



True ESG Management through Resource Recovery Technology



Korea Aqua Resource Innovation



1

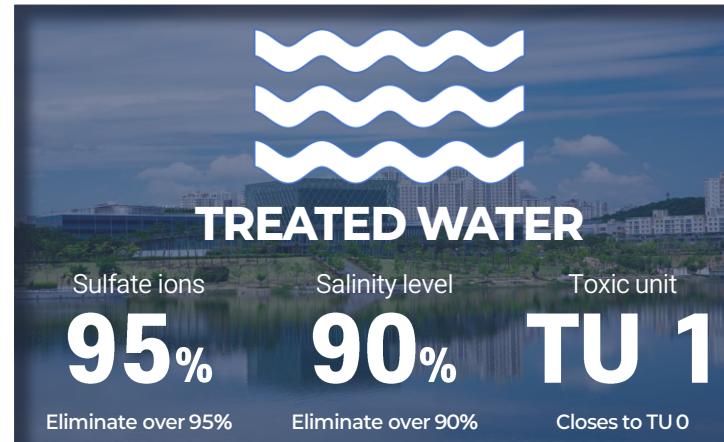
KARI: from Wastewater to Worth, Advancing eco-Cycle technology



1. KARI: from Wastewater to Worth, Advancing eco-Cycle technology

1-1 KARI's treat & upcycle

“KARI’s eco-Cycle technology treats and upcycles the high - concentration salinity wastewater”



1. KARI: from Wastewater to Worth, Advancing eco-Cycle technology

1-2 Position of HQ, Pilot factory and New Plants within the cathode material facilities



1. KARI: from Wastewater to Worth, Advancing eco-Cycle technology

1-3 Site view of the Pilot factory



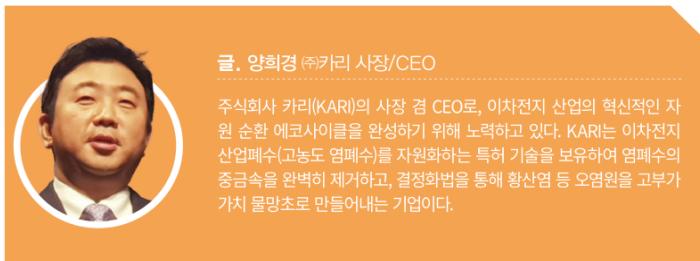
1. KARI: from Wastewater to Worth, Advancing eco-Cycle technology

1-4 KARI's innovative technology featured on 「Technology and Innovation」

<https://www.koita.or.kr/eng/>

“KARI” is introduced as Emerging innovative technology company on “Technology and Innovation”.

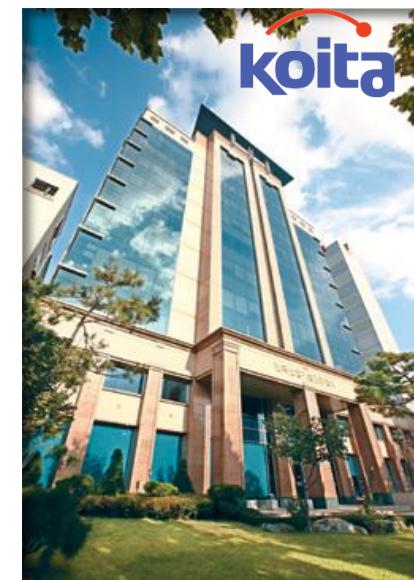
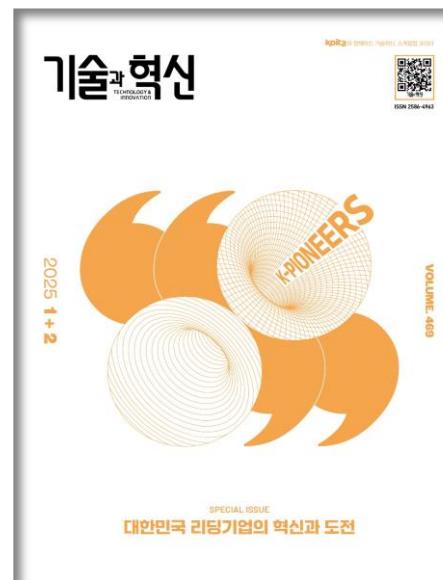
- ▶ KARI's innovative technology featured on the Jan-Feb 2025 issue of 「Technology and Innovation」 by Korea Industrial Technology Association (KOITA)
- ▶ The magazine 「Technology and Innovation」 was first published in 1983 and is a bimonthly publication distributed to South Korean government agencies, the National Assembly, related organizations, and businesses.



심각한 이차전지 산업폐수 문제

전기차의 핵심 요소인 이차전지는 양극재의 소재에 따라 원가와 성능이 크게 좌우된다. 양극재 제조에 필수적인 전구체는 엄청난 양의 물과 화학물질을 사용해 만들어지는데, 이 과정에서 대량의 폐수が 발생한다. 전구체 1톤을 생산하고 나면 약 50톤의 폐수가 발생하며, 이 폐수에는 심각한 생태독성 유발 물질인 니켈, 망간, 코발트 등의 중금속과 다량의 염이 포함되어 있다. 따라서 이차전지 산업폐수는 염폐수라고 불린다. 니켈은 특히 수중 생태계를 심각하게 파괴할 수 있는 독성을 지닌 중금속이다. 그런데 지금까지 이 고농도 염폐수를 규제할 법 조항이 제대로 마련되지 않아 대부분 그대로 해양에 방류되었으며, 이에 해안 환경오염의 사례가 다수 보고된 상태다.

