



# TEST REPORT

(시험 성적서)

신청기관 (인) : 삼화비철공업주  
Applicant : SAMHWA NON-FERROUS METAL

주소 (한글) : 경상남도 함안군 군북면 덕대리 500-13  
Address (Engl.) : #500-13, Dukdae-ri, Kunbuk-myeon, Haman-gun,  
Gyeongsangnam-do, Korea

발행면수 (Page) : 1 of 4  
발행일자 (Date) : 2011. 06. 03.

시험성적서 번호 (Report No.) : RT11R-U1082-K

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

제품명/형식 (Name/Type of Product) : TIN BALL  
(TIN BALL)

시료고유번호 (Sample ID No.) : RT11R-U1082  
(RT11R-U1082)

제품 생산자/공급자 (Manufacturer/Vender) : 삼화비철공업주  
(SAMHWA NON-FERROUS METAL)

시료접수일자 (Sample received) : 2011. 05. 31.  
(May 31, 2011)

시험일자 (Testing Date) : 2011. 05. 31. ~ 2011. 06. 03.  
(May 31, 2011 ~ Jun. 03, 2011)

시험환경 (Testing Environment) : 온도 ( 24 ± 2 ) °C, 습도 ( 60 ± 5 ) % R.H.  
(Temperature : ( 24 ± 2 ) °C, Humidity : ( 60 ± 5 ) % R.H.)

시험방법 (Test Method) : 이 시험성적서의 다음 페이지 첨부  
(Please see the following page)

시험결과 (Test Result) : 이 시험성적서의 다음페이지에 첨부  
(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.  
(This report shall not be reproduced except in full without the written approval of the testing laboratory.)

승인자 (Approved by)

권한자 (Authorized by)

이응용 /기술책임자 ( E.Y.Lee / Lab. Technical Manager )

유환우 /소장 ( H.W.Yoo / Lab. General Manager )

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Intertek Testing Services Korea Ltd.



# TEST REPORT

## (시험 성적서)

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발행일자 (Date) : 2011. 06. 03.

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시료고유번호 (Sample ID No.) : RT11R-U1082

시료명 (Sample Description) : TIN BALL  
(TIN BALL)

시험항목 (Test Item)	단위 (Unit)	분석방법 (Test Method)	검출한계 (MDL)	시험결과 (Result)
카드뮴 (Cadmium, Cd)	mg/kg	With reference to IEC 62321 Edition 1.0 : 2008, by acid digestion and determined by ICP-OES	0.5	N.D.
납 (Lead, Pb)	mg/kg		5	353
수은 (Mercury, Hg)	mg/kg		2	N.D.
6가 크롬 (Hexavalent Chromium, Cr <sup>6+</sup> ) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by Spot test	(Threshold of 1 mg/kg)	Negative
6가 크롬 (Hexavalent Chromium, Cr <sup>6+</sup> ) (For metal)	-	With reference to IEC 62321 Edition 1.0 : 2008, by boiling water extraction and determined by UV-VIS Spectrophotometer	(Threshold of 0.02 mg/kg with 50 cm <sup>2</sup> )	Negative

Tested by : YK Cho, HJ Kim

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

mg/kg with 50 cm<sup>2</sup> = milligram per kilogram with 50 square centimeter

< = Less than (결과 값 이하)

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

MDL = Method detection limit (측정한계치)

Positive = A positive test result indicated the presence of Cr(VI) at the time of testing, equal to or greater than threshold of 1 mg/kg for spot test procedures or 0.02 mg/kg for boiling water extraction procedures with a sample surface area of 50 cm<sup>2</sup> used. However, it shall not be interpreted as the Cr(VI) concentration in the coating layer of the sample and should not be used as a method detection limit for this qualitative test.

Negative = A negative test result indicates above positive observation was not found at the time of testing. When the spot test showed a negative result, the boiling water extraction procedure shall be used to verify the result.

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Ulsan Lab. Address : #340-2, Yongam-Ri, Chongryang-Myun, Ulsan-Gun, Ulsan 689-865 Korea



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(시험 성적서)

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시료고유번호 (Sample ID No.) : RT11R-U1082

시료명 (Sample Description) : TIN BALL  
(TIN BALL)

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



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시험성적서 번호 (Report No.) : RT11R-U1082-K

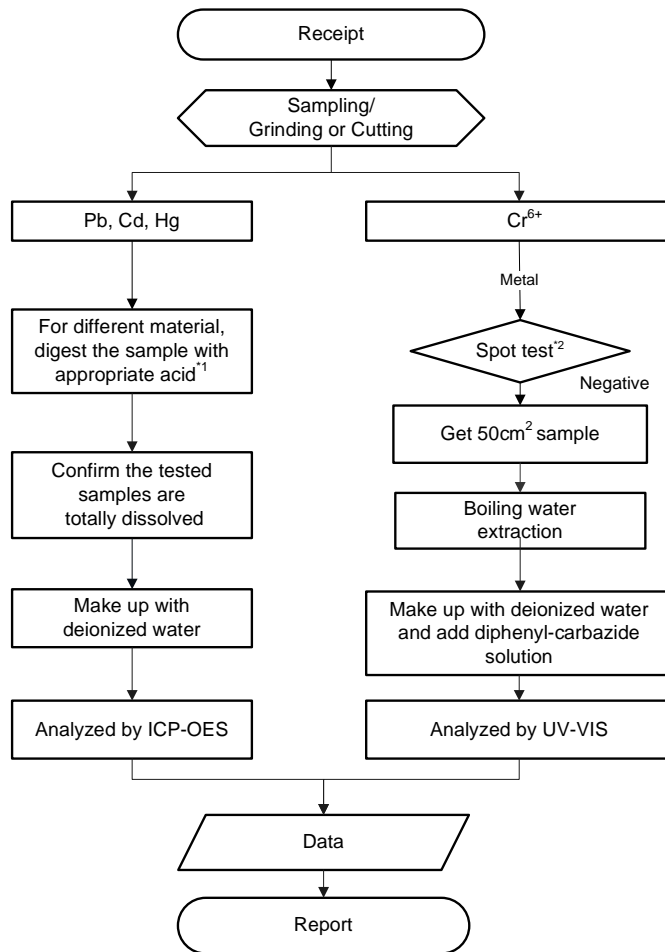
발행면수 (Page) : 4 of 4

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(TIN BALL)

Flow Chart  
(IEC 62321 Edition 1.0 : 2008)



Remarks :

\*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub> , H <sub>3</sub> BO <sub>3</sub>
Metals	HNO <sub>3</sub> , HCl, HF
Electronics	HNO <sub>3</sub> , HCl, H <sub>2</sub> O <sub>2</sub> , HBF <sub>4</sub>

\*2 : If the result of spot test is positive, Chromium (VI) would be determined as detected.

No further analysis is required

\*\*\*\*\* End of Report \*\*\*\*\*

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