하이테크貴中 2015年 04月 21日

環境關理 物質 不使用 證明書

會社名: 히로세코리아(주)

部 署:품질보증팀

責任者: 차 재환 차장



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(1) 製品 使用素材

NO	제품명	부품명	원자재명	원자재 MAKER	ICP	MSDS	비고
		CASE	PBT 1550GN30	삼양사	ADAS835CPDF	M:\\ M:\\ 품질경영팀\\7. 품	
1	HIF3BB-50D-2.54R	PROTECTOR	PBT 1550GN30	삼양사	상동	상동	
		PIN	C5210R	풍산	F904CF43.pdf	M:\\ M:\\ 품질경영팀\\ 7. 품	

- (2) 測定可能物質의 ICP Data는 別紙 參照 要望
- (3) 測定可能物質의 成分 分析 Data는 別紙 參照 要望

以上

NO	제품명	부품명	원자재명	원자재 MAKER
		CASE	PBT 1550GN30	삼양사
1	HIF3BB-50D-2.54R	PROTECTOR	PBT 1550GN30	삼양사
		PIN	C5210R	풍산

ICP	MSDS	비고
AUASB35CPDF	WAY E WI / S	
상동	상동	
5904CF43.pdf		



SAMYANG CORP.

407 3-ga,Deokjin-gu Jeonju-si,Jeonbuk Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No. : AYAA14-57877

Product Name : TRIBIT 1550GN30 BK(H)

Item No./Part No. : N/A

Received Date : 2014. 12. 17

Test Period : 2014. 12. 18 to 2014. 12. 22

Test Results: For further details, please refer to following page(s)

SGS Korea Co., Ltd.

Issued Date: 2014. 12. 22

Jeff Jang / Chemical Lab Mgr

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Sample No. : AYAA14-57877.001

Sample Description : TRIBIT 1550GN30 BK(H)

Item No./Part No. : N/A
Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Lead by ICP-OES)	5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013 (Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	With reference to IEC 62321:2008 (Determination of Hexavalent Chromium by spot test/Colorimetric Method using UV-Vis)	1	N.D.

Issued Date: 2014. 12. 22

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Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Dibromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tribromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tetrabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Pentabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Hexabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Heptabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Octabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Nonabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Decabromobiphenyl	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Dibromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tribromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Tetrabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.

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Sample No. : AYAA14-57877.001

Sample Description : TRIBIT 1550GN30 BK(H)

Item No./Part No. : N/A
Materials : N/A

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Pentabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Hexabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Heptabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Octabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Nonabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.
Decabromodiphenyl ether	mg/kg	With reference to IEC 62321:2008 (Determination of PBBs and PBDEs by GC-MS)	5	N.D.

NOTE: (1) N.D. = Not detected.(<MDL)

(2) mg/kg = ppm

(3) MDL = Method Detection Limit

(4) - = No regulation

(5) Negative = Undetectable / Positive = Detectable

(6) ** = Qualitative analysis (No Unit)

(7) * = Boiling-water-extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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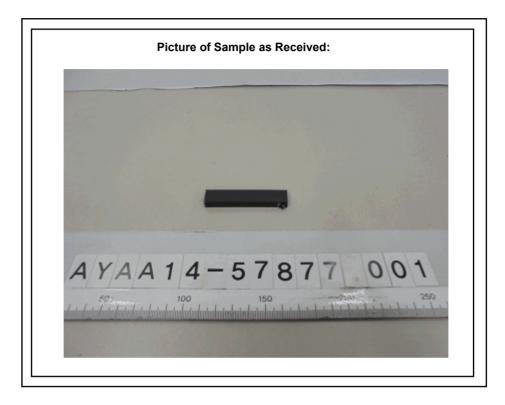
Issued Date: 2014. 12. 22

