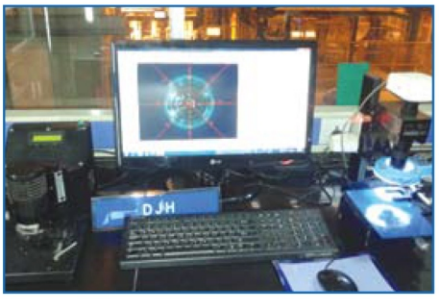
Zincalume®

Colorbond®



Assured Performance

Outdoor Exposure Test & Laboratory Test

TATA BLUESCOPE STEEL

Tata BlueScope Steel is an equal joint venture between Tata Steel and BlueScope Steel, Australia. The company's manufacturing facility at Jamshedpur, Jharkhand (India) is accredited with ISO 9001, ISO 14001 and OHSAS 18001 certifications - a testimony to its quality and performance. Our ZINCALUME® steel complies with requirements of AS 1397, ASTM A792M, ISO 9364, IS 15961 and COLOBROND® steel complies with requirements of AS/NZS 2728, ASTM A755M/ IS 15965.

Our quality accreditions

At Tata BlueScope Steel, our products undergo inspection checks as well as numerous tests to evaluate their performance in different environments. They are subjected to not only laboratory tests but also tests in external environments to evaluate their performance.

For Quality Assurance, we follow:

A) Process Control

A well-equipped Chemical Analysis Room for checking & monitoring various process parameters and forming analysis of different bath composition for both Metal Coating Line (MCL) and Colour Coating Line (CCL) beside input raw material quality verification & check.

B) Online Inspection & Testing (MCL & CCL)

- On-line and offline visual surface inspection of the top as well as bottom side
- Dimension and shapes
- Sample collection for coating mass, coating adhesion, resin coating thickness, passivation coating and mechanical properties
- Colour match against the requirements, visually and spectrophotometer
- Gloss of painted surface
- Paint curing by solvent rub test
- Paint film hardness by Pencil Hardness test
- Paint coat flexibility by T bend test
- Paint coating thickness (DFT) by DJH machine
- Paint adhesion by cross hatch and reverse impact and reverse impact test.

Titration Apparatus

Electronic Balance

Horizontal Inspection Station

C) Outdoor Exposure Evaluation

We carry out real world testing as well as accelerated lab tests. We have our own outdoor testing sites at three locations (i.e. Delhi-Urban, Ratnagiri-Coastal, Jamshedpur-Industrial) in India for testing coating mass, loss of metallic coated steel and paint performance of colour coated steel to check for colour change, gloss and chalking, degree of blistering, undercutting and coating adhesion.

Outdoor Exposure Site - Ambolgad, Ratnagiri, India (Marine)

Outdoor Exposure Site - Jamshedpur, India (Industrial)

Outdoor Exposure Site - New Delhi, India (Urban)

D) Certification – Fully Equipped Laboratory for testing Metallic & Color Coated Steel Products

1. Tensile Testing (UTS, YS & % E)

2. Base Steel Hardness

3. Resin Thickness Measurement
(INFRARED FILTOMETER)

4. Surface Chrome (Passivation) Measurement
(PORTASPEC)

5. Lock Seam
– Coating Adhesion & Flexibility

6. Microscopic Examination
(STEREO MICROSCOPE)

7. Dry Film Thickness (DJH)

8. Visual Colour Match

9. Machine Colour Match
(Datacolor Spectrophotometer)

10. Paint Film Hardness
(Pencil Hardness Tester)

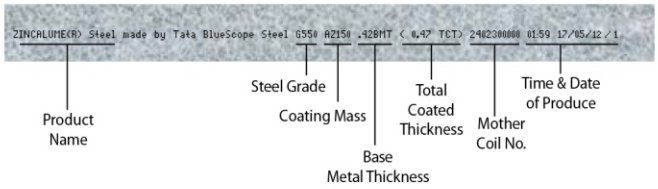
11. Corrosion Resistance
(Q-Fog Salt Spray Tester)

12. Colour Fading
(Q-UV Tester)

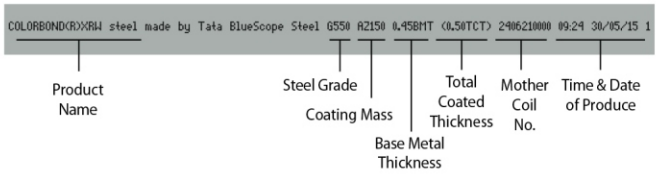
13. Roughness Tester, 14. Gloss Meter, 15. Solvent Rub Tester, 16. Laboratory Oven, 17. Cross Hatch, 18. Ford Cup, 19. Scratch Resistance Tester

E) Genuine Product:

ZINCALUME® steel and COLORBOND® steel are trusted for good quality and value. Our products have a brandmark on the reverse side for easy identification at factory / project sites.



