

THIS OR THAT?



OR



DUROTUFF POLYSHINE APC STEEL

- Corrosion Resistance
- Weatherability
- Fire-proof
- Color Stable

APC

About POLYSHINE APC Steel

What is APC STEEL?

POLYSHINE[®] APC Steel is pretreated steel coated by Advance Polymer Resin layer on both sides via a unique pressing process at high temperature.

POLYSHINE[®] APC Steel combines both the advantages of steel and resin, is an innovative material for building systems, providing long service life with high resistance to corrosion, climate and mechanical damage.



Technical Data Sheet

Properties	Results	Test Methods
Resistance to Color Change 15000h Accelerated Aging Test	Delta E=2.23	ISO 105 Bo2 : 2014
Adhesion	Grade A3	GB/T 18847-2002
Bending	No fissure, flaw, peeling	GB/T 18847-2002
Low Temperature Processing	No fissure, flaw, peeling	GB/T 18847-2002
Resistance to Heat Soaked in boiling water	No fissure, flaw, peeling	ASTM G 155 : 2021
Resistance to Dirt Mark Pen and Kerosene	No dirt, color change or fading	ASTM G 155 : 2021
Resistance to Corrosion Exposure 1000h	No rusting	ASTM G 155 : 2021
Self-extinguishment	Flame extinguish at 1"780"	GB/T 18847-2002
Resistance to Impact Cupping Test	Maximum depression depth 11.1mm	GB/T 9753-2007
Resistance to Fire	A2	GB 8624-2012
Resistance to Acid 20%H ₂ SO ₄ , 15%HCl, 20%H ₃ PO ₄ , 20%HF,20%HNO ₃ ,120h	No chalkiness, corrosion,blistering	ASTM D 543 : 2021
Resistance to Alkali 5% NaOH, Ammonia Water, Chlorine Water,120h	No chalkiness, corrosion,blistering	ASTM D 543 : 2021
Thermal Conductivity	0.601W/(m-K)	ISO 22007 Pt-2 : 2015
Frost Resistance 30 Free/thaw cycles,-30~+15	No significance change on color, no rusting, shedding or blistering	ISO 105 Bo2 : 2014

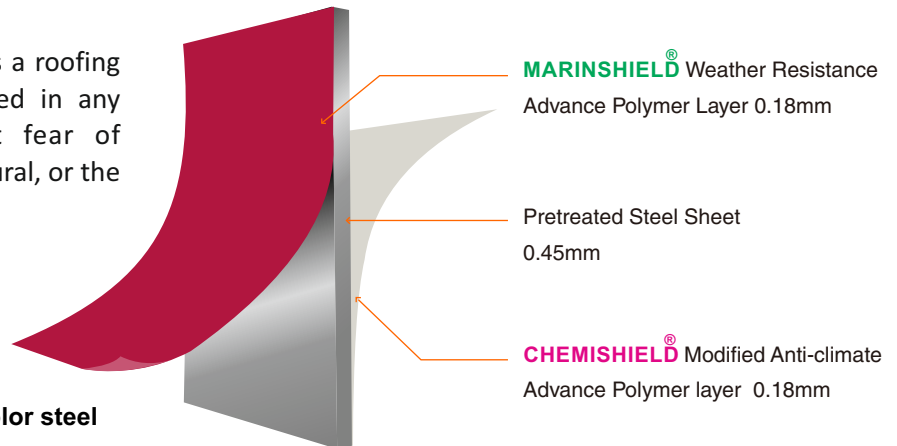
Applications

POLYSHINE[®] APC Steel is well applied in corrosive industries and coastal areas, serving chemical factory, electrolytic/electroplating plant, metallurgic plant, fertilizer storage, mining area, power station, printing and dyeing plant, waste plant, leather workshop, food and drug workshop, agricultural and breeding industries, etc.



Product Structure

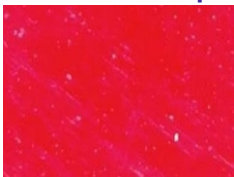
The result of this particular combination is a roofing or wall steel sheet, which can be applied in any environmental circumstances, without fear of chemical vapors, be it industrial or agricultural, or the most destructive of saline fog!



