

## Technical Data AZ Technology vs. GI Technology

Version 2/2014

Steel is an important part of economic activity in most countries. Its use extends to almost all sectors of the economy, such as Engineering, Construction, Railways, Shipbuilding, Automotive and Consumer Goods. Steel does however have an inherent weakness in that when used unprotected and exposed to the environment, it corrodes very easily. To extend the service life of steel, it is generally coated with a corrosion inhibiting coating. The 2 most commonly used coatings to protect steel are:

- **Aluminium Zinc Coating (AZ)**
- **Galvanised Coating (GI)**

### Aluminium Zinc Coating

The mild steel substrate is continuously hot dipped in a formulation of Aluminium (55%), Zinc (43.5%) and Silicon (1.5%). The combination of Aluminium and Zinc increases the sacrificial properties therefore extending the service life span of a steel roof by up to 4 times that of galvanised steel. The Aluminium components of the coating provide a tough physical barrier between the extreme atmospheric conditions and the inner core of steel. The Zinc in the coating protects the steel where exposed. Aluminium Zinc coating is a patented coating technology. Legitimate producers are registered with the license authority BIEC.

### Galvanised Coating

The mild steel substrate is continuously hot dipped in an almost pure Zinc formulation. Zinc has inherent sacrificial properties and corrodes first before the mild steel core. Galvanising offers almost twice the service life of the steel substrate. A unique shiny spangle appearance gives galvanised steel its signature in the market.

### Coating Comparison

AZ Coating weight g/m <sup>2</sup>	Nominal AZ Coating Thickness/microns	GI Coating weight g/m <sup>2</sup>	Nominal GI Coating Thickness/microns
AZ100	27	Z200	27
AZ150	40.5	Z275	40.5
AZ200	54	Z350	54

\* The higher aluminium content in the coating alloy results in a lower density

\* AZ offers an increase in service life up to 4x longer

\* Please note coating thickness under AZ100 or Z200 is not recommended for coastal or heavy industry applications

\* Micron count is approximate

### Product Comparison

AZ Coating	GI Coating
Continuous Hot Dipped process	Continuous Hot Dipped process
55% Aluminium	0.2% Aluminium
43.5% Zinc	99.7% Zinc
1.5% Silicon	-
Balance % trace elements	Balance % trace elements



Continued

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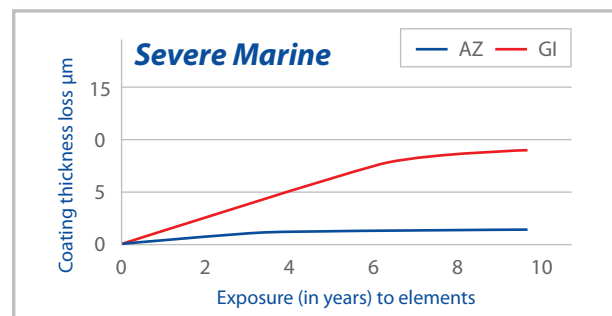
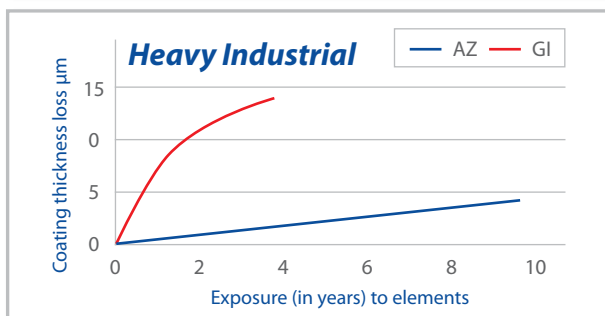
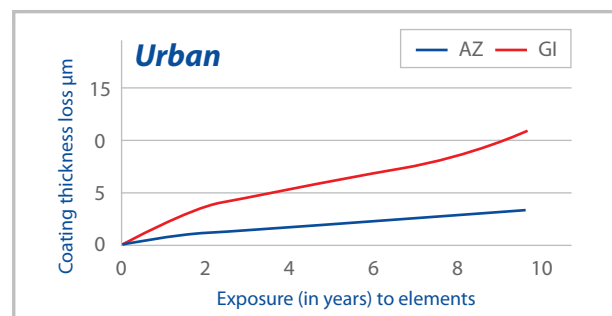
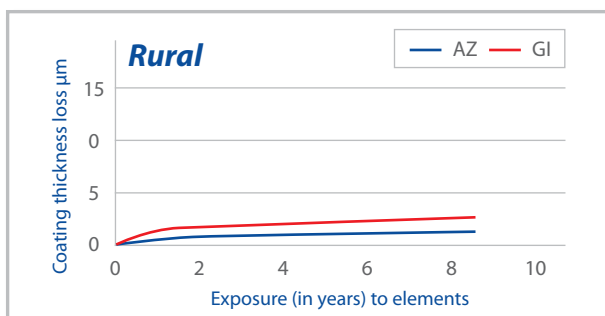
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### Product Comparison Continued

AZ Coating	GI Coating
<b>Superior corrosion resistance:</b> Aluminium offers barrier protection Zinc offers sacrificial protection *AZ150 after 240 hours of salt spray testing - no signs of deterioration	<b>Medium corrosion resistance:</b> Zinc offers sacrificial protection *Z275 after 240 hours of salt spray testing - signs of red dust appear
<b>Excellent heat reflectivity:</b> <i>Roofing applications:</i> creates a cooler internal temperature in summer and a warmer temperature in winter due to reflection <i>Appliance application:</i> AZ increases the appliance's efficiency therefore lower energy consumption	<b>Moderate heat reflectivity:</b> Due to low reflection values the heat loss is greater creating a hotter internal temperature in summer and a colder temperature in winter.
<b>Heat Resistance:</b> AZ can reach temperatures up to 675°C Product can be used up to 315°C before discolouration	<b>Heat Resistance:</b> GI can reach temperatures up to 480°C Product can be used up to 400°C before discolouration
Superior cut edge protection	Superior cut edge protection
Superior formability	Superior formability
Superior weld ability: generates less zinc fumes	Medium weld ability
Small, uniform unique spangle 	Medium/large irregular spangle 
Silver, white in colour	Silver, grey in colour
Matte finish	Shiny, bright finish

### Life expectancy of AZ Technology vs. GI Technology in relative environments



Graphs replicated from BIEC International Inc.

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