Brandmark on the reverse of ZINCALUME® steel



Brandmark on the backer coat of COLORBOND® steel

F) Performance Warranty:

COLORBOND® steel is backed by a Tata BlueScope Steel Warranty*. With up to four times the lifespan of conventional pre-painted galvanised steel, you can be confident that COLORBOND® steel will keep your next project, and your reputation, looking good for years to come.

*Subject to terms and conditions

Zincalume®

7 Good Reasons

to believe in ZINCALUME® steel for
Roof & Wall Cladding Application

TATA BLUESCOPE STEEL

Zincalume®

ZINCALUME® steel is one of the world's leading Al-Zn alloy coated steel ideal for roofing, wall cladding and manufacturing alternate applications. Metallic coating of ZINCALUME® steel combines the corrosion protection of aluminium with sacrificial protection of zinc that enhances corrosion resistance. It gives significantly longer service life than the galvanized coating.

Our quality accreditions

7 Reasons To Believe So:

1 State-of-the-art Manufacturing Facility

ZINCALUME® steel is one of the world's leading 55% Al-Zn alloy coated steel product, manufactured at Jamshedpur facility with plant capacity of 250,000 tpa. The facility is accredited with ISO9001, ISO14001, OHSAS 18001 certifications- a testimony to its quality and performance. Consistent and superior performance is achieved through the highest degree of automation, process control, an online inspection & testing facility- supported with well-equipped laboratory. Our coating mass control technology is amongst the most advanced in the wold. A sophisticated coating mass gauge is linked to a computer in a closed loop control system ensuring accurate control and consistency of coating mass. The consistency in mechanical properties is achieved through precise control in input steel chemistry and in-process parameters.

ZINCALUME® steel has 150 g/m^2 or 200 g/m^2 metallic coating distributed equally on both surfaces. It is available in Base Metal Thickness (BMT) ranging between 0.30mm to 1.30 mm and coil widths of 900 to 1250 mm.

It is offered with yield strength of minimum 300 MPa to minimum 550 MPa depending on the application. ZINCALUME® steel complies with AS1397, ASTM A792M, IS 15961 and ISO 9364 standards.

Metallic Coating Line

Molten Bath - Coating Control Systems

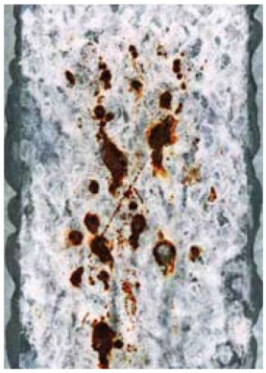
Jamshedpur Manufacturing Facility

2 Decades of Proven Performance

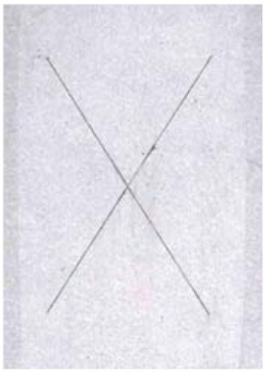
The performance of ZINCLAUME® steel has been rigorously tested at various climatic conditions. Actual performance is known to be better in real world exposure tests than laboratory tests. In fact, for over three decades BlueScope steel (JV partner) company has monitored the product performance across a wide range of climatic conditions using exposure test sites and infield inspections. There are more than thousands of test samples undergoing exposure tests at many test sites in Australia, New Zealand, Asia and now in India (that are more than 2 year old sites).

Tests have demonstrated that corrosion protection of ZINCLAUME® steel can last up to four times longer than corrosion protection provided by traditional Zinc coated steel with similar coating thickness in roofing and wall cladding applications in similar environments conditions.