그림1 양극재 전구체 제조 공정

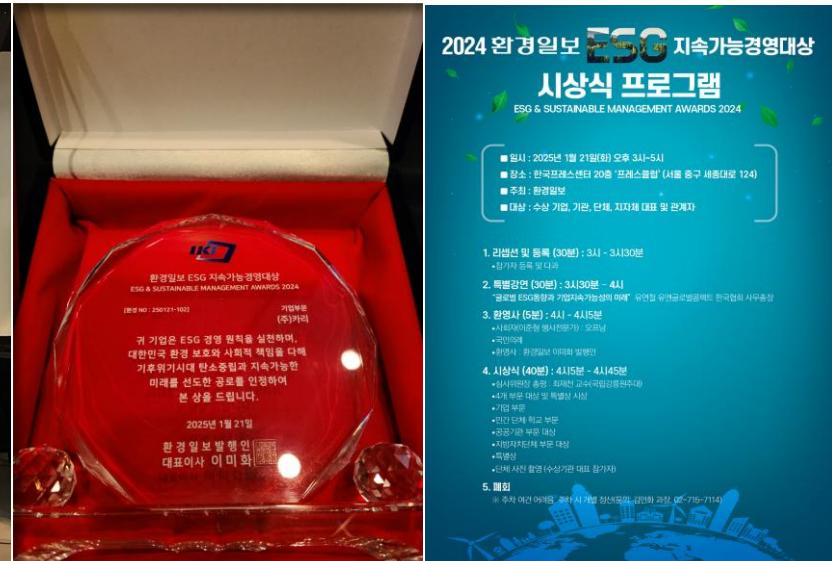


1. KARI: from Wastewater to Worth, Advancing eco-Cycle technology

1-5 KARI received the ESG sustainable management award

“Recipient of the 2024 ESG sustainable management award, Grand Prize in the Corporate Category, from “Global Eco News Environmental Daily”

- ▶ 「Global eco news environmental daily」 is South Korea's only newspaper specializing in environmental issues with a 32-year history.
- ▶ It annually recognizes and awards companies, local governments, public institutions, and private organizations that practice ESG management and sustainable management.





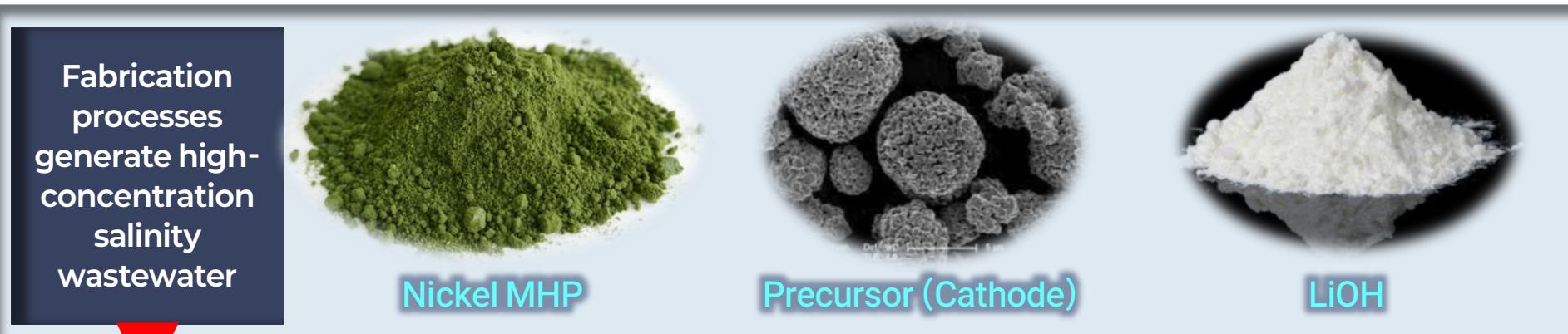
2

KARI's eco-Cycle technology : wastewater Treatment & Upcycling

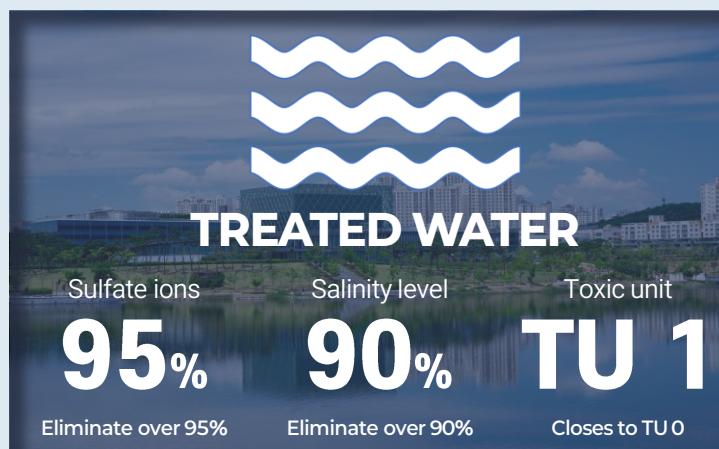


2. KARI's eco-Cycle technology : wastewater treatment & upcycling

Overview



The treatment cost of high-concentration salinity wastewater is **less than 30%** compared to conventional MVR technology.



