

(시 헊 성 적 서)

신청기관 (인) : 세원코리아

Applicant : Sewonkorea Co., LTD.

주소 (한글) : 인천광역시 남동구 고잔동 203-2 Address (Engl.) : 203-2, Gojan-dong, Namdong-gu,

Incheon, Korea

시험성적서 번호 (Report No.): RT14R-S5745-K1

발행면수 (Page) : 1 of 13 발행일자 (Date) : 2014. 11. 27.

시료 명세 : 시료에 대한 상세한 정보는 아래와 같음 (Sample Description) (The following submitted sample(s) said to be)

제품명/형식 : Potassium Gold Cyanide (Name/Type of Product) (Potassium Gold Cyanide)

지료고유번호 : RT14R-S5745 (Sample ID No.) (RT14R-S5745)

제품 생산자/공급자 : 세원코리아 (Manufacturer/Vendor) (Sewonkorea Co., LTD.)

시료접수일자 : 2014. 11. 21. (Sample received) (Nov. 21, 2014)

시험일자 : 2014. 11. 21. ~ 2014. 11. 27. (Testing Date) : (Nov. 21, 2014 ~ Nov. 27, 2014)

시험유형 : RoHS 화학분석

(Test Type) (RoHS wet chemical analysis)

시험방법 : 이 시험성적서의 다음 페이지 첨부

(Test Method) (Please see the following page)

시험결과 : 이 시험성적서의 다음 페이지 첨부 (Test Result) (Please see the following page)

비고 (Notes): 1. 이 시험성적서는 제시된 시료 및 시료명으로 시험한 결과로서 유사 대상시료에 적용할 수 없음.

(The test results presented in this report relate only to the object tested.)

2. 이 시험성적서는 승인없이 복사 사용을 금함.

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승인자 (Approved by)

2688

권한자 (Authorized by)

장준용/기술책임자 (Jade Jang / Lab. Technical Manager)

박병옥/소장 (Bo Park / Lab. General Manager)

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발행면수 (Page) : 2 of 13 발행일자 (Date) : 2014. 11. 27.

시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745 시료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

(i diassium doir Cyanido)					
시험항목	단위	분석방법	검출한계	시험결과	
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)	
카드뮴 (Cadmium, Cd)	mg/kg	With reference to IEC 62321-5 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	0.5	N.D.	
납 (Lead, Pb)	mg/kg	With reference to IEC 62321-5 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	5	N.D.	
수은 (Mercury, Hg)	mg/kg	With reference to IEC 62321-4 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	2	N.D.	
6가 크롬 (Hexavalent Chromium, Cr ⁶⁺) (For non-metal)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by alkaline digestion and determined by UV-VIS Spectrophotometer	1	N.D.	

Tested by: Seonae Kim, Jooyeon Lee

Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)



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발행면수 (Page) : 3 of 13 발행일자 (Date) : 2014. 11. 27.

시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

시험항목	단위	분석방법	검출한계	시험결과		
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)		
폴리브롬화비페닐 (Polybrominated Biphenyls, PBBs)						
모노브로모비페닐 (MonoBB)	mg/kg		5	N.D.		
다이브로모비페닐 (DiBB)	mg/kg		5	N.D.		
트라이브로모비페닐 (TriBB)	mg/kg		5	N.D.		
테트라브로모비페닐 (TertaBB)	mg/kg	With reference to	5	N.D.		
펜타브로모비페닐 (PentaBB)	mg/kg	IEC 62321 Edition 1.0 : 2008,	5	N.D.		
헥사브로모비페닐 (HexaBB)	mg/kg	by solvent extraction and	5	N.D.		
헵타브로모비페닐 (HeptaBB)	mg/kg	determined by GC/MS	5	N.D.		
옥타브로모비페닐 (OctaBB)	mg/kg		5	N.D.		
노나브로모비페닐 (NonaBB)	mg/kg		5	N.D.		
데카브로모비페닐 (DecaBB)	mg/kg		5	N.D.		
폴리브롬화디페닐에테르 (Polybrominated	Diphenyl Ethe	rs, PBDEs)				
모노브로모디페닐에테르 (MonoBDE)	mg/kg		5	N.D.		
다이브로모디페닐에테르 (DiBDE)	mg/kg		5	N.D.		
트라이브로모디페닐에테르 (TriBDE)	mg/kg		5	N.D.		
테트라브로모디페닐에테르 (TetraBDE)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by solvent extraction and determined by GC/MS	5	N.D.		
펜타브로모디페닐에테르 (PentaBDE)	mg/kg		5	N.D.		
헥사브로모디페닐에테르 (HexaBDE)	mg/kg		5	N.D.		
헵타브로모디페닐에테르 (HeptaBDE)	mg/kg		5	N.D.		
옥타브로모디페닐에테르 (OctaBDE)	mg/kg		5	N.D.		
노나브로모디페닐에테르 (NonaBDE)	mg/kg		5	N.D.		
데카브로모디페닐에테르 (DecaBDE)	mg/kg		5	N.D.		