Salt Spray Test



Galvanised steel
Z275 @ 240 hours
of salt spray testing.



ZINCALUME® steel
AZ150 @ 240 hours
of salt spray testing

ZINCALUME® steel
AZ150 @ 2000 hours
of salt spray testing

Outdoor Exposure Test

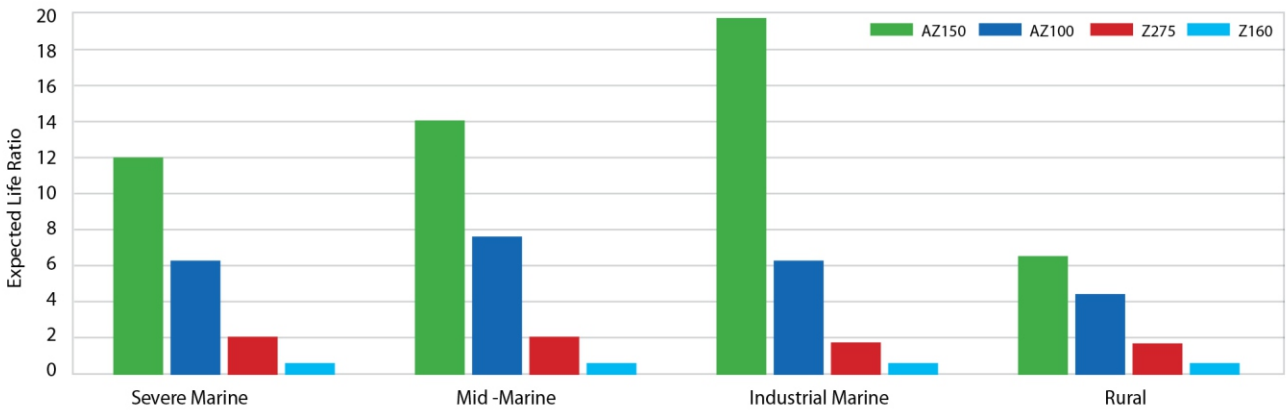
Exposure site : Bellambi Point
Australia (Marine)

3 A Significantly Longer Lifespan

Launched in 1976, ZINCALUME® steel, was developed after extensive research into improving the traditional performance of galvanised steel. By blending 55% Aluminium with 43.4% zinc & 1.6% Si in an alloy coating, greatly enhance corrosion resistance. As a result, our extensive testing programme indicates that life span of ZINCALUME® steel's with AZ150 is up to four times that of ordinary galvanized steel (Z275) in similar environmental conditions. **ZINCALUME® steel add Extra Life to your Buildings as compared to Z275, Z160 & AZ100.**

Resistance to Atmospheric Corrosion

Expected Life Ratio Comparison of ZINCALUME® AZ150 steel, AZ100 55% Al-Zn Alloy coated steel, Z275 galvanised steel and Z160 galvanised steel



A comparison across various environments highlights -

- ZINCALUME® AZ150 steel has at least 8 times the life of Z160 galvanised steel
- ZINCALUME® AZ150 steel has at least 4 times the life of Z275 galvanised steel
- ZINCALUME® AZ150 steel has at least 2 times the life of AZ100-Al Zn Alloy coated steel (50% increase in coating but 100% increase in life)

4 Anti- Darkening Property helps Aesthetics

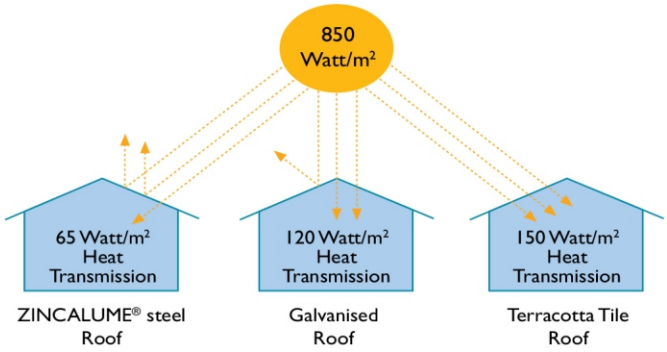
ZINCALUME® steel is manufactured using proven technology and durable surface treatment (coated with special passivation and resin as a separate layer). Excellent long-term exposure performance (rigorously tested in demanding conditions) and thermal reflectivity ensures that your roof and wall cladding looks newer for a longer period of time.

