

AnCatt

SUPERIOR PERFORMANCES
WITHOUT HEAVY-METALS

iBarrier[®] Coatings

The World's Best Anti-Corrosion Coatings

CoatingsPro[™]
MAGAZINE
HIGH-PERFORMANCE COATINGS INDUSTRY

AnCatt's
Environmentally

-friendly anti-corrosion
coating platform can provide
unprecedented corrosion protection
for all sorts of metals

A MUCH EASIER-TO-USE NEXT GENERATION METAL PAINT

Heavy-Metal Free (Green), Self-Sealing, Longer-Lasting
Third-Party Tested & Certified and National Awarded by



WWW.ANCATT.COM



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CORROSION IS COSTLY & DANGEROUS

Corrosion has long been seen as an unstoppable natural force, silent but powerful. Corrosion had always been able to break down the protective barriers engineered by mankind. The persistent battle between human civilization and corrosion intensified in the modern era. The insidious and pervasive effects of corrosion have now reached the point where it is a major cost to our economy and quality of life, impacts climate, and it limits technology advancement.

Direct corrosion accounts for 3-5% of a country's GDP worldwide, or trillions of dollars annually. Corrosion affects nearly every U.S. industry. Current technologies use heavy metals to provide heavy-duty corrosion protection with hexavalent chromate being the most effective but also highly toxic and carcinogenic; regulations are tightening. Zinc is the market standard environmentally compliant chromate alternative. However, zinc is not as effective in severely corrosive environments and cannot protect aluminum, a major aerospace material. At the current level of usage, the known zinc reserves faces depletion after 2027 and over 50% of zinc consumption is used for corrosion protection. Furthermore, even the best anti-corrosion coating won't last in severely corrosive environments such as marine, which requires the costly scratch-off and repainting of exposed metal structures every 5-years or less.

Since 1981, conductive polymers have been regarded as an exciting environmentally friendly alternative to chromates. After 39-years of worldwide intense research, there is still no such product on the market due to technical difficulties. AnCatt technology is the first such success and also the first heavy metal-free (GREEN) heavy-duty anti-corrosion coating ever. Surprisingly, it is also the first SUPER-DUTY anti-corrosion coating, which opens a new era.

AnCatt

Amazing Nano and Coating



The First of Its Kind

- ◆ 1st success of conductive polymer based anti-corrosion coatings
- ◆ 1st non-chromate coating that can outperform chromate coatings
- ◆ 1st heavy metal-free, heavy-duty anti-corrosion coating
- ◆ **World Record** anti-corrosion performance

- **Longer-Lasting:** World-Record 13,000 hours of salt fog testing (ASTM B 117) and still no rusting or blistering. Which is 6X the longevity of the best zinc-rich coating, which could only reach around 2,000 hours. The biggest improvement in anti-corrosion performance ever that stands out from competing technologies.
- **Excellent Adhesions:** Perfect Tape Adhesion of 5A, and average pull-off adhesion of 560 psi after 8,000 hours of salt fog exposure
- **Environmentally-Friendly:** No chromate, lead, or zinc
- **Self-Sealing:** Scratch and pinhole tolerant
- **Surface Tolerant:** No special surface preparation required
- **Cost Effective:** Does not contain fluoropolymers & thinner
- **Easy to Manufacture and Apply:** Uses traditional equipment
- **Protects All Kinds Of Metals:** e.g. aluminum, steel, copper, etc.
- **Broad Markets:** Marine, off-shore structures, aerospace, automotive, tanks, refineries, chemical/petroleum processing, pipelines, bridges, waste/water treatment, structural steel, etc.

AnCatt Miracle iBarrier® with Conductive Polymer Nano Dispersion (CPND) is the first heavy metal-free, heavy-duty anti-corrosion coating system. It has quieted doubts by bringing an unprecedented peace to the never-ending corrosion battle. It will surely transform the industries and lives affected by corrosion.


TechConnect
National Innovation Award



Fig 1: Salt Fog Test (ASTM B 117)

ID	Hours	Metal	Blistering	Rusting	Undercutting	Continuation
P1	13,740	Steel	10	10-	2-7	Stopped
P2	13,740	Steel	10	10-	1-9	Stopped
P3	12,740	Steel	10	10-	1-5	Stopped
P4	12,740	Steel	10	10-	3-6	Stopped
P5	8,372	Steel	10	10-	2 (avg.)	Scratched & Continued
P5	12,740	Steel	10	10-	1-4	Stopped
P6	8,372	Steel	10	10-	3 (avg.)	Scratched & Continued
P6	12,740	Steel	10	10-	1-4	Stopped
P7*	8,372	Steel	10	10-	3 (avg.)	Stopped
P8*	8,372	Steel	10	10-	3 (avg.)	Stopped
P9	10,740	Alum.	10	10-	0	Stopped

