

Dongsu Ecotech

Directions

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History of Dongsu Ecotech

October 2021: Establishment

November 2021: Korean Patent Registration (10-2401543)

Environmentally friendly binder composition for casting molds with excellent water resistance and no harmful gas emission.

March 2022: Production Facilities and Operation

August 2023: Research on Reinforcing Bar Corrosion Inhibitor

2023 12: Korean Venture Certification

2024 04: Korea SME Certification

2024 09: Korean Patent Registration (10-2714022)

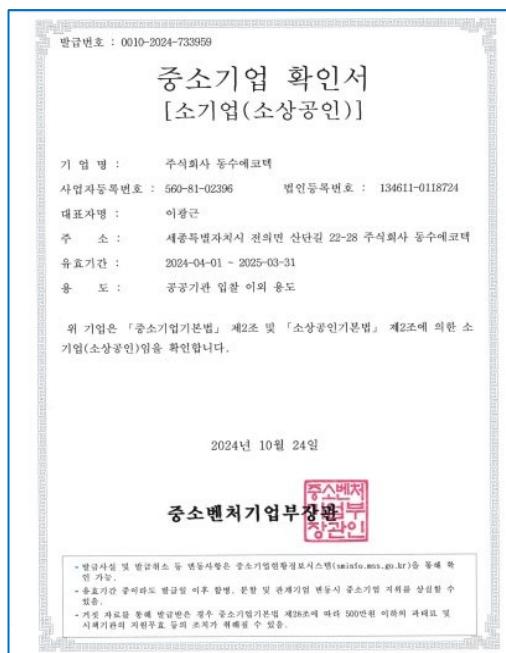
Powder Composition for Corrosion Prevention of Reinforced Concrete and Concrete Composition for Corrosion Prevention Containing the Same