ZINCALUME® steel roof looks newer for longer

Ordinary 55% Al-Zn Alloy coated steel roof shows general and differential darkening over time

5 Cool Comfort over Conventional Roofs

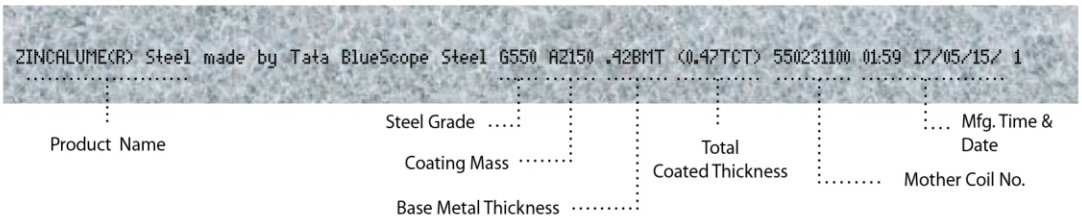
ZINCALUME® steel and galvanised steel perform equally, when new. But as the products weather, the thermal performance of ZINCALUME® steel is far more superior than that of identically weathered galvanised steel. When compared with fibre cement or asbestos, research has revealed an even more comprehensive performance of ZINCALUME® steel from the very first day of roof installation as ZINCALUME® steel is much more effective in keeping the heat out and offering greater thermal comfort in a new building. (SRI Value-57).



Based on a weather-worn roof where the level of reflectivity had stabilised and which were exposed to solar radiation of 850 W/m²

6 Genuine Product

ZINCALUME® steel is supplied with a brand mark at regular intervals on one reverse of the strip. This assures highest quality, backed by the team of qualified, experienced personnel at Tata BlueScope Steel.



Brandmark on the reverse of ZINCALUME® steel

7 Peace of Mind

When you specify ZINCALUME® steel from Tata BlueScope Steel you can be rest assured that required support is just around the corner. Our team of Technical experts ensure constant support for the correct use and maintenance of our products. ZINCALUME® steel is also backed by a Tata BlueScope Steel Warranty*. With up to four times the lifespan of ordinary galvanised steel, you can be confident that ZINCALUME® steel provides peace of mind for years to come.

*Subject to terms and conditions

Valpoi Bus Stand, Goa

Zincalume®

Unique Roof Private Limited, Tamil Nadu

Durability

Cool Comfort

Assured Performance

A surety of Genuineness

Environment Friendly

Zincalume®

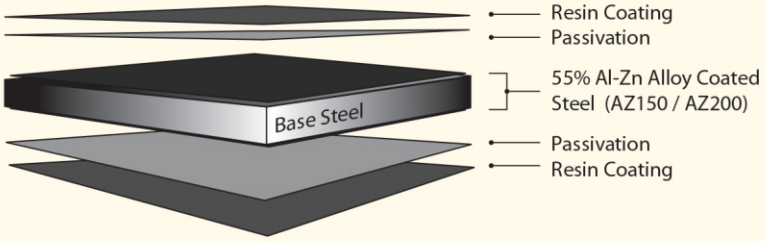
Outstanding Performance since 40 years

in Roof and Wall Cladding Application

TATA BLUESCOPE STEEL

Zincalume®

Launched in 1976, ZINCALUME® steel, the world's leading 55% Al-Zn alloy coated steel product (55% Aluminium, 43.4% Zinc and 1.6% Silicon), is an outcome of extensive research and continues to set standards for corrosion resistance and long life. It has been proven to stand the test of time as it is designed to withstand the rigors of various climatic conditions. In fact, for two decades the product's performance has been monitored across a wide range of climatic conditions using exposure test sites and infield inspections.



Cross Section View of ZINCALUME® steel

ZINCALUME® steel has 150 g/m² or 200 g/m² metallic coating distributed equally on both surfaces. It is available in Base Metal Thickness (BMT) ranging between 0.30mm to 1.30mm and coil widths of 900 to 1250 mm.

It is offered with yield strength of minimum 300 MPa to minimum 550 MPa depending on the application. ZINCALUME® steel complies with AS1397, ASTM A792M, IS 15961 and ISO 9364 standards.

