SANJIU Standard cooling towers apply the latest type of Highly Corrossion-resistant coated steel sheet with a coating composition consisiting of zinc as the main substrate, in combination with Al(11%), Mg(3%), and a trace amount of silicon.This special material is named as 'SuperDyma' by Nippon Steel.



EXCEPTIONAL RUST RESISTANT

Corrosion Resistance of Flat Surfaces

Conventional hot-dip Zn-coated steel sheets also produce a protective film. However, this film is rough in texture, allowing the penetration of moisture and oxygen and a resultant growth of corrosion.

By contrast, the dense protective film formed on the surface of SuperDyma arrests the corrosion process and stabilizes corrosion behavior

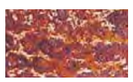
Corrosion Resistance of Flat Surfaces (Salt Spray Tests)

Test time	Before test	500 hours	1,000 hours	2,000 hours
SuperDyma Thickness: 3.2 mm Coating mass symbol: K12 Special chromate treatment				

Specime	Type of coating	Coating mass	Surface treatment	Thickness
Hot-dip Zn-coated sheet	Zn	Z27	Special chromate treatment	1.6mm
SuperDyma	−3%Mg−0.2%Si Zn−11%Al	K18		
Galvalume Steel Sheet	Zn−55%Al	AZ150		

Test conditions:
Cyclic corrosion test (JASO M609-91 method)
Repetition of ① to ③ as a cycle
① Salt spray: 2 hours (5% NaCl, 35℃)
② Drying: 4 hours (60℃)
③ Wetting: 2 hours (50℃, humidity 95% or more)

Corrosion Resistance of Flat Surfaces (Results of JASO)

	90 cycles	180 cycles
Hot-dip Zn-coated sheet		
SuperDyma		
Galvalume Steel Sheet		

- Not only highly rust resistant on flat surfaces;
- But also superiorly corrosion proof on cut-end surfaces, self 'recovered'.
- In additional, of extremely high alkaline resistance.

The corrosion resistance of this innovative alloy coated steel is enhanced by the composite effect of adding aluminum, magnesium and silicon to the conventional zinc coating. Silicon, among other elements, is highly effective in inhibiting corrosion when combined with Magnesium.

Corrosion Resistance at Cut-end Surfaces (Results of Salt Spray Tests)

Specimen conditions Thickness: 3.2 mm Surface treatment: No treatment	Hot-dip Zn-coated sheet Coating mass: 100 g/m²/side	SuperDyma Coating mass: 90 g/m²/side	Galvalume Steel Sheet (Laboratory trial-made sample) Coating mass: 90 g/m²/side
Salt spray test: 500 hours			

Corrosion Resistance at Cut-end Surfaces

Results of Outdoor Exposure Tests

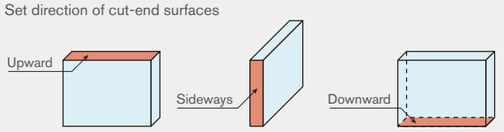
- In the actual exposure environment outdoors, a slight degree of initial red rust occurs on cut-end surfaces, but, after a while, a stable protective film covers the cut-end surface, thus virtually arresting further progress of corrosion in the long run.
- Red rust which occurs in the initial phase is arrested in progress, with time, by the effect of the protective film and, soon entirely covered by the film, becomes quite inconspicuous.

Corrosion Resistance at Cut-end Surfaces: Middle an d Latter Periods
(Results of Outdoor Exposure Tests)

Specimen conditions
SuperDyma
Thickness: 3.2 mm
Coating mass: 90g/m² /side (K18)
Surface treatment: No treatment

Exposure site: Nippon Steel & Sumitomo Metal's weathering site at Futtsu

Set direction of cut-end surfaces



Corrosion Resistance at Cut-end Surfaces: Initial Period

Specimen conditions
SuperDyma
Thickness: 3.2mm
Coating mass symbol: K27
Surface treatment: Special chromate treatment (Y treatment)
Exposure site: Urayasu Plant of KANEYASU Co.

	Downward
Original	
7 days	
14 days	
1 month	
2 month	
3 month	

	Upward	Sideways (The left is the underside in the photo)	Downward
8 months			
20 months			

Superior Raw Materials, Advanced Tech Design, Precise Fabricating Equipments, All These Created Reliable Cooling Towers of SANJIU!