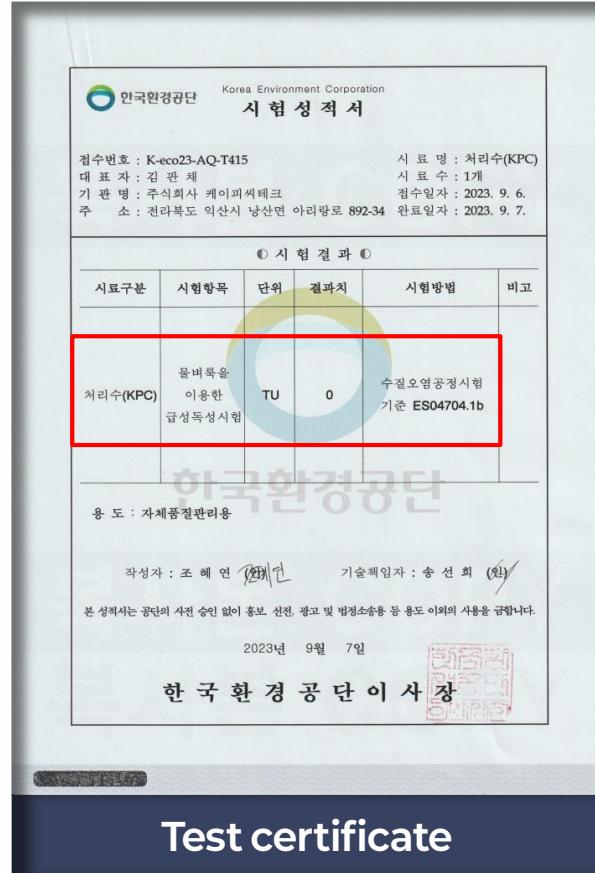
2-1. KARI's eco-Cycle technology : wastewater treatment

2-1-1 treat the high-concentration salinity wastewater (Patent application No. 10-2023-019034)



2-1. KARI's eco-Cycle technology : wastewater treatment

2-1-2 Test certificate for treated water



category	High concentration wastewater	KARI's treated water
	P company, E company	KARI's technology
Sulfate ion	30,000~70,000 mg/L	1,000~3,000 mg/L
Removal rate	-	Over 95 %
Sodium ion	3~6 %	0.2~0.4 %
Removal rate	-	Over 90 %
TU (Toxic Unit)	Over TU 8	TU 0
Analyzer	Korea Environment Corporation (K-ECO)	

[Korean industrial standard]

- Sulfate ion : lower than 3,000 ppm
- Sodium ion : lower than 2,600 ppm
- Toxic Unit (TU) : less than 1

2-1. KARI's eco-Cycle technology : wastewater treatment

2-1-3 Competitive edge in technology

“KARI’s eco-cycle technology is leading solution for purifying and resource-recovering wastewater”

MVR, TVR

- : high-cost facility
- : high electricity costs
- : sodium sulfate with low quality (including Ni)
- : industry waste (over 10% of wastewater)

Membrane

- : high maintenance costs (filter)
- : additional treatment costs for removing heavy metals

Difficulties in treating large volumes of high concentration salinity wastewater

Process of competitors' technology

Patents for treat the high-concentration salinity wastewater

(Patent application No. 10-2023-0191034)

Patents for resource-recovering from wastewater

(Patent application No. 10-2024-0178799)

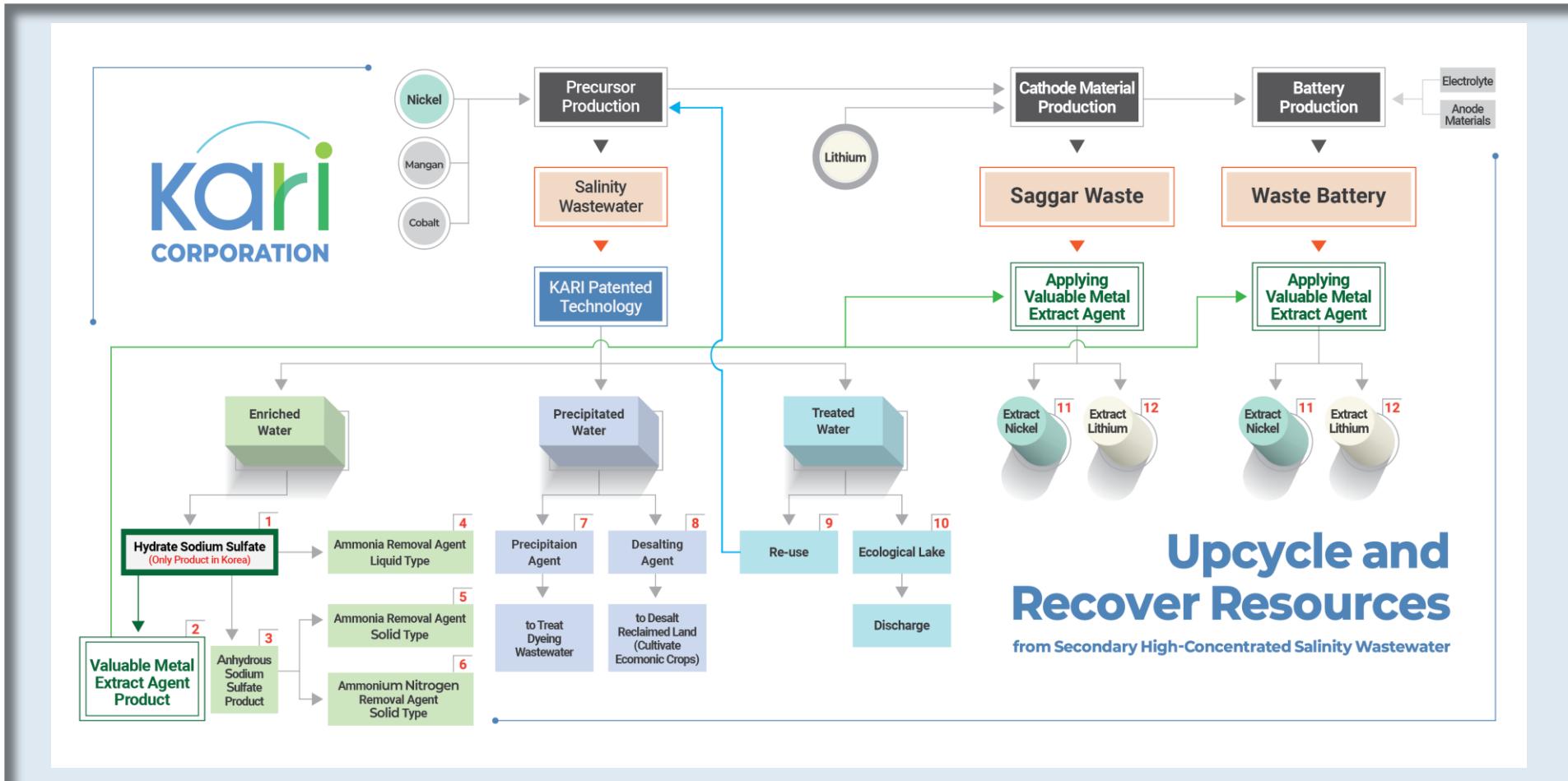
meets not only the Ministry of Environment's eco-toxicity standard TU 1 or less but also close to TU 0