- Discoloration was founded on this panel * Photos available below

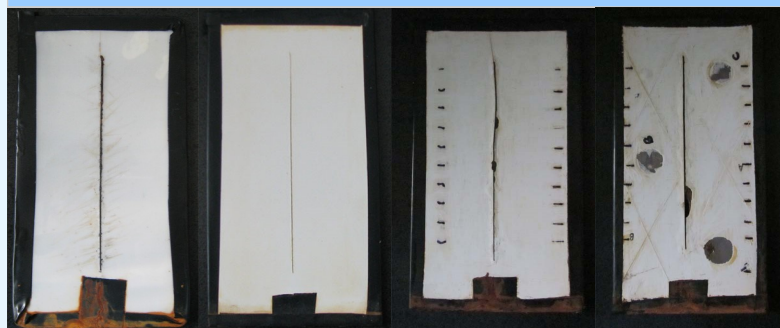
Fig 2: Adhesion by Tape Test (ASTM D 3359)

ID	Replicate 1	Replicate 2	Replicate 3	Avg. Adhesion
P8*	5A	5A	5A	5A

Fig 3: Pull-Off Adhesions (ASTM D 4541)

ID	Stub A	Stub B	Stub C	Avg. Adhesion
P8*	386.8	569.9	733.7	557.5

Fig 4: Photographs



Cold Roll Steel After 5,000 hrs Salt Fog

Aluminum After 6,500 hrs Cyc. Weathering

P7: Cold Roll Steel After 8,372 hrs Salt Fog

P8: Cold Roll Steel After 8,372 hrs Salt

All our corrosion tests were performed by the independent corrosion test laboratory KTA of Pittsburgh, PA, except for Prohesion tests, which were conducted in England.

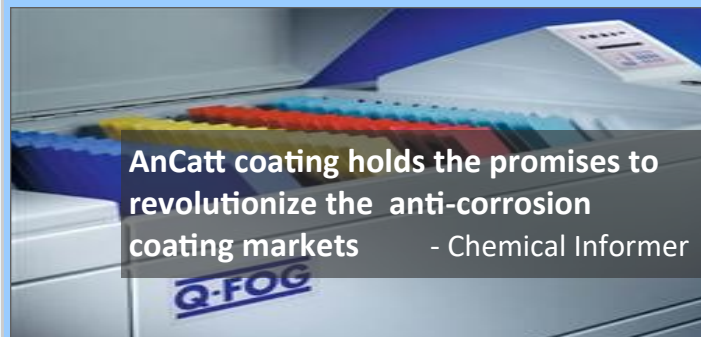
5,000 hours is the maximum corrosion test hour, according to the ASTM standard. When our coating reached 5,000 hours of salt fog testing (Fig 1 & Fig 4), the coating was still intact which had already been recognized by the experts as the best anti-corrosion coating performance ever seen, far surpassing the current standard of 2,000 to 3,000 hours. We insisted on extending the test to 13,000 hours and, surprisingly, both rusting and blistering maintained the best possible scores of 10. Given such impressive results, no further testing was deemed necessary. The full KTA report is available at <http://www.ancatt.com>.

After 8,000 hours of salt fog exposure, the panels were taken out for adhesion tests (Fig 4 –P8). Tape adhesion tests received the best possible score of 5A for each of the three replicates (see the three “X” marks). Pull-Off adhesion was on an average of 560 psi (see the three “O” marks).

The corrosion tests were performed according to ASTM international standards using **Q-Fog** Chambers and **Q-Panel** Standard substrates:

Steel: Type S (CRS SAE1008/1010;0.032" thick, ground finish);

Aluminum: Type A (Alloy 3003H14;0.025" thick; bare mill finish).