Dongsu Ecotech's Achievements

Domestic Patent



Certification



Dongsuecotech's Facilities



Factory Overview



Production Line



Powder Mixer



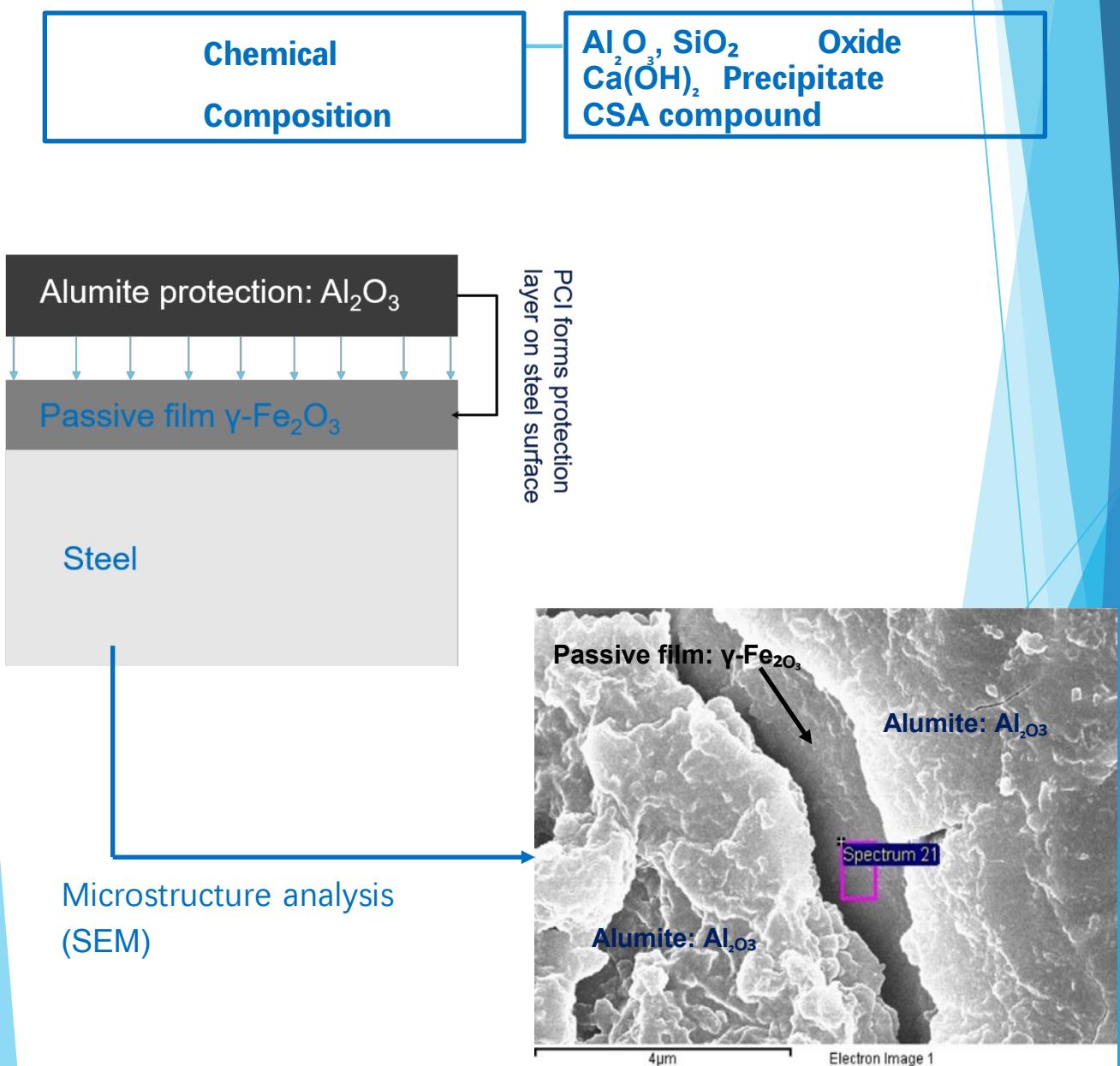
Liquid Mixer

PCI-Al Rust Inhibitor

(Powder corrosion inhibitor-Al)

Mechanism of PCI Powder-Type Rust Inhibitor

PCI-Al corrosion inhibitor protects steel reinforcement within concrete from corrosion factors such as chlorides, neutralization, and acids by forming a protective film on the steel surface.



PCI-Al Corrosion Inhibitor

(Powder corrosion inhibitor-Al)

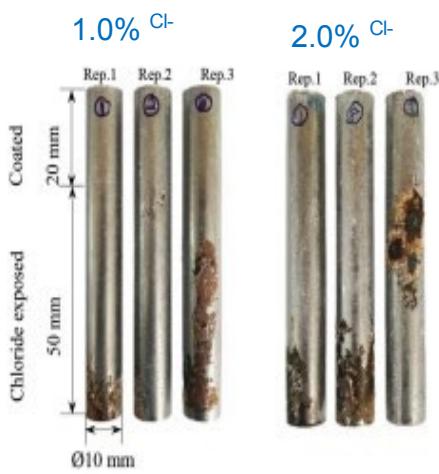
Corrosion Resistance of PCI Rust Inhibitor

PCI-Al rust inhibitor significantly reduces rebar corrosion caused by chloride ions, as confirmed through mortar specimens

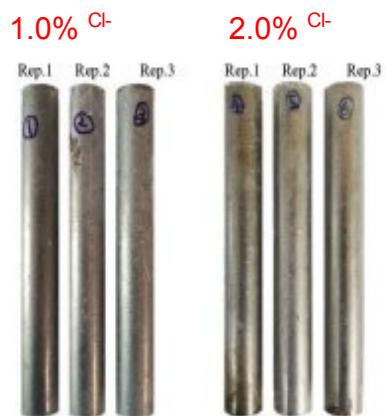
Mortar specimens mixed with PCI-Al rust inhibitor



Control



Use of PCI-Al Corrosion Inhibitor



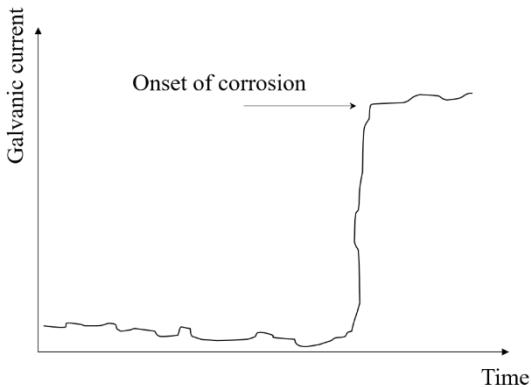
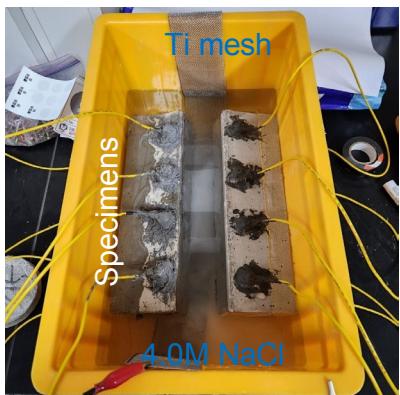
Reinforcing Bar Corrosion: 98%
Reduction

