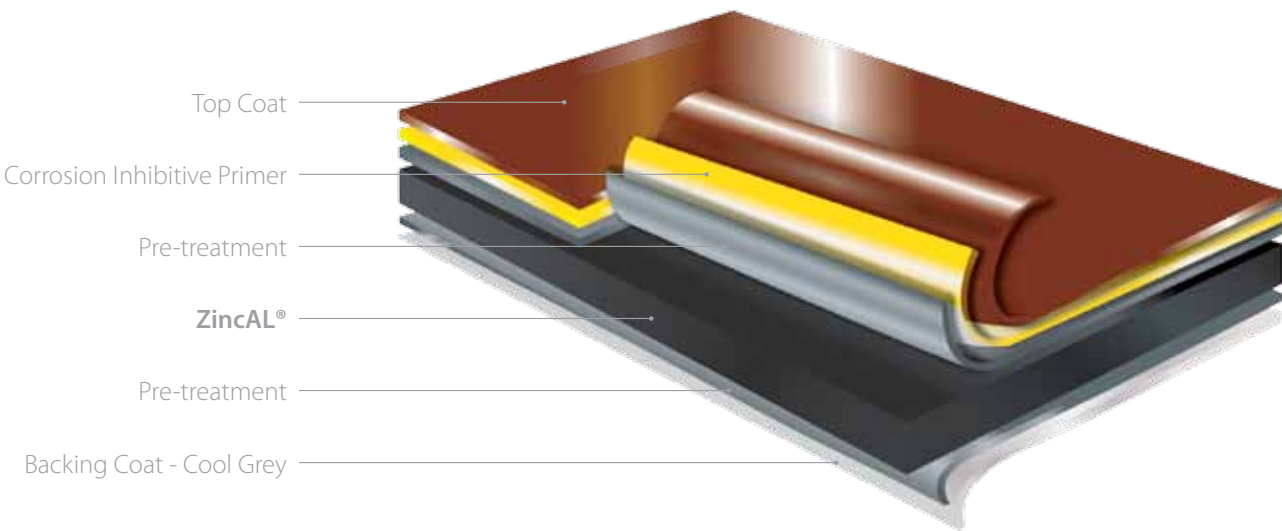
**COLORPLUS®** has been developed as a premium product to endure South Africa's harshest climates, ensuring your building will have a considerable increase in service life, superior thermal protection, added aesthetic value, cost-effectiveness and eco-friendly credentials.

Many years of research and development with our paint partners has resulted in a paint process that satisfies all the demands placed on steel roofing in the 21st century.

Innovative pigments used in the paint have been carefully selected to avoid rapid colour change and retain a fresh appearance for many years. The technology used for this coating system also limits chalking. Particle resistance is an important factor with the growing increase in windborne contaminants and dust. Advances in pre-painted coating technology means that our modified polyesters resist dirt, ensuring your building stays cleaner for longer. With its balance between cost and quality, UV resistance and corrosion resistance, hardness and flexibility, **COLORPLUS®** is redefining the pre-painted coated steel sector.

The Safal Group – makers of **COLORPLUS®** – is 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.

## Cross Section of OPTIMA PLUS®



Safal Steel 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**.*

## Technical Specifications

Safal Steel **COLORPLUS®** **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%	NA	16

Guaranteed minimum at ambient temperature

Standards	Grades	Colour Specifications
A792/M	G550 + G275	
SANS 9364	G550	
SANS 1845		Paint Characteristics

### Supply Conditions

AZ 100/AZ 150/AZ 200	20µm top coat
	5µm corrosion inhibitive primer
	7µm backing coat – cool grey
	<i>*for applications in severe coastal conditions additional primer 5µm will be applied to AZ 200</i>
Flatness	ASTM 924M and ISO 16163

### Base Metal Thickness (mm)

Range	Tolerances	
	Width ≤ 1200	Width >1200
>0.45 - 0.5	± 0.03	± 0.04
>0.5 - 0.8	± 0.04	± 0.05

Specific requirements possible on agreement. Base metal thickness is ZincAL coated thickness

### Coil Width

Range	Tolerance
925mm - 1220mm	+5 / -0

### Coating Adhesion - 180° Bend Test

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

### 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

### Coating Weight\*

Coating Class	Minimum (g/m²)	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	Thermal Emittance	Solar Reflectance Index
Sea Spray	65%	0,85	78
Chalk	68%	0,85	81
Savannah	58%	0,85	68
Desert Sand	51%	0,87	58
Sunset Red	34%	0,84	34
Crimson Red	34%	TBA	TBA
Rustic Bark	26%	0,83	24
Rain Forest	30%	0,83	29
Emerald Green	35%	TBA	TBA
Pine Green	18%	TBA	TBA
Deep Ocean	29%	0,83	28
Rain Cloud	32%	0,83	32
Slate	29%	0,88	30
Thunderstorm	25%	0,84	23

The results reported have a measurement uncertainty of ± 5 units  
Please note this figure may vary depending on AZ coating weight  
Slate and Thunderstorm: new thermo efficient paint system

### Typical Colour Fading and Physical Parameters (10 years)

Colour	Maximum Fade ΔE CIELab (Cleaned) ASTM 2244	Gloss %	Maximum Chalking (Tape off Test) ISO 4628-6	Physical Parameters
Light Colours (L≥60)	≤6	>50	2	No Peel, Crack, Chip
Dark Colours (L<60)	≤15	>60	2	No Peel, Crack, Chip

Result may change depending on climate conditions \*Warranties available upon pre-application

### Branding

SAFAL STEEL COLORPLUS 925 X 0.5 TCT (0.46 BMT) 45107-1-1

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