crystallizes two pollutants into Sodium sulfate decahydrate($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$) and recycles them

KARI's innovative eco-Cycle technology

2-2. KARI's eco-Cycle technology : upcycling

2-2-1 Recover resource from high-concentration salinity wastewater (10-2024-0178799)



2-2. KARI's eco-Cycle technology : upcycling

2-2-2 High quality & purity Sodium sulfate (decahydrate)

Product description

- Dried and pulverized sodium sulfate decahydrate to obtain it in powder form

Product features

- High-purity sodium sulfate powder precipitated after 100% removal of heavy metal nickel (Ni)
- Differentiation in quality compared to low-purity products from other companies

Function & Application

- High-purity sodium sulfate powder with hardening properties
- Various industries such as textiles, detergents, cement, and gypsum

Sodium sulfate
(Na_2SO_4 , anhydrous)

Product description

- converting salinity wastewater into a supersaturated solution and crystal growing sodium sulfate decahydrate crystals at low temperatures

Product features

- Excellent solubility at room temperature
- Easier field application compared to anhydrous sodium sulfate
- KARI's unique product (patent)

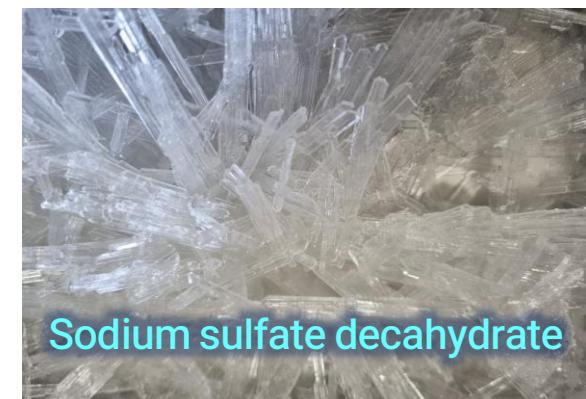
Function & Application

- Chemical properties identical to anhydrous sodium sulfate
- replace anhydrous sodium sulfate in various industries

Sodium sulfate decahydrate
($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$, decahydrate)



Anhydrous sodium sulfate



Sodium sulfate decahydrate

2-2. KARI's eco-Cycle technology : upcycling

2-2-3 Valuable metal extractant

Product description

- Extractant prepared by dissolving sodium sulfate decahydrate in a mildly acidic solution

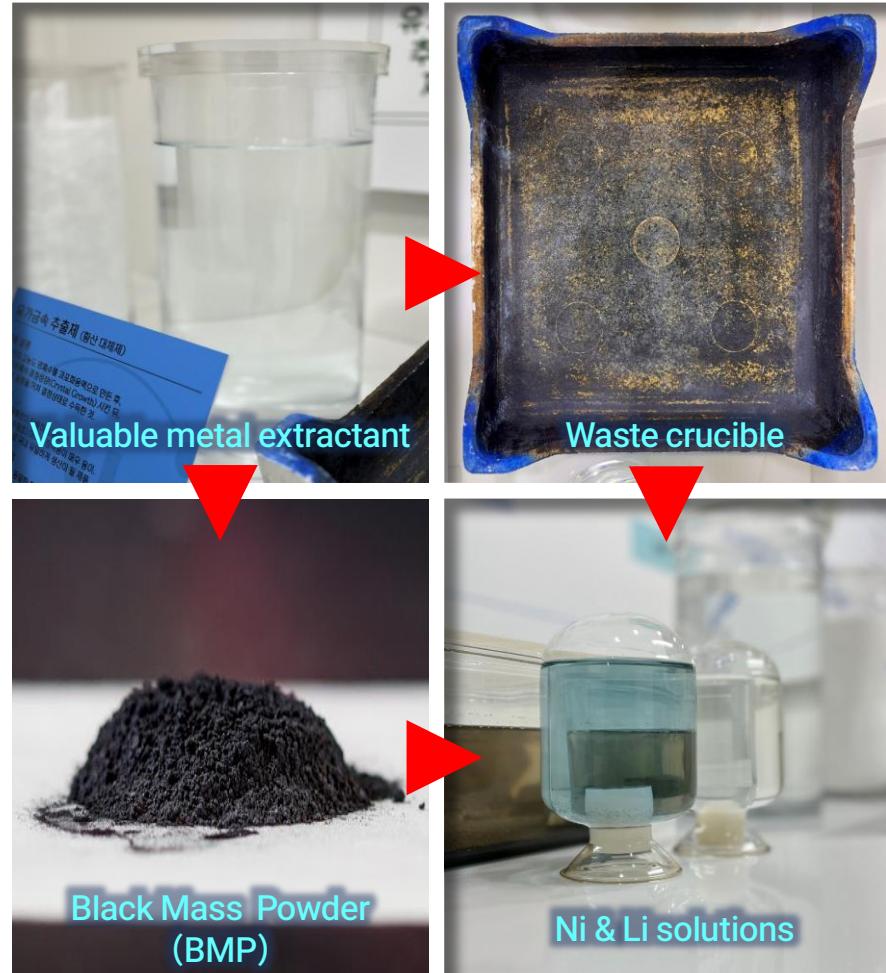
Product feature

- Environmentally friendly and capable of replacing conventional sulfuric acid-based extractants