PCI-Al Corrosion Inhibitor (Powder corrosion inhibitor-Al)

Corrosion Resistance of PCI Corrosion Inhibitor

PCI-Al corrosion inhibitor significantly reduces rebar corrosion caused by saltwater penetration within concrete

Saltwater immersion test of concrete specimens containing PCI-Al



Control

Chloride content: 0, 0.5, 1.0, 2.0, 3.0%



PCI-Al rust inhibitor used

Chloride content: 0, 0.5, 1.0, 2.0, 3.0%



→ Reinforcing bar corrosion: 92%
reduction

PCI-AI Corrosion Inhibitor (Powder corrosion inhibitor-AI)

PCI Corrosion Resistance

PCI-AI corrosion inhibitor reduces corrosion formation by approximately 10 times

1. Reverse Cell Potential (mV SCE; Corrosion Initiation <-275 mV)

Cl-	0	0.5	1.0	2.0	3.0
PCI-AI Rust inhibitor	-200.3	-263.1	-227.8	-222.8	-242.4
Control	-188.5	-388.5	-366.4	-325.6	-322.5

2. Corrosion current (mA/m^2 ; corrosion initiation $> 1.0 \text{ mA/m}^2$)

CI-	0	0.5	1.0	2.0	3.0
PCI-AI	0.001	0.039	0.352	13.28	108.3
Rust					
inhibitor					
Control	0.001	1.203	22.35	165.3	623.4

→ Corrosion current: 88% (average) reduction

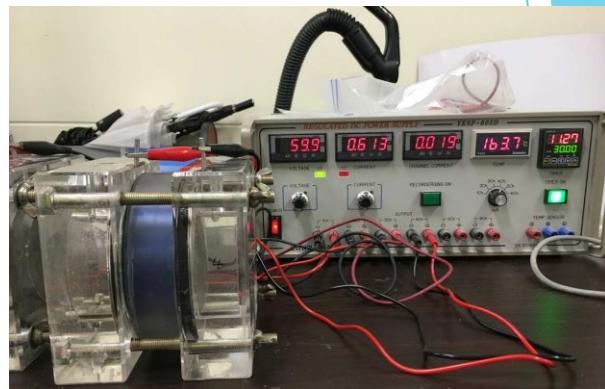
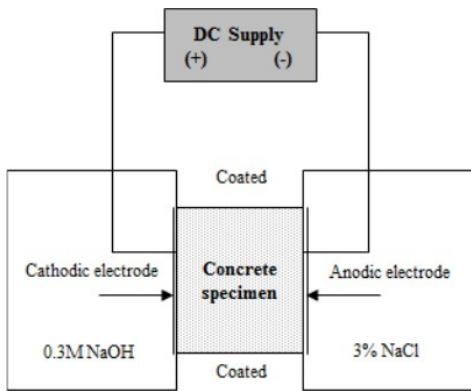
시험성적서				
성적서번호 : KCTI-20-0210 제작일자 : 110-04-14 제작장소 : 110-04-14 제작자 : 110-04-14 제작기기 : 110-04-14 제작설명 : 110-04-14				
1. 기 관 명 : 이광근	2. 주 소 : 경기도 남양주시 하계동 보현동길 562-101번지, 웅수기업	3. 시 표 명 : 양평군 양평읍 일정리 560-53, 양평제약(PCI-CH) 양평제약(PCI-FN), 양평제약(PCI-CSA), 양평제약(PCI-CI) 양평제약(PCI-FP), 양평제약(PCI-CI-2)	4. 생 청 대상자명 : -	5. 시 험 결 과 :
시 험 항 목	단 위	시행일자	시행장소	비 고
부식(감염증) (%)	0.0	185.5	KS KF112 : 2010 방법제작일정 (Goretex)	방법제작일정 (Goretex)
	0.1	285.5		
	0.2	185.5		
	0.3	244.9		
	0.5	388.5		
	0.8	384.4		
	1.0	357.0		
2.0	394.9			
3.0	382.3			
※ 시험은 표준방법에 의거하여 실시되었습니다. (Standard Collected) ※ 이 시험은 표준방법에 의거하여 실시된 표준 방법과 동일합니다.				
작성자 : 김 별 수	기수	승인자 : 이 수 우	날짜	날짜
※ 본 성적서의 시험설명은 고객이 제시한 사항에 따른 결과임				
2024. 05. 20.				
한국콘크리트시험원				