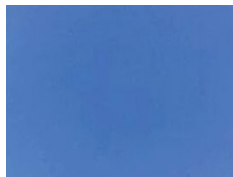
POLYSHINE[®] APC Steel VS Pre-painted Color steel

POLYSHINE[®] APC STEEL combines the advantages of high- resistance resin with strong steel plate, creating a revolutionary coated steel with MUCH HIGHER corrosion resistance than traditional colour coated steels.

Under microscope



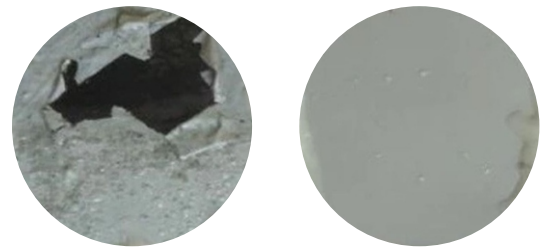
COLOUR COTED



POLYSHINE APC STEEL PANEL

*It shows that there are many microscope on surface of color coated steel (caused by volatilization). Corrosive will penetrate easily to substrate, which will reduce lifespan of the product. While the surface of POLYSHINE[®] APC Steel is very intact.

After soaked in 20% sulfuric acid for 22 hours



*Anti-corrosive POLYSHINE[®] APC Steel has no change on surface, while the coating color coated steel was seriously corroded and peeled off.

*Anti-corrosive POLYSHINE[®] APC Steel is definitely a Revolutionary product, Much More Durable than Repainted Color Steel!

Technical Parameters

Overall comparison of different roofing materials

Properties	FRP Sheet	PPGI/PPGL	Stainless Steel	Aluminium	POLYSHINE ACP Steel
Density (g/cm ³)	1.50	7.85	7.90	2.70	4.91
Thermal Conductivity W/mK	0.18	6.60	15.00	201.00	0.601
Liner Expansion (mm/mm/C)	2.6 X 10 ⁻⁵	1.25 X 10 ⁻⁵	1.10 X 10 ⁻⁵	2.35 X 10 ⁻⁵	1.25 X 10 ⁻⁵
Yield Strength (Mpa)	--	360 to 550	320 to 340	45	360 to 550
Tensile Strength (Mpa)	100	400 to 520	620 to 670	175	400 to 520
Elongation (%)	1.9	20 to 30	48	27	20 to 30
Anti Fire (Class)	B	A	A	A	A
Workable	N	Y	Y	Y	Y
Life time – Normal (Year)	10 -15	20	80 – 100	50	30
Life Time – Severe (Year)	10	10	20 – 30	20	20
Nominal Thickness (mm)	2.0	0.40 to 0.70	0.40 to 0.50	0.70	0.50 to 0.85
Rain Noise Reduction	Low because of Polymer	High	High	High	Low because of Polymer Layer

Improve the service life of the Metal Sheet:

The service life of the metal tile in the factory the coastal area is short, the chemical corrosion and the Stalinization are greatly affected, and the Advance Polymer Coating is increased to at least 10-15 years.

[Salt Spray Test]





Galvanized Steel



GI coated with **MARINSHIELD**[®]
Weather Resistance Advance Polymer layer

Environmental protection:

A large number of pollutants are produced in the process of painting production by colour steel Sheet, and there is no waste gas and wastewater in the coating process of color steel tiles, which is completely environmental protection. The product is also a pollution-free environmental protection product.

	
<p>Every spraying repair in the application of colour coated steel sheet pollutes the environment seriously</p>	<p>MARINSHIELD Weather Resistance Advance Polymer layer has the effect of anti-static and self cleaning like lotus leaf, and keeps bright for a long time.</p>

Features

Corrosion Resistance

96hrs
Continuous soaking

Corrosion resistance is the main advantage of **POLYSHINE**[®] APC Steel Compared with PPGI or PPGL products. **POLYSHINE**[®] APC Steel is well Protected by **MARINSHIELD**[®] Advance engineering Polymer resin Layer from outside corrosions and damage. And **CHEMISHIELD**[®] Advance Polymer resin layer from inside (bottom side) Corrosion and damage.