Tested by: Hyoji Lee

Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)



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발행면수 (Page) : 4 of 13 발행일자 (Date) : 2014. 11. 27.

시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745 시료명 (Sample Description): Potassium Gold Cyanide (Potassium Gold Cyanide)

시험항목	단위	분석방법	검출한계	시험결과
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)
브롬 (Bromine, Br)	mg/kg	With reference to ASTM D7359, determined by combustion IC (CIC)	30	N.D.
염소 (Chlorine, Cl)	mg/kg	With reference to ASTM D7359, determined by combustion IC (CIC)	30	N.D.
플루오르 (Fluorine, F)	mg/kg	With reference to ASTM D7359, determined by combustion IC (CIC)	30	N.D.
요오드 (lodine, l)	mg/kg	With reference to ASTM D7359, determined by combustion IC (CIC)	30	N.D.
은 (Silver, Ag)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
베릴륨 (Beryllium, Be)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
코발트 (Cobalt, Co)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
크롬 (Chromium, Cr)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
구리 (Copper, Cu)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
철 (Iron, Fe)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.

Tested by: Chanoh Kim, Yeonju Lee

Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)

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(시 험 성 적 서)

발행면수 (Page) : 5 of 13 발행일자 (Date) : 2014. 11. 27.

시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745 시료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

(i otassidiri Gold Cyariide)				
시험항목	단위	분석방법	검출한계	시험결과
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)
니켈 (Nickel, Ni)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
안티몬 (Antimony, Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
아연 (Zinc, Zn)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
헥사브로모시클로도데칸 (Hexabromocyclododecane, HBCDD)	mg/kg	With reference to US EPA 3540C, by solvent extraction and determined by GC/MS	10	N.D.

Tested by: Yeonju Lee, Jin Kim

Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)



(시 험 성 적 서)

발행면수 (Page) : 6 of 13 발행일자 (Date) : 2014. 11. 27.

시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

시험항목	Gold Cyanide) 단위	분석방법	검출한계	시험결과	
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)	
프탈레이트 (Phthalates)					
디부틸프탈레이트 (Dibutyl phthalate, DBP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디에틸헥실프탈레이트 (Di-(2-ethylhexyl) phthalate, DEHP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디엔옥틸프탈레이트 (Di-n-octyl phthalate, DNOP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디이소노닐프탈레이트* (Diisononyl phthalate, DINP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	100	N.D.	
디이소데실프탈레이트** (Diisodecyl phthalate, DIDP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	100	N.D.	
벤질부틸프탈레이트 (Benzyl butyl phthalate, BBP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디이소부틸프탈레이트 (Diisobutyl phthalate, DIBP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디메틸프탈레이트 (Dimethyl phthalate, DMP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	
디에틸프탈레이트 (Diethyl phthalate, DEP)	mg/kg	With reference to US EPA 8061A, by solvent extraction and determined by GC/MS	50	N.D.	

Tested by : Sujung Lee

Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)

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^{*} DINP include two types of phthalate (CAS No. 68515-48-0 and 28553-12-0).

^{**} DIDP include two types of phthalate (CAS No. 68515-49-1 and 26761-40-0).



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시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

(10103510111	Cold Cyarnac			
시험항목	단위	분석방법	검출한계	시험결과
(Test Item)	(Unit)	(Test Method)	(MDL)	(Result)
퍼플루오로옥타노익에시드 (Perfluorooctanoic acid, PFOA)	mg / kg	With reference to US EPA 3550C & 8321B, by ultrasonic extraction and determined by LC/MS/MS	0.1	N.D.
퍼플루오로옥탄설포네이트 (Perfluorooctane sulfonate, PFOS)	mg / kg	With reference to US EPA 3550C & 8321B, by ultrasonic extraction and determined by LC/MS/MS	0.1	N.D.