시험결과					
시 험 항 목	단위	시험결과 및 비고	시험방법	제작	고
부식(판화) 부식(강판) 부식(판화)	0.0	0.0			
	0.1	- 10.1			
	0.2	- 20.3			
	0.3	- 34.1			
	0.5	- 26.1			
	1.0	- 227.9	KS F 2712 : 2016	방법제 (PO-A4)	
	1.5	- 256.8			
	2.0	- 225.6			
	3.0	- 186.1			
	5.0	- 242.5			
부식(강판) 부식(판화)	0.0	0.0			
	0.1	- 10.1			
	0.2	- 20.0			
	0.3	- 23.7			
	0.5	- 25.0			
	1.0	- 226.0	KS F 2712 : 2016	방법제 (PO-CII)	
	1.5	- 230.7			
	2.0	- 217.1			
	3.0	- 180.9			
	5.0	- 227.7			
부식(판화) 부식(강판)	0.0	0.0			
	0.1	- 187.4			
	0.2	- 263.7			
	0.3	- 293.9			
	0.5	- 247.4			
	1.0	- 252.7	KS F 2712 : 2016	방법제 (PO-F4G)	
	1.5	- 279.3			
	2.0	- 261.7			
	3.0	- 258.7			
	5.0	- 294.6			

PCI-AI Corrosion Inhibitor (Powder corrosion inhibitor-AI)

PCI Corrosion Resistance

PCI-Al corrosion inhibitor reduces chloride ion penetration in concrete



ASTM C 1202 Chloride Ion Penetration Resistance Test

Passage Charge in Concrete

PCI-AI 1122 C

Control 1858 C

Chloride ion
transconductance: 39.6%
reduction

Charge	Evaluation Criteria
> 4000	Very High
2000-4000	High
1000-2000	Medium
< 1000	Low

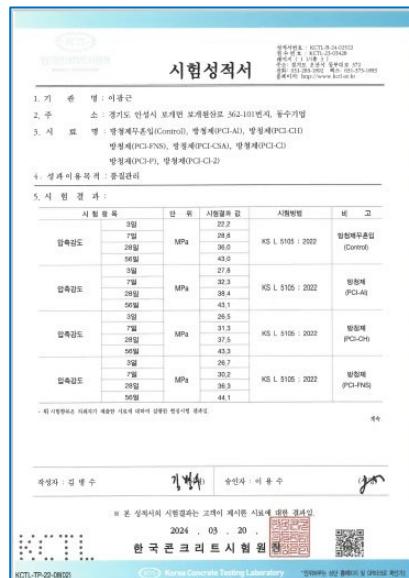
PCI-AI Corrosion Inhibitor (Powder corrosion inhibitor-AI)

Concrete Properties of PCI Corrosion Inhibitors

1. Compressive Strength

Time (d)	3	7	28	56
Control	22.2	28.8	36.0	43.0
PCI-AI Rust Inhibitor	27.8	32.3	38.4	43.1

→ Compressive strength: 15% (average) increase



2. Workability

PCI-AI Rust inhibitor	138 mm
Control	208 mm

3. Setting time

PCI-AI Rust inhibitor	196 min.
Control	288 min.

→ Fluidity, setting time: 35-50% (average) reduction

Expert Testimonial



Professor Shim Jong-sung

- Department of Civil and Environmental Engineering, Hanyang University (Professor Emeritus)
- 45th President of the Korean Society of Civil Engineers
- 8th President of the Asian Concrete Federation
- American Concrete Institute Code Committee

The problem of rebar corrosion in concrete structures is extremely critical to operability and safety. While many methodological technologies have been developed to date, none have simultaneously satisfied usability, economy, and engineering performance. However, PCI-AI holds the key to solving all rebar corrosion problems, realizing true "K-Concrete."

Professor Han Man-yeop

- Department of Social Systems Engineering, Ajou University (Professor Emeritus)
- 52nd President of the Korean Society of Civil Engineers
- 11th President of the Asian Concrete Federation



The PCI Rust Inhibitor Series is a "panacea" solution that fundamentally resolves both salt damage and neutralization-induced rebar corrosion issues simultaneously in concrete structures. It is anticipated to be a groundbreaking product that guarantees functionality, cost-effectiveness, and eco-friendliness.