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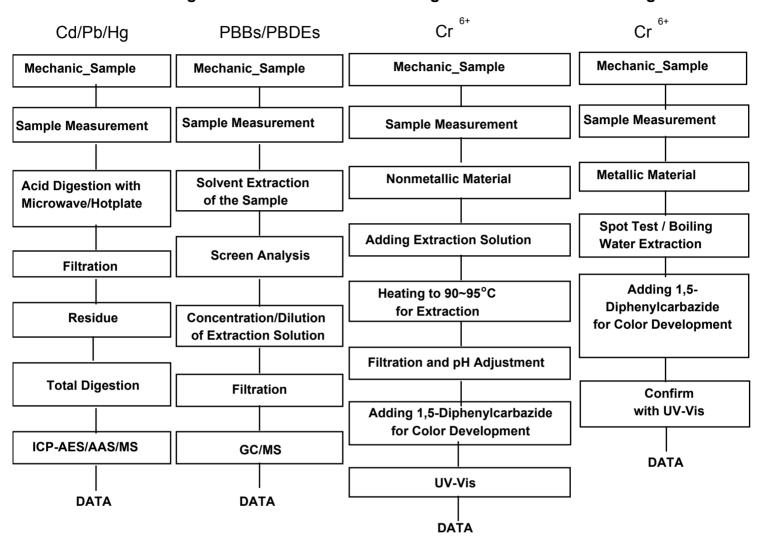
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Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr6+ /PBBs&PBDEs Testing

Issued Date: 2014. 12. 22



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg. Section Chief: Gilsae Yi

*** End of Report ***

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MATERIAL SAFETY DATA SHEET

	IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING()				
PRODUCT NAME() TF	RIBIT 1550GN30				
,	2	63 .			
2. COMPOSITION/INFORMA GENERAL DESCRIPTION Poly					
HAZARDOUS INGREDIENTS	PolyButylene Flame retarda	ARD RISK PHRASES SYMBO terephthalate: 026062-94-2 ant: 68928-70-1, 001309-64-4 065997-17-3 (30%)			
3. HAZARDOUS IDENTIFICA					
4. FIRST AID MEASURES(EYES() SKIN() INGESTION()) 가				
5. FIRE FIGHTING MEASUR EXTINGUISHING MEDIA (, , , FOAM, UNUSUAL FIRE AND EXPLO	,)			
PROTECTIVE EQUIPMENT(가	()				
Revision Number 0	PAGE 1 OF 3	Printed Date 2005.02.11			

Samyang Group Document

2006.09.22 16:24 /

```
PRODUCT NAME: TRIBIT 1550GN30
6. ACCIDENTAL RELEASE MEASURES(
                                               )
7. HANDLING AND STORAGE(
  HANDLING( )
                      HOOD가
                                                       HOOD가
                                                GAS
  STORAGE(
8. EXPOSURE CONTROLS/PERSONAL PROTECTION(
9. PHYSICAL AND CHEMICAL PROPERTIES(
  Forms()
                                                PELLET
  Color(
  Odour(
  PH(
       )
  Boiling point ( )(
  Melting point ( )(
                                  224
  Flammability( )
                                  V-0 (UL94)
  Solubility in water(
  Specific gravity( )
                                  1.59
  Viscosity(
  Bulk density
  Decomposition temperature( )
10 STABILITY AND REACTIVITY(
                                        )
  STABILITY(
              )
  INCOMPATIBILITY(
                                   가
  HAZARDOUS DECOMPOSITION PRODUCTS(
   Aliphatic THF 1,3-butadiene,Toluene, Benzoic acid, terephthalic acid가
                                            가 .
                           PAGE 2 OF 3
```

PRODUCT NAME : TRIBIT 1550GN30	
11. TOXICOLOGICAL INFORMATION(, , THF가)
12. ECOLOGICAL INFORMATION(Water pollution())
13. DISPOSAL CONSIDERATION(가 가)
14. TRANSPORT INFORMATION()
15. REGULATORY INFORMATION(가)
16. OTHER INFORMATION() MATERIAL SAFETY DATA SHEET TRIBIT	
Polybuthylene Terephthalate	

Printed Date 2005.02.11 Revision Date 2005.02.11



POONGSAN CORPORATION

94 Sanam-ro,Onsan-eup Ulju,Ulsan Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No. : AYGU14-07359

Product Name : C5210

Item No./Part No. : Phospher Bronze

Received Date : 2014. 10. 06

Test Period : 2014. 10. 07 to 2014. 10. 14

Conclusion: Based on the performed test on submitted sample(s), the results comply with RoHS Directive

2011/65/EU Annex II(recasting 2002/95/EC) and its subsequent amendment(s).