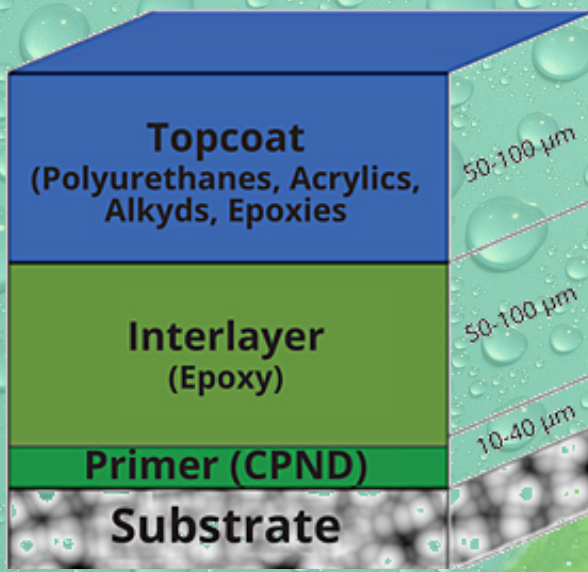
IBARRIER® COATINGS PROVIDE THE BEST PROTECTION AGAINST CORROSION



iBarrier® Coating Features



- ◆ Over 6X the durability of the best zinc-rich coatings
- ◆ Thinner coating film = Cost Reduction + Efficiency
- ◆ Heavy metal-free = Green & Easier to Apply
- ◆ Self-sealing = Smart & Reduce Maintenance
- ◆ Protects all kinds of metals = Broad Applications
- ◆ Surface tolerant = No Expansive Surface Preparation
- ◆ Applied with traditional methods = Easy Adaptation
- ◆ No switching cost = Easy Adaptation



A Traditional 2-3 layers Coating Structure

but could be much thinner, healthier, and easier to use without heavy-metals. It is compatible with most topcoat products on the market.

Technical Data Sheet (TDS)

Properties	Color	Solid Content	Thickness (µm/mil)	Coverage (g/m ²)	Surface Drying (hrs)	Drying (hrs)	Shelf Life (month)	Mixing Ratio
Primer	Light Blue	~40%	~20/0.97	100-180	0.5	4	24	1/0.65
Epoxy Layer	White/Ivory	~79%	~50/2.0	125-250	2	16	12	1/0.16
Polyurethane	Various	~83%	~50/2.0	120-240	3	16	12	1/0.15

- *Curing Temperature: room temperature or with slight heating to speed up the process*
- *Temperature Resistance: up to ~250°F / 120°C; high temperature varieties are under way*
- *Primer Coverage: ~400 ft² / Gallon, 10m² / Liter*
- *Epoxy & Polyurethane Coverage: ~200 ft² / Gallon, 5m² / Liter*
- *No Special Surface Preparation, but metal surface need to be clean: free of oil or loos rust, this could reduce application time and cost by half for certain applications*

Case Study: Verrazano Narrow's Bridge, NY/NJ

- ◆ Used high performance, lead-based paint
- ◆ Repainted every 9-10 years
- ◆ Last repaint job budgeted at \$40 million over 5 years (1998-2003)
- ◆ Painting requires lane closures and caused traffic congestion
- ◆ Used airtight enclosure work area and vacuumed hazardous lead-based paint chips
- ◆ A follow up 3-year clean and repaint job cost \$32 million (\$72 million total), complete in 2008, after 10 years
- ◆ The subsequent repaint job received the lowest bid of \$235 million in 2012, and began in summer 2013
- ◆ How much can a coating that lasts 6X longer save?



Interest Rate	0%	3.2%
60 Year Savings	\$1.4 Billion	\$4.5 Billion
Annual Savings	\$23 Million	\$75 Million

Product Lines (Customizable 2-3 layers)

- ◆ Wash Primer Systems (Primer + Inter & Topcoat)
- ◆ Epoxy Primer Systems (Primer + Inter & Topcoat)
- ◆ Waterborne Systems (Primer + Inter & Topcoat)
- ◆ Conductive Polymer Nano-Dispersion (CPND)

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Product Benefits

Dramatically extends the life of metals and reduces:

- ◆ Failures/Accidents
- ◆ Delays/Congestion
- ◆ Maintenance
- ◆ Waste and Energy Use
- ◆ Environmental Contamination



About The Company

AnCatt was co-founded by **Jay Wang** and **Sue Wang** after 16-years of research interest in conductive polymer anti-corrosion coating technologies. AnCatt's next generation, environmentally friendly, super-strength, smart anti-corrosion coating platform has received numerous awards from leading organizations, including the American Chemical Society (ACS), the National Science Foundation (NSF), the RICE Alliance, and NASA. Mr. Wang graduated 1st place for both graduate and under graduate studies in chemistry from the Peking University. He has over five decades of experience and two national award-winning technologies that are still in production today.