Tested by: Shirley Park

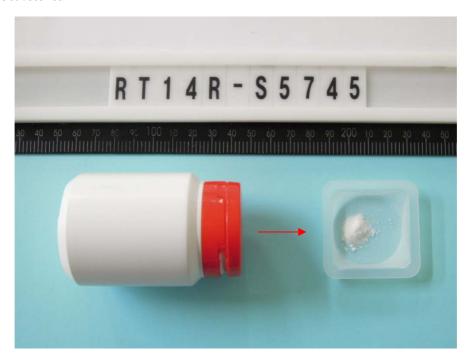
Notes: mg/kg = ppm = parts per million (함량 표시 : 백만분의 일)

<= Less than (결과 값 이하)

N.D. = Not detected (< MDL, 미검출 - 검출한계 이하)

MDL = Method detection limit (검출한계)

* 시료 접수 시 시료 상태 : (View of sample as received)



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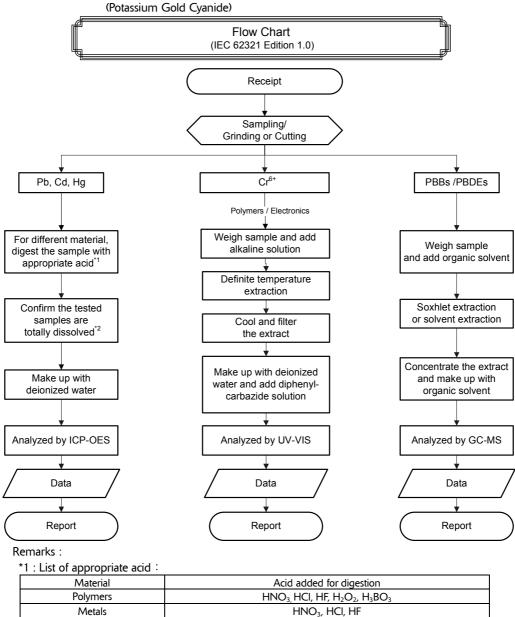
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시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide

Electronics



^{*2:} The samples were dissolved totally by pre-conditioning method according to above flow chart.

HNO₃, HCl, H₂O₂, HBF₄

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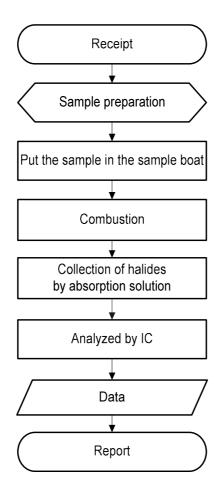
시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.) : RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide

(Potassium Gold Cyanide)

Flow Chart (Halogen)





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시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

지료명 (Sample Description) : Potassium Gold Cyanide (Potassium Gold Cyanide)

Flow Chart (Metal Testing)

Receipt

Sample preparation

Sample measurement

Microwave digestion
with HNO₃/HCI/HF

Total digestion

YES

Analyzed by ICP-OES

Report

** 비고 : 이 샘플은 위의 흐름도에 따른 전처리 방법에 의해 완전용해 되었음. (The samples were dissolved totally by pre-conditioning method according to above flow chart.)



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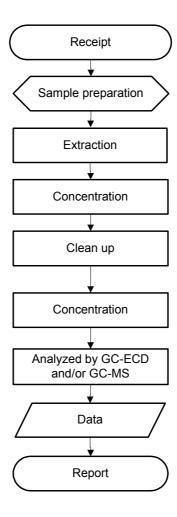
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시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide

(Potassium Gold Cyanide)

Flow Chart (EPA 3540C)



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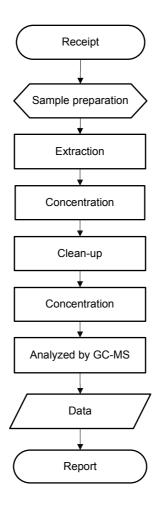
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시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description)

: Potassium Gold Cyanide (Potassium Gold Cyanide)

Flow Chart (Phthalates)





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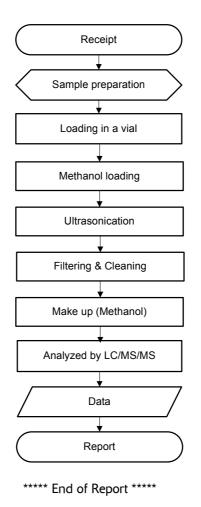
시험성적서 번호 (Report No.): RT14R-S5745-K1

시료고유번호 (Sample ID No.): RT14R-S5745

시료명 (Sample Description) : Potassium Gold Cyanide

(Potassium Gold Cyanide)

Flow Chart (PFOS, PFOA)



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