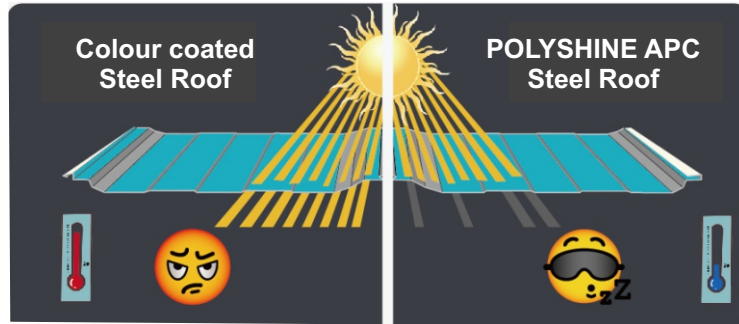
We did comparative test at Power Chem Plast Ltd Laboratory after 96Hrs.

Solution	AFTER 96 Hours	
	Performances in 96 hrs.	
	POLYSHINE APC STEEL	COLOUR COATED STEED
10 % H ₂ O ₂ (Hydrogen Peroxide)	No change	Paint peeled off after 65hrs
20 % H ₃ PO ₄ (Phosphoric Acid)	No change	Fell after 41hrs Disappeared after 63hrs
20 % NaOH (Sodium Hydroxide)	No change	Paint peeled off after 15hrs
20 % H ₂ SO ₄ (Sulfuric Acid)	No change	Fell after 18hrs Disappeared after 52hrs
20 % HCL (Hydrochloric Acid)	No change	Fell after 15hrs Disappeared after 58hrs
20 % NH ₃ H ₂ O (Ammonium Hydroxide)	No change	No Change
10% NaClO (Sodium Hypochlorite)	Slight Red Rust appeared after 70 Hrs	Heavy Red Rust appeared after 67 Hrs

This test approves that **POLYSHINE** APC steel is suitable for most of the corrosive environments and has much better performance than color coated steel in these applications.

Heat Insulation Comparison:

Under the same condition the thermal conductivity of **POLYSHINE**[®] APC Steel is 0.601 (w/m.k) and Colour coated PPGI/PPGL is 6.598 (w/m.k). **POLYSHINE**[®] APC Steel is one tenth of PPGI / PPGL .



Corrosion-prone Area:

PEB Metal Building in most corrosion-prone Area like Chemical Zone, Costal Area, Salty costal area, industries like Chemical, Metal Processing, Smelting, Sugar, Salt etc.