Durability

Remarkable Corrosion Resistance

ZINCALUME® steel combines both the galvanic protection of Zinc and barrier protection of Aluminium. The Zinc-rich region is locked in tiny pockets within the Aluminium-rich matrix (Figure 1).

The Aluminium in the coating complements the corrosion resistance process by providing barrier protection, reducing the rate of dissolution of the Zinc from the Zinc-rich areas of the alloy layer.

The Zinc-rich areas are important as they provide the product with galvanic protection. In service, galvanic action causes zinc compounds to automatically build up at cut edges and scratches by an electrolytic reaction when water or moisture is present. These slow the rate at which the surrounding coating is consumed around damaged areas. This effect is sometimes referred to as the "self-healing" property of coatings containing zinc. This has been tested by removing coating of similar thickness from ZINCALUME® steel and galvanized sheet down to the steel base, using scribe marks ranging from 0.40mm to 4.0mm in width. When exposed to the atmosphere, the differences in the samples are slight, particularly at the thinner scribe marks (Figure 2). At the cut edge, ZINCALUME® steel provides similar protection to galvanised coatings.

The adjacent pockets of the Zinc-rich phase, which are in electrical contact with the steel, provide continual galvanic protection. Thus, steel at any point is not readily available for corrosion.

On an average ZINCALUME® steel (AZ150) lasts up to four times longer than Galvanised steel (Z275) in similar environmental conditions. (Figure 3)

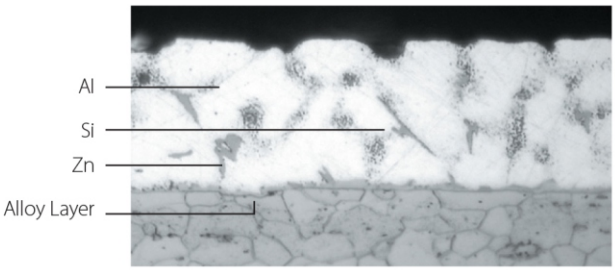
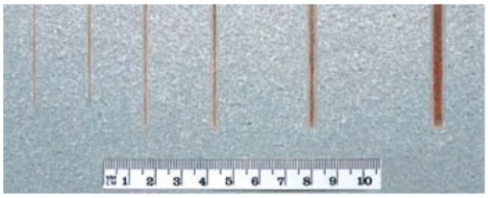


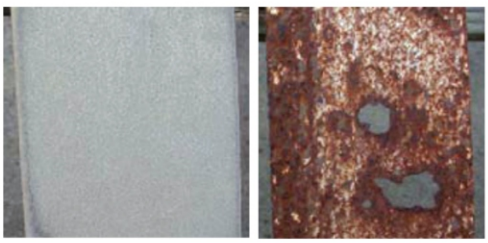
Fig. 1: Microstructure Cross Section of ZINCALUME® steel

Galvanised steel (GI) Z275



ZINCALUME® steel AZ150

Fig. 2: Cut Edge Performance of GI & ZINCALUME® steel



ZINCALUME® steel AZ150: Galvanised steel Z300:

Fig. 3: Outdoor Exposure Performance: 21 years of exposure at severe marine test site

Valpoi Bus Stand, Goa

Assured Performance

Advanced Manufacturing

Tata BlueScope Steel assures consistent and superior performance with the highest degree of automation, process control, an online inspection & testing facility and a well-equipped laboratory. The uniform metallic coatings on top and bottom are achieved with modern coating control system and routine testing during production. The consistency in mechanical properties is achieved through precise control in input steel chemistry and in-process parameters.

Exceptional Design Flexibility

ZINCALUME® steel offers designers the unique combination of value for money and incredible design flexibility. Whether its the project that is being created for a purely functional application or for leading edge design, ZINCALUME® steel makes it easier to create an enduring design– for roofing and walling, framing structures and manufacturing articles.

ZINCALUME® steel can be readily spot-welded, using conditions similar to those for zinc-coated steel, easy to paint with water based acrylic top coat, easy to handle, store and install. You can use ZINCALUME® steel with confidence.