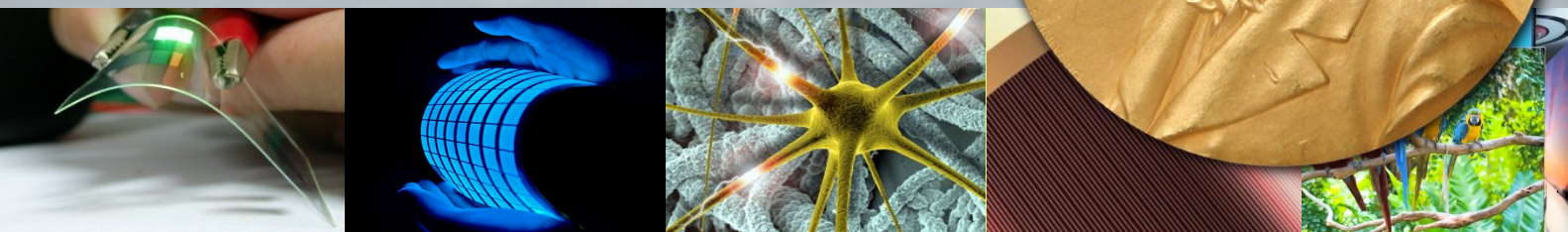
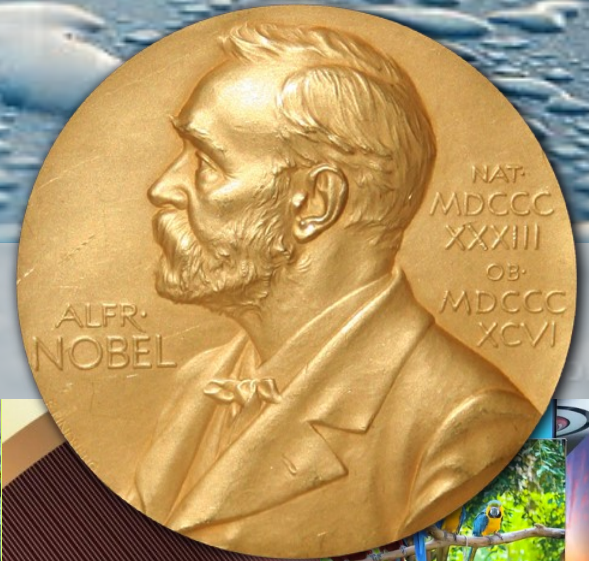


AnCatt founder, Jay Wang (Right), dining with NASA astronaut Cady Coleman while receiving the LAUNCH Award at the Kennedy Space Center, January 2015



Transparent, Flexible, Conductive, Organic, Low-Cost, High-Performance

Conductive Polymers have long been expected to usher in a new era in materials



However the mighty 2000 Nobel Chemistry Prize Winning material is very difficult to process; it is not soluble or extricable, which has prevented many brilliant applications from realization, including use as an anti-corrosion primer. AnCatt invented the unique, easy-processing Conductive Polymer Nano-Dispersion (CPND). The CPND pigmented anti-corrosion coatings platform is the first conductive polymer based anti-corrosion coating success after over 39-years of worldwide efforts. It has shown phenomenal, world-record anti-corrosion strength and amazing features which will surely revolutionize and transform the anti-corrosion coating and related industries with significant environmental, social, and economic benefits. The high-loading CPND approach shows promise not only for corrosion-resistance, but also as a technology readily incorporated into a wide variety of coating types. The easy-to-process, organic, high-performance, light-weight, low-cost, flexible, transparent, color-changing, conductive CPND nano-scale material should enable other large-scale commercialization of conductive polymer applications. Organic options will go from grocery stores to electronic and industrial applications, such as Organic Light Emitting Diodes (OLEDs) for lightings, organic TV/personal electronic displays, organic sensors, etc.

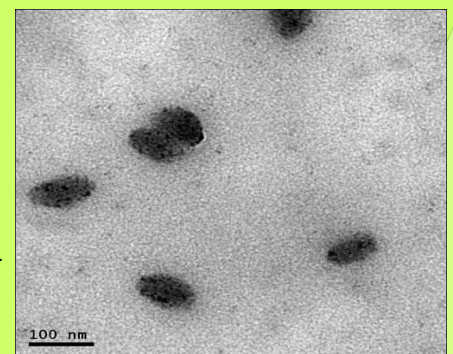


Fig1. EMS photo of AnCatt CPND particles (50 x100 nm) in consistent olive-shapes

**An Anti-Corrosion Coating Performance
The Industry Has Been Dreamed About**

CPND Applications

Anti-Corrosion Primer
Electrostatic Dissipation Coatings
Electromagnetic Interference Shielding
Static Resistant Fibers
Conductive Inks
Conductive Toners
Conductive Adhesives
Conductive Textiles
Sensors/Bio Sensors
Batteries
Solar Cells
OLEDs
Etc.



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1st Place at the
Inaugural American
Chemical Society
Green Chemistry &
Engineering
Business Plan
Competition



**ACS
Green
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AñCatt

The Next Generation Anti-Corrosion Coatings and
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