Build with Colour Coated Steel Sheet



Build with **POLYSHINE**[®] APC Steel Sheet



Standard Colors



Raspberry Red 3027



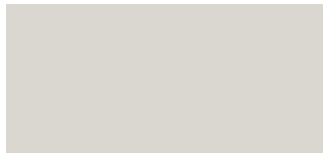
Mohogany Brown 8016



Moss Green 6005



Light Blue 5012



Gray White 9002

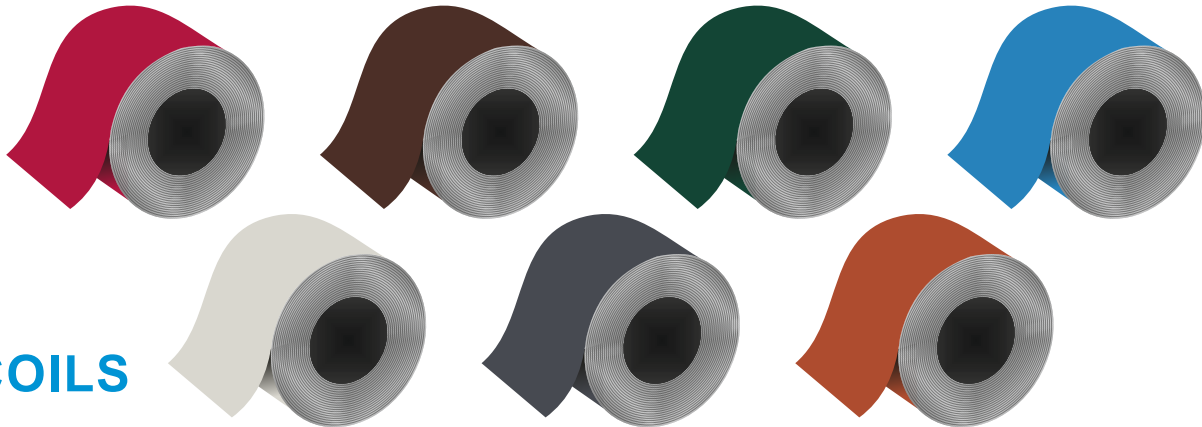


Graphite Grey 7024



Terracotta Orange 2001

This colour shed Only for reference, please contact us for sample to confirm the colour.



COILS

Thickness	Weight	Qty/ton	Qty/coil	Qty/20FCL	MOQ
0.81mm	5.00 kg/ m ²	200 m ²	600 m ² (3 tons)	4200 m ² (21 tons)	3 tons

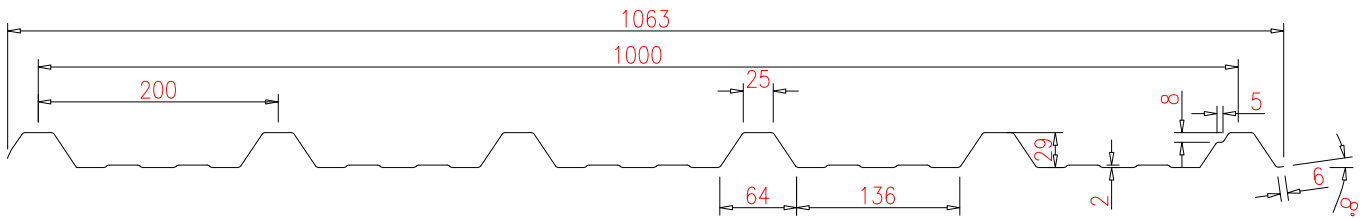
All loading quantity in this catalogue is based on 21tons net weight only for reference, the real loading quantity may be different for different order.