Long Lasting Aesthetics

A uniform smaller sized spangle covers both sides of the ZINCALUME® steel sheet improve aesthetics of building. It is manufactured using proven technology and durable surface treatment (coated with special passivation and resin system). Excellent long term exposure performance and thermal reflectivity ensures the roof and wall cladding looks newer for a longer period of time.

Excellent Mark Resistance

The resin coating on ZINCALUME® steel provides excellent mark-resistant qualities. For the rollformer, roof fixer, builder or manufacturer, marks from sweaty hands or moisture are no more a concern. Boot and scuff marks are virtually eliminated. The result? A better looking product for the consumer.

Tensile Testing (UTS, YS & % E)

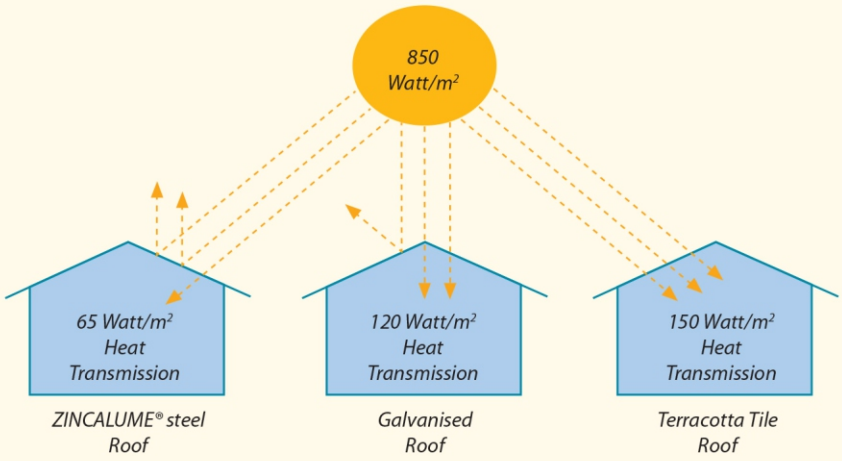
Salt Spray Corrosion Resistance Testing

Outdoor Exposure Site - Jamshedpur, India (Industrial)

Cool Comfort

Greater Thermal Comfort

ZINCALUME® steel has a lower thermal mass as compared to conventional building materials, so it does not hold heat for long. The primary source of heat is sunlight. The fine spangle and special surface treatment of ZINCALUME® steel (with SRI value 57) enables it to reflect a greater portion of the sunlight and transmit less energy into the building.



Based on a weather-worn roof where the level of reflectivity had stabilised and which were exposed to solar radiation of 850 W/m²

A Surety of Genuineness

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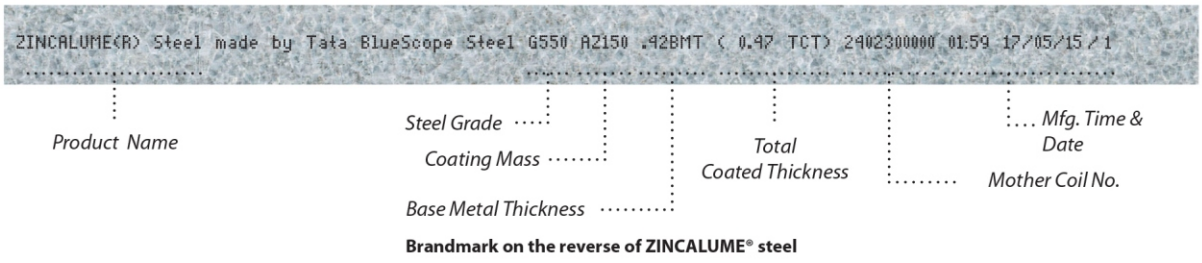

Brandmark on the reverse of ZINCALUME® steel

Environment Friendly Credentials

From an environmental point of view steel is one of the great performers. Steel is 100% recyclable - which means its life cycle is potentially continuous. ZINCALUME® steel comes with several environment friendly credentials. No welding or wastage during construction; hence no damage to local flora and fauna. Also being coated steel, it has all three benefits of Reuse, Recycle & Reduce.

Peace of Mind

ZINCALUME® steel is also backed by a Tata BlueScope Steel Warranty*. With up to four times the lifespan of ordinary galvanised steel, you can be confident that ZINCALUME® steel provides peace of mind for years to come.

*Subject to terms and conditions