Function & Application

- Extraction and recovery of valuable metals from cathode active materials adhered to waste crucibles (ceramics)
- Extraction and recovery of valuable metals from cathode active materials contained in crushed waste batteries (Black Mass Powder, BMP)

**Valuable metal extractant
(substitute for Sulfuric acid)**



2-2. KARI's eco-Cycle technology : upcycling

2-2-4 Ammonia & Ammonia nitrogen remover

Product description

- Liquid form by mixing sodium sulfate decahydrate with a metal cation additive

Product feature

- Environmentally friendly ammonia remover designed to address the issue of microbial death caused by salinity

Function & Application

- Ammonia removal functionality in seawater for aquaculture farms
- Suitable for large-scale use in shrimp farms
- Functionality successfully validated in shrimp farms

**Ammonia remover
(liquid type odor
remover)**

Product description

- Molded by mixing anhydrous sodium sulfate with a metal cation additive

Product feature

- Removing ammonia from aquaculture sediment that cannot be resolved with microbial agents

Function & Application

- Removal of ammonia pollutants from aquaculture sediment
- Suitable for large-scale use in shrimp farms
- Functionality successfully validated in shrimp farms

**Ammonia remover
(Matrix-based type)**

Product description

- molded by mixing anhydrous sodium sulfate with a metal cation additive

Product feature

- Removing ammonia nitrogen from aquaculture sediment that cannot be resolved with microbial agents

Function & Application

- Removal of ammonia nitrogen pollutants from aquaculture sediment
- Suitable for large-scale use in shrimp
- Functionality successfully validated in shrimp farms

**Ammonia nitrogen
remover (Matrix-
based type)**



2-2. KARI's eco-Cycle technology : upcycling

2-2-5 Oder remover

Liquid type Odor remover

Remove 97.5% of ammonia & Trimethylamine of 98.8%
(Test certificate)

KCL

시험성적서

1. 설적서 번호 : CT20-003237K
2. 의뢰자
 ○ 업체명 : 주식회사 케이씨티케
 ○ 주 소 : 전경북도 떡산시 낭선면 아리원로 802-34 (남선리)
 3. 시험기간 : 2020년 08월 10일 ~ 2020년 08월 18일
 4. 시험성적서의 종류 : 품질관리
 5. 시료 명 : KPC-프로틴 (Type N)
 6. 시험방법
 (1) E668: 2017
 7. 시험결과
 1) KPC-프로틴 (Type N)

시험항목	단위	시험별값	비고	시험평균
황화시약 암모니아 (농도 강소율)	%	(11) 97.5		(11.0 ± 0.0) %
황화시약 트리메틸아민 (농도 강소율)	%	(11) 98.8	A	(10.0 ± 1.0) % (n=11)

Ammonia removal efficiency: 97.5%
 Trimethylamine removal efficiency: 98.8%

확인 **성성자** 조현호 **기술효험자** 박현일 **날짜** 2020년 08월 18일
 한국건설환경시험연구원

비고 : 1. 이 확인서는 GS 2500-05-1765 및 KCLC 인증과 관련하여 유통된 제품은 해당지가 제시한 시료 및 시험법에 한정된 결과로서
 다른 방법으로 대체 평가를 받을 수 없습니다.
 2. 이 확인서는 대체로 미세, 고온 및 소음환경 사용에 수용성이 있는 경우에만 사용할 수 있으며, 특히 미화의 사용을 금합니다.
 3. 이 확인서로 일반인을 포함하여 사용한 결과는 보증하지 수 없습니다.
 4. 이 확인서의 진정여부는 홈페이지(www.kclc.or.kr)에서 확인 가능합니다.

2020년 08월 18일

10



2-2. KARI's eco-Cycle technology : upcycling

2-2-6 Dye wastewater treatment agent & Desalination agent

Product description

- ▶ Hybrid reacting sodium sulfate decahydrate with a mixture of precipitated water and treated water

Product feature

- ▶ Removes the color of dye wastewater by cleaving the azo group ligands

Function & Application

- ▶ Effective in removing color from dye wastewater
- ▶ Suitable for large-scale use in textile dyeing
- ▶ Sample exhibited in the dye wastewater treatment process at Pocheon Jangja General Industrial Complex (see right photo)

Dye precipitation agent

Product description

- ▶ Activating a mixture of precipitated water and treated water, containing sodium sulfate decahydrate crystals, through a catalytic reaction

Product feature

- ▶ Removal of salinity from reclaimed land soil and sea sand

Function & Application

- ▶ Successfully cultivated onions in the Saemangeum reclaimed land after desalination in collaboration with '365 Agricultural Cooperative Corporation'
- ▶ Suitable for large-scale desalination operations in reclaimed lands

Desalination agent



2-2. KARI's eco-Cycle technology : upcycling

2-2-7 Desalination agent

Category	Salinity ratio	Removal ratio
Soil salinity	1.35 %	-
Desalination 1 st time	0.41 %	69.6 %
Desalination 2 nd time	0.02 %	98.5 %

Apply the desalination agent to Farm in Korea
(Reclaimed land)





3

KARI's Project Proposal



3. KARI's Project Proposal

3-1 Enhancing Indonesia's main industrial competitiveness



Indonesia's abundant Nickel reserves

- ▶ Indonesia holds the world's largest nickel reserves, estimated at around 55 million tons, accounting for approximately 42% of global reserves (USGS).
- ▶ As of 2023, Indonesia is also the world's top nickel producer, with an annual production of about 1.8 million tons.