Product Specication

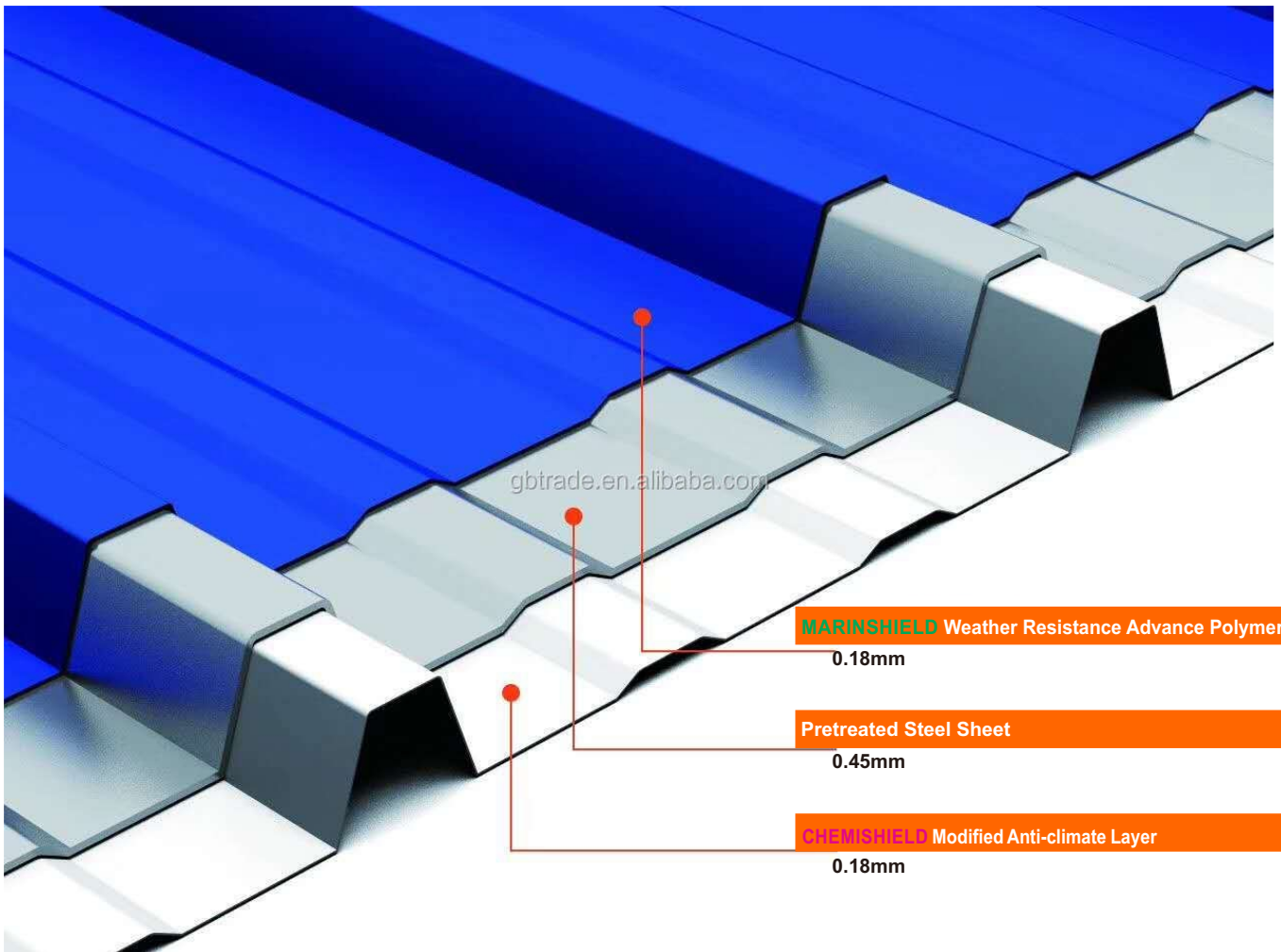
Coil Width	1220 mm			
Thickness	Substrate Metal	Top layer	Bottom layer	Total thickness
	0.45mm	0.18mm	0.18mm	0.81mm
Application	Roofing, Wall			

Tolerance on total thickness: $\pm 0.05\text{mm}$

Profiled Sheets



Layer	Material	Thickness	Application	Colour
Surface	MARINSHIELD® Weather Resistance Advance Polymer	100 µ To 180 µ	Exterior	Raspberry Red 3027 Mohogany Brown 8016 Moss Green 6005 Light Blue 5012 Gray White 9002 Graphite Grey 7024 Terracotta Orange 2001
	CHEMISHIELD® Modified Anti-climate Advance Polymer	100 µ To 180 µ	Interior	Blue White
Base	GI Galvinium Aluminium	0.30 mm To 0.60mm	Substrate	Natural



We did a test of **POLYSHINE[®]** APC Steel Sheet at **SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH** Laboratory for 24 Hours continuously. Below is the test condition.