Test Results: For further details, please refer to following page(s)

SGS Korea Co., Ltd. / Gimhae Laboratory

Page 1 of 4

Issued Date: 2014. 10. 14

Thomas Hwang / Lab Manager

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Sample No. : AYGU14-07359.001

Sample Description : C5210

Item No./Part No. : Phospher Bronze

Materials : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013(Determination of Cadmium by ICP-OES)	0.5	N.D.
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013(Determination of Lead by ICP-OES)	5	41.0
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013(Determination of Mercury by ICP-OES)	2	N.D.
Hexavalent Chromium (Cr VI) By boiling water extraction*	**	with reference to IEC 62321:2008 (Determination of Hexavalent Chromium by spot test/Colorimetric Method using UV-Vis)	-	Negative

Issued Date: 2014. 10. 14

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NOTE: (1) N.D. = Not detected.(<MDL)

- (2) mg/kg = ppm
- (3) MDL = Method Detection Limit
- (4) = No regulation
- (5) Negative = Undetectable / Positive = Detectable
- (6) ** = Qualitative analysis (No Unit)
- (7) * = Boiling-water-extraction:

Negative = Absence of CrVI coating

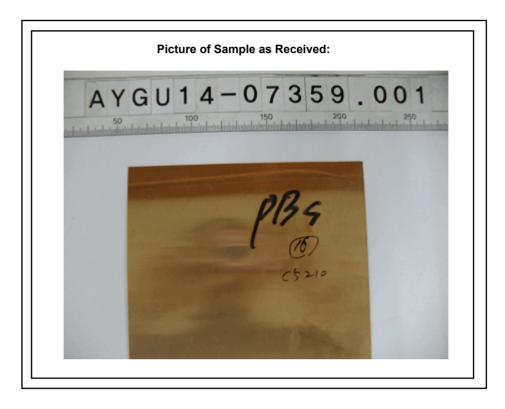
Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm2 sample surface area.

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Issued Date: 2014. 10. 14



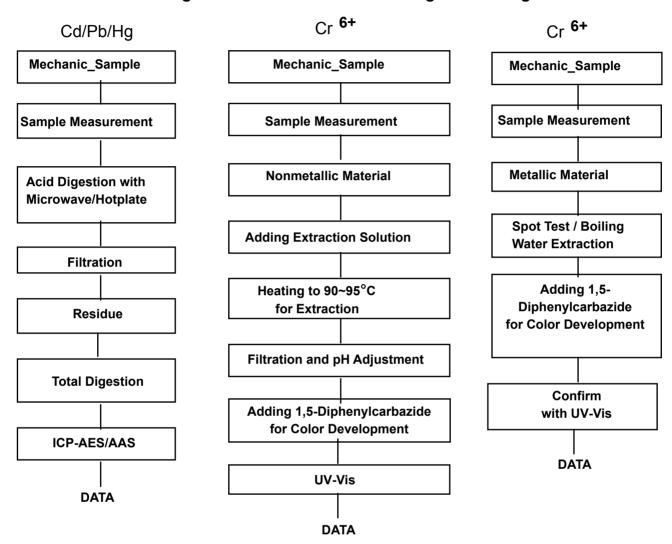
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Testing Flow Chart for RoHS:Cd/Pb/Hg/Cr6+ Testing

Issued Date: 2014. 10. 14



The samples were dissolved totally by pre-conditioning method according to above flow chart for Cd,Pb,Hg. Section Chief: Sharpless Park

*** End of Report ***

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PONGSAN

Date Issued	Apr.23.2009
Revision No	1

Material Safety Data Sheet

Copper & Brass Sales -- Phosphor Bronze Strip (C5102, C5111, C5191, C5212, C5210)

Material Safety Data Sheet

Part Number/Trade Name: Phosphor Bronze Strip

1. Product and Company Identification

① Item Name: Phosphor Bronze Strip (C5102, C5111, C5191, C5212, C5210)