Nickel: Main material for the secondary battery

- ▶ Indonesia's MHP production capacity has significantly expanded, with the country exporting a total of 139,000 tons of nickel metal in the form of MHP and nickel sulfate in the first half of 2024, marking a 106% year-on-year increase.
- ▶ High concentration salinity wastewater is generated during nickel extraction & the processes for the secondary battery.

KARI's wastewater treatment tech.



Indonesia's textile & garment industry

- ▶ Indonesia is one of the world's top 10 textile manufacturing countries.
- ▶ The textile industry contributes approximately 1.4% to Indonesia's GDP, with revenue estimated at around \$18 billion in 2018 and projected to grow by 8.4% annually until 2021.

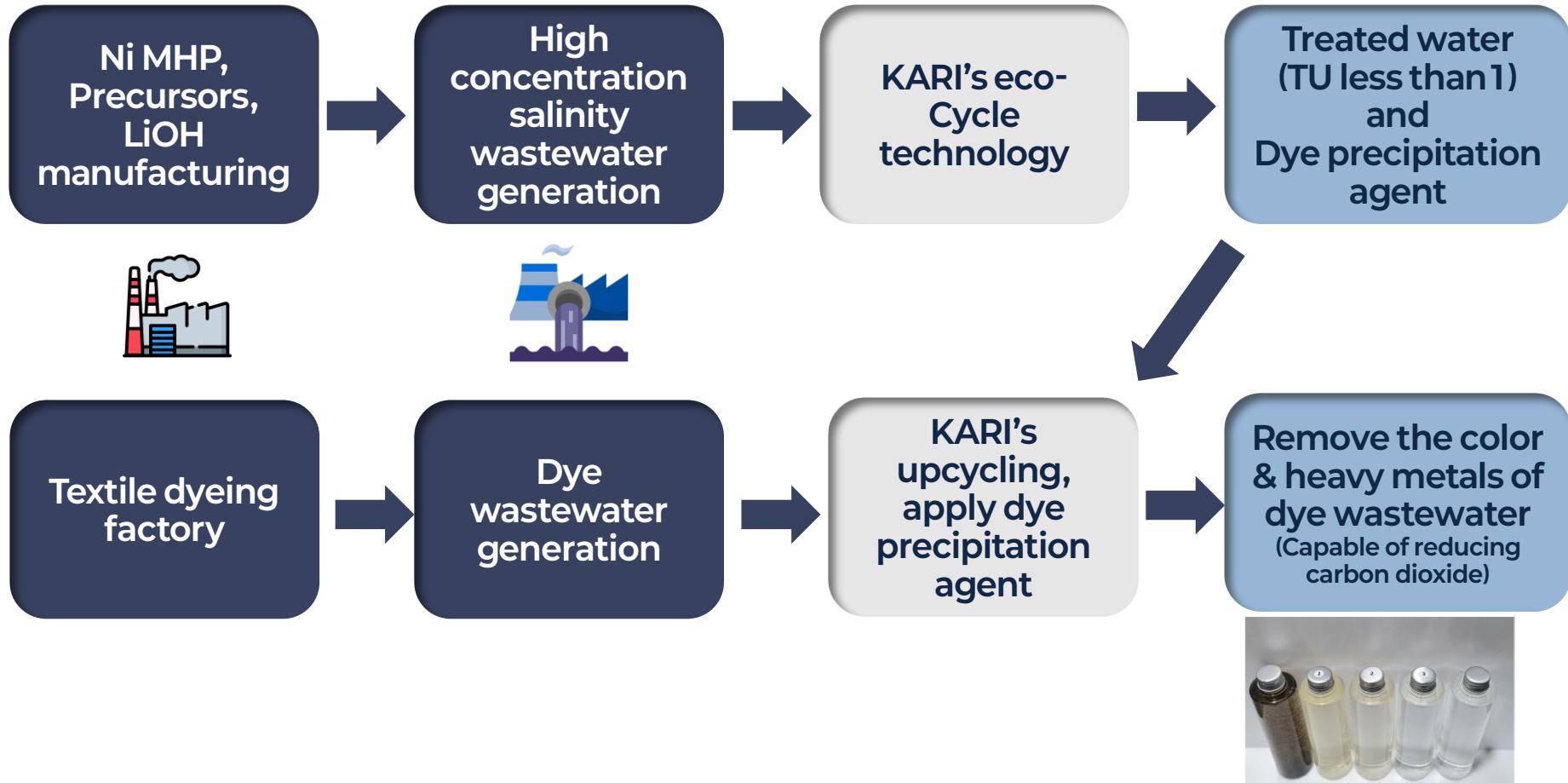
Sustainable textile industry

- ▶ There has been increased investment in organic cotton and eco-friendly dyeing practices to implement sustainable methods, improving competitiveness in the global market.
- ▶ However, dye wastewater containing color & heavy metals is still big problem.

KARI's upcycling tech.
(Dye precipitation agent)

3. KARI's Project Proposal

3-2 KARI's wastewater eco-Cycle technology for the secondary battery & Dyeing industries in Indonesia



3. KARI's Project Proposal

3-3 Application case of the Dyeing Industrial Complex in Pocheon, South Korea

“In discussions with Pocheon City, South Korea, regarding the establishment of a dyeing wastewater treatment plant”

- ▶ Completion of wastewater treatment research and demonstration development for the Yangmun and Jangja Dyeing Industrial Complexes in Pocheon City (2024.7)
- ▶ Report the remarkable color and heavy metal removal efficiency compared to existing wastewater treatment technologies



Yangmun Dyeing Industrial Complex



Jangja Dyeing Industrial Complex

4



Economic and Environmental Impact of KARI's eco-Cycle



4. Economic & Environmental impact of KARI's eco-cycle

4-1 Economical competitiveness

High concentration wastewater treatment cost comparison

- ▶ Compare the treatment cost to conventional MVR process

Cost item	KARI eco-Cycle tech.	Conventional MVR
Depreciation expense	2	10
Operation cost	Power	22
	Steam	0
	Labor	5
	Maintenance	1
Sludge waste	0	10
Total	30	100

Treatment cost is about 30%

Dye color and heavy metal removal

- ▶ Not easy to compare the cost because of no technology having the same feature
- ▶ No additional cost to treat the dye wastewater with KARI's dye precipitation agent
- ▶ If there is captured carbon dioxide, KARI's dye precipitation agent possibly absorbs it.
- ▶ KARI's plant treats high concentration salinity waste water and dye wastewater as well!