SR. NO.	TEST	RESULT	Method/ Protocol/ Instrument used
1	Chemical Resistance (For 24 Hours)	No Visual Change Observed	ASTM D543 : 2021
	A 10 % (Mass Fraction) HCL	No Visual Change Observed	ASTM D 543 : 2021
	B 10 % (Mass Fraction) Ca(OH) ₂ Stability	No Visual Change Observed	ASTM D 543 : 2021
	C 10% (Mass Fraction) NaOH	No Visual Change Observed	ASTM D 543 : 2021
	D 10 % (Mass Fraction) H ₂ SO ₄ Chemical	No Visual Change Observed	ASTM D 543 : 2021
	E 20 % (Mass Fraction) H ₂ SO ₄	No Visual Change Observed	ASTM D 543 : 2021
	F 15% (Mass Fraction) HCL	No Visual Change Observed	ASTM D 543 : 2021
	G 20% (Mass Fraction) H ₃ PO ₄ Resistance	No Visual Change Observed	ASTM D 543 : 2021
	H 5% (Mass Fraction) NaOH	No Visual Change Observed	ASTM D 543 : 2021
	I 20% (Mass Fraction) HF Properties	No Visual Change Observed	ASTM D 543 : 2021
	J 20% (Mass Fraction) HNO ₃	Slight Colour Change	ASTM D 543 : 2021
	K Ammonia	No Visual Change Observed	ASTM D 543 : 2021
	L Chlorine	No Visual Change Observed	ASTM D 543 : 2021
2	Colour Fastness Xenon Arc Exposure for 500 hours (Exposure Cycle A1) Change in Colour using Grey scale	Better than 4	ISO 105 B02 : 2014
3	Thermal Conductivity, W/mK at Room Temperature (27 ±2°C)	0.4423	ISO 22007 : 2015
4	<u>Weathering Test</u> Exposure Conditions: Duration: 250 Hrs Lamp: UVA Wave Length: 340 nm Irradiance: 0.35 W/m ² .nm 102 minute light at 63°C Black Panel Temperature 18 min light and water spray (air temperature not controlled)	No kind of detachment, cracks bubbles or similar effect was occur during the applied state	ASTM G 155 : 2021

HCL : Hydrochloric acid

Ca(OH)₂ : Calcium hydroxide

NaOH : Sodium hydroxide

H₂SO₄ : Sulfuric acid

H₃PO₄ : Phosphoric acid

HF : Hydrogen fluoride

HNO : Nitroxyl

Key Features of POLYSHINE[®] APC STEEL



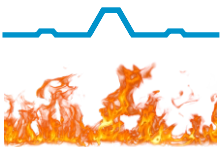
Corrosion Resistant

APC Metal Sheets is Coated With Advance Polymer on Top and Bottom, it is Stable when exposed to chemical agents such as industrial emission, fog, salt, acids, alkali etc.



Colour Stable

The Advance polymer on Top Surface is excellent UV resistant material, Anti-aging and make colour stable.



Fire Proof

Difficult to burn, the fire proof level can reach Grade A and meet the common safety requirements in most areas.



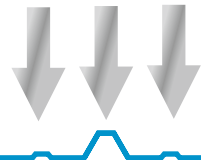
Cooling Effect

With the infrared ray reflection technology on the surface Advance Polymer layer, it can reflect over 30% of infrared ray.



Electricity Isolation

The Advance Polymer on top and bottom surface protect the product from electricity conduction, make the house safe in thunderstorm weather.



Excellent mechanical Properties

APC Metal Sheets has the same mechanical property with the Galvanized and Aluminum sheet.



Excellent impact resistance and load Bearing Performance.

High-quality raw materials for roof construction of commercial and industrial buildings.



Environmental Friendly

The Advance Polymer material and Steel are 100% recyclable and no Harm to the environment.



Light Weight and easy installation

it's light and easy to handle, means faster installation and save time and money.



Customized Shape

Customer can buy the Roll and make his own shape; this brings more options to customer.

CERTIFICATE OF REGISTRATION

This is to certify that the management system of:

Power Chem Plast Limited - Unit-II (Formerly Power Drugs Limited)

Main Site: Hadbast No. 216, Village Kunjhal, P.O. Barotiwala,
Tehsil Baddi, Distt. Solan - 173205, Himachal Pradesh, India

has been registered by Intertek as conforming to the requirements of:

ISO 9001:2015

The management system is applicable to:

Manufacture and Marketing of Polycarbonate Sheets, Tubes and
polymers coated metallic sheets.

Certificate Number:

0058196

Initial Certification Date:

22 January 2020

Date of Certification Decision:

09 January 2023

Issuing Date:

09 January 2023

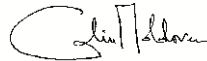
Valid Until:

10 January 2026



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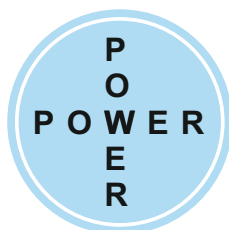
President, Business Assurance

Intertek Certification Limited, 10A Victory Park,
Victory Road, Derby DE24 8ZF, United Kingdom

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(An ISO 9001:2015 Certified Co.)

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