② Company's Name: POONGSAN CORPORATION

③ Company's Address: 611, Daejung-Ri, Onsan-Up, Ulju-Kun, Ulsan, 689-890, SOUTH KOREA

4 Phone Number: 81-52-231-93025 Fax Number: 81-52-231-9400

2. Composition

Element	Elementary Symbol	CAS Number	Content
Copper	Cu	7440-50-8	90.8%~96.5%
Tin	Sn	7440-31-5	3.5%~9.0%
Phosphorus	Р	7723-14-0	0.03%~0.2%

3. Hazard Identification

1 Route Of Entry

- Inhalation: YES

- Skin: YES

- Ingestion: YES

2 Health Hazard Acute and Chronic

- Copper Inhalation: Fumes may cause metal fume fever.

- Skin: Dermatitis, Keratinzation of the hands & the soles of the feet.

- Copper dust & fume cause irritation of the upper respiratory tract.

3 Carcinogenicity: None

4. First Aid Measures

- ① Inhalation: Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help
- ② Ingestion: Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.
- ③ Skin: Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

- ① Unusual Fire And Explosion Hazards: Solid massive form isn't combustible. Molten metal may react violently water.
- ② Extinguishing Media: Use special mixtures of dry chemical/sand.
- ③ Special Fire Fighting Procedures: Pressure-demand self-contained breathing apparatus must be worn by firefighters or any other persons potentially exposed to the metal fumes or dust release during or after a fire.

6. Accidental Release Measures

① Steps If Material Released or Spill: Remove by vacuuming/wet sweeping to Prevent heavy concentration of airborne dust. If liquids containing solubilized metal are spilled evacuate area. Absorb by mens of vermiculite, dry sand/similar material

7. Handing and Storage

- ① Handling: Particulate may enter the body through cuts, abrasions or other wounds on the surface of the skin. Wear gloves when handing parts with loose surface particulate or sharp edges.
- 2 Storage: Store in a dry area.

8. Exposure Controls, Personal Protection

- ① Allowing concentration
- TWA: 10mg/m² (Total Dust, OSHA Standard)
- ② Respiratory Protection: If exposure above the PEL/TLV, wear NIOSH/MSHA approved respirator.
- 3 Ventilation: Local exhaust ventilation.
- 4 Personal Protection
- Protective Gloves : Required
- Eye Protection : Safety glasses W/side shields
- Other Protective Equipment: Face shields, specially tinted glass.

9. Physical And Chemical Properties

① Physical State: Solid

② pH: Not Applicable

③ Melting Point : 1,020℃

4 Density: 8.80

⑤ Odor: None

6 Evaporation Rate: Not Applicable

7 Freezing Point: Not Applicable

® Radioactivity : Not Applicable

Solubility: None

10 Vapor Pressure: Not Applicable

10. Stability And Reactivity

- ① General Reactivity: The Material is stable
- ② Incompatibility: Reacts with some acids and caustic solutions to produce hydrogen gas.
 Hydrogen gas can be an explosion hazard
- ③ Hazardous Decomposition Products: None under normal conditions of use
- 4 Hazardous Polymerization: Will not occur

11. Toxicological information

1) No human data are available for this product

12. Ecological Information

① This material is recyclable

13. Disposal Considerations

- ① Waste Disposal Method: Dispose of low/federal, State & local regulations
- ② Byproduct Recycling: When recycled(used in a process to recover metals), this material is not classified as hazardous waste under federal law. Seal particulate or particulate containing materials inside two plastic bags, place in a DOT approved container, and label appropriately.
- ③ Solid Waste Management: When spent products are declared solid wastes (no longer recyclable), they must be labeled, managed and disposed of, in accordance with federal, state and local requirements.

14. Transport Information

1 None reported

15. Regulatory Information

① Occupational Safety and Health Administration
Air contaminants, 29 CFR 1910.1000
Hazard Communication Standard, 29 CFR 1910.1200

16. Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the Information for their particular purposes. If you require more information, please contact us at the location listed on the page of this report.