Including dye wastewater treatment

4. Economic & Environmental impact of KARI's eco-cycle

4-2 Contribution to environmental improvement and achievement of greenhouse gas reduction

Environmental improvement

- Increased color & heavy metal removal efficiency Improving → river ecotoxicity (TU less than 1) & color
- Treated water can be recycled for industrial use and other purposes.
- Resource recovery from wastewater → Reduction in sludge generation
Prevention of secondary pollution



Accident at an Indonesian dyeing company's wastewater treatment facility

Greenhouse gas reduction

- Introduction of KARI eco-Cycle technology
→ Reduction in energy consumption & potential for lower carbon emission
- Potential contribution to Indonesia's goal of reducing greenhouse gas emissions by 43% by 2030 and achieving carbon neutrality by 2060



The 26th United Nations Climate Change Conference of the Parties (COP26) Special Summit

4. Economic & Environmental impact of KARI's eco-cycle

3-3 Enhancing industrial complex competitiveness and resolving local community conflicts

Enhancing industrial complex competitiveness

- Strengthening ESG management for region & business
 - Improving regional & corporate image through the adoption of eco-friendly processes
 - Water quality improvement & potential for carbon reduction
- Expansion of potential for attracting new business & investment
- Increase in corporate productivity



Industrial complexes in Indonesia

Resolving local community conflicts

- Solving river discoloration issues through improved wastewater treatment
- Strengthening the social responsibility of the government & business for environmental conservation



Indonesia Morowali Industrial Park (IMIP)

THANK YOU

True ESG Management through Resource Recovery Technology



Korea Aqua Resource Innovation

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Korea Aqua Resource Innovation

KARI's eco-Cycle technology – Dye precipitation agent

Result of Dye wastewater treatment from Pocheon, South Korea



Yangmun dyeing complex



Jangja dyeing complex

Color removal test results

Test item	Dye wastewater	Treated water	Removal ration	Test report	Test agency
Color	204	31	84.8%	Appendix 1	Korea environment corporation (K-ECO)

Heavy metal removal test results

Test item	Dye wastewater	Treated water	Removal ration	Test report	Test agency
Cu	0.099mg/L	N/D	100%	Appendix 2	Korea environment corporation (K-ECO)
Cr	0.369mg/L	N/D	100%		
Pb	N/D	-	-		
As	N/D	-	-		
Cd	N/D	-	-		

KARI's eco-Cycle technology – Dye precipitation agent

Appendix 1

Dye waste water color : 204

발급번호: KWC24-WQ-00119-1	식별번호: 418670389												
 시험·검사 성적서 <small>국가 물산업클러스터 KOREA WATER CLUSTER</small>													
접수번호: KWC24-WQ-00119	성적서번호: KWC24-WQ-00119R-1												
의뢰자: 김민재	업체명: 캐카리												
주소: 서울시 강서구 마곡중앙1로 14, 6층 603호													
접수일자: 2024. 7. 2.	시험기간: 2024. 7. 2. ~ 2024. 7. 8.												
시료명: 염색액(원수) 색도	성적서용도: 참고용												
의뢰근거:													
1. 시험환경 및 방법 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">온도</td> <td>(23 ± 3) °C</td> <td style="width: 15%;">습도</td> <td>(50 ± 10) % R.H.</td> </tr> <tr> <td>시험방법</td> <td colspan="3">(1) 수질오염증정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)</td> </tr> <tr> <td>비고</td> <td colspan="3"></td> </tr> </table>		온도	(23 ± 3) °C	습도	(50 ± 10) % R.H.	시험방법	(1) 수질오염증정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)			비고			
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비고													
2. 시험결과 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>시험항목</th> <th>시험방법</th> <th>결과</th> <th>단위</th> </tr> </thead> <tbody> <tr> <td style="background-color: red;">색도</td> <td style="background-color: red;">(1)</td> <td style="background-color: red;">204</td> <td style="background-color: red;">도</td> </tr> </tbody> </table> <p>『물환경보전법』에 따라 수질감시성적서를 위와 같이 발급합니다.</p> <p>시험자: 송희진 휴대폰번호: 010-XXXX-XXXX 시험책임자: 문재수 휴대폰번호: 010-XXXX-XXXX</p> <p>비고 : 1. 이 성적서는 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다. 2. 이 성적서는 흡보, 선천, 광고 및 법정소송용 등 모든 이외의 사용을 금합니다. 3. 이 성적서는 KS Q ISO/IEC 17025 및 KOLAS 인정과 관련이 있으며, 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다.</p> <p>2024년 7월 8일 국가물산업클러스터사업단장</p>		시험항목	시험방법	결과	단위	색도	(1)	204	도				
시험항목	시험방법	결과	단위										
색도	(1)	204	도										

Test certificate

Treated water color : 31

발급번호: KWC24-WQ-00119-1	식별번호: 418670389												
 시험·검사 성적서 <small>국가 물산업클러스터 KOREA WATER CLUSTER</small>													
접수번호: KWC24-WQ-00119	성적서번호: KWC24-WQ-00119R-3												
의뢰자: 김민재	업체명: 캐카리												
주소: 서울시 강서구 마곡중앙1로 14, 6층 603호													
접수일자: 2024. 7. 2.	시험기간: 2024. 7. 2. ~ 2024. 7. 8.												
시료명: 처리수(수) 색도	성적서용도: 참고용												
의뢰근거:													
1. 시험환경 및 방법 <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">온도</td> <td>(23 ± 3) °C</td> <td style="width: 15%;">습도</td> <td>(50 ± 10) % R.H.</td> </tr> <tr> <td>시험방법</td> <td colspan="3">(1) 수질오염증정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)</td> </tr> <tr> <td>비고</td> <td colspan="3"></td> </tr> </table>		온도	(23 ± 3) °C	습도	(50 ± 10) % R.H.	시험방법	(1) 수질오염증정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)			비고			
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비고													
2. 시험결과 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>시험항목</th> <th>시험방법</th> <th>결과</th> <th>단위</th> </tr> </thead> <tbody> <tr> <td style="background-color: red;">색도</td> <td style="background-color: red;">(1)</td> <td style="background-color: red;">31</td> <td style="background-color: red;">도</td> </tr> </tbody> </table> <p>『물환경보전법』에 따라 수질감시성적서를 위와 같이 발급합니다.</p> <p>시험자: 송희진 휴대폰번호: 010-XXXX-XXXX 시험책임자: 문재수 휴대폰번호: 010-XXXX-XXXX</p> <p>비고 : 1. 이 성적서는 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다. 2. 이 성적서는 흡보, 선천, 광고 및 법정소송용 등 모든 이외의 사용을 금합니다. 3. 이 성적서는 KS Q ISO/IEC 17025 및 KOLAS 인정과 관련이 있으며, 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다.</p> <p>2024년 7월 8일 국가물산업클러스터사업단장</p>		시험항목	시험방법	결과	단위	색도	(1)	31	도				
시험항목	시험방법	결과	단위										
색도	(1)	31	도										

Test certificate

KARI's eco-Cycle technology – Dye precipitation agent

Appendix 2

Dye waste water

발급번호: KWC24-WQ-00119-1 식별번호: 418670389

시험·검사 성적서

국가 물산업클러스터
KOREA WATER CLUSTER

서면 가이드 사용 가이드
한국환경공단

접수 번호	KWC24-WQ-00119	성적서 번호	KWC24-WQ-00119R-4
의뢰자	김민재	업체명	㈜카리
주소	서울시 강서구 마곡중앙1로 14, 6층 603호		
접수 일자	2024. 7. 2.	시험 기간	2024. 7. 2. ~ 2024. 7. 8.
시료명	염색폐수(원수) 중금속	성적서 용도	참고용
의뢰근거			

1. 시험환경 및 방법

온도	(23 ± 3) °C	습도	(50 ± 10) % R.H.
시험방법	(1) 수질오염공정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)		
비고			

2. 시험결과

시험항목	시험방법	결과	단위
구리(동)	(1)	0.099	mg/L
크롬	(1)	0.369	mg/L
납	(1)	불검출	mg/L
비소	(1)	불검출	mg/L
카드뮴	(1)	불검출	mg/L

『물환경보전법』에 따라 수질검사성적서를 위와 같이 발급합니다.

시험자 : 송희진 휴대폰 번호 : 010-XXXX-XXXX

비고 : 1. 이 성적서는 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다.
 2. 이 성적서는 흙보, 선진, 광고 및 법정소송용 등 용도 이외의 사용을 금합니다.
 3. 이 성적서는 KS Q ISO/IEC 17025 및 KOLAS 인정과 관련이 없으며, 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다.

2024년 7월 8일 국가물산업클러스터사업단장

결과문의 | (43008) 대구광역시 달성군 국가산단대로40길 30 | 전화 | 053.601.6080 | 팩스 | 053.601.6129
 총 1 페이지 중 1 페이지

KWC-QP-20-12(03)

Test certification

Treated water

발급번호: KWC24-WQ-00125-2 식별번호: 994243569

시험·검사 성적서

국가 물산업클러스터
KOREA WATER CLUSTER

서면 가이드 사용 가이드
한국환경공단

접수 번호	KWC24-WQ-00125	성적서 번호	KWC24-WQ-00125R-1
의뢰자	김민재	업체명	㈜카리
주소	서울시 강서구 마곡중앙1로 14, 6층 603호		
접수 일자	2024. 7. 11.	시험 기간	2024. 7. 11. ~ 2024. 7. 16.
시료명	처리수(중금속)	성적서 용도	참고용
의뢰근거			

1. 시험환경 및 방법

온도	(23 ± 3) °C	습도	(50 ± 10) % R.H.
시험방법	(1) 수질오염공정시험기준(국립환경과학원고시 제 2023-72호, 2023. 12. 14.)		
비고			

2. 시험결과

시험항목	시험방법	결과	단위
구리(동)	(1)	불검출	mg/L
크롬	(1)	불검출	mg/L

『물환경보전법』에 따라 수질검사성적서를 위와 같이 발급합니다.

시험자 : 송희진 휴대폰 번호 : 010-XXXX-XXXX

비고 : 1. 이 성적서는 의뢰자가 제시한 시료 및 시료명에 한정된 결과로서 전체 제품에 대한 품질을 보증하지 않습니다.
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2024년 7월 16일 국가물산업클러스터사업단장

수정판권(MI)
수정발급일자 : 2024. 7. 17.

결과문의 | (43008) 대구광역시 달성군 국가산단대로40길 30 | 전화 | 053.601.6080 | 팩스 | 053.601.6129
 총 1 페이지 중 1 페이지

KWC-QP-20-12(03)

Test certificate