

LS MATERIALS CO.,LTD.
 39, 116Beon-gil, LS-ro, Dongan-gu
 Anyang-si, Gyeonggi-do
 Korea

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

SGS File No.	: AYAA23-06196
Product Name	: C-Type Cell Series
Product No. / Model No.	: N/A
Client Reference Data	: LSUC x.xV yyyyF (x.x = 2.7 or 2.85 or 3.0, yyyy = 650~3400)
Verification Period	: 2023. 01. 19. to 2023. 02. 03.
Verification Requested	: With reference to RoHS Directive 2011/65/EU recasting 2002/95/EC and Commission Delegated Directive(EU) 2015/863
Verification Method	1. Review was performed for the samples disjointed from the submitted articles and the related test reports submitted by the Applicant. 2. Test was performed for the samples indicated by the photos in the report with test methods reference to IEC 62321: Procedures for the Determination of Levels of Six Regulated Substances in Electrotechnical Products. (1) Screening by XRF Spectroscopy (2) Wet Chemical Test Method a. Determination of Lead & Cadmium by ICP or AAS b. Determination of Mercury by ICP c. Determination of Hexavalent Chromium by Spot test or Colorimetric Method d. Determination of PBBs and PBDEs by GC/MS e. Determination of DEHP and DBP, BBP, DIBP by GC/MS
Verification Result	: Please refer to next page
Verification Conclusion	: Based on the review of previous reports and verification results of the submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate(DEHP), Butyl benzyl phthalate(BBP), Dibutyl phthalate(DBP), and Diisobutyl phthalate(DIBP)comply with the limits as set by RoHS Directive 2011/65/EU recasting 2002/95/EC and Commission Delegated Directive(EU) 2015/863.
Comment	: The test results are related only to the tested items. The report shall not be reproduced except in full without the written approval of the testing laboratory. By the applicant's request, item No.s/part No.s & client reference information are stated/added on report.

SGS Korea Co., Ltd
/LTS ANYANG Laboratory



Tommy Oh / Lab Manager

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Details on Verification

No.	Part Description	Restricted Substances	Results of EDXRF ⁽¹⁾	Results of Related or Additional Wet Chemical Tests (mg/kg) ⁽²⁾	Report No. of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark ⁽³⁾
1	C-Type Cell .001	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00329	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
2	C-Type Cell .002	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
DIBP	-			-			
3	C-Type Cell .003	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00330	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
4	C-Type Cell .004	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	IN	Negative	SPOT	Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
DIBP	-			-			

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No.	Part Description	Restricted Substances	Results of EDXRF ⁽¹⁾	Results of Related or Additional Wet Chemical Tests (mg/kg) ⁽²⁾	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark ⁽³⁾
5	C-Type Cell .005	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00331	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
6	C-Type Cell .006	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00332	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
7	C-Type Cell .007	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00333	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				
8	C-Type Cell .008	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00334	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				

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No.	Part Description	Restricted Substances	Results of EDXRF ⁽¹⁾	Results of Related or Additional Wet Chemical Tests (mg/kg) ⁽²⁾	Report No.of Related or Additional Wet Chemical Test	Conclusion on RoHS	Remark ⁽³⁾
9	C-Type Cell .009	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	IN	Negative	SPOT	Comply	
		PBBs	-			-	
		PBDEs	-			-	
		DEHP	-			-	
		DBP	-			-	
		BBP	-			-	
10	C-Type Cell .010	Cd	BL			Comply	
		Pb	BL			Comply	
		Hg	BL			Comply	
		Cr ⁶⁺	BL			Comply	
		PBBs	BL			Comply	
		PBDEs	BL			Comply	
		DEHP	-	N.D.	AYAE23-00335	Comply	
		DBP	-	N.D.		Comply	
		BBP	-	N.D.		Comply	
DIBP	-	N.D.	Comply				

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Remark

(1) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

(b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	X < 50 (BL) 50 < X < 170(IN) 170 < X (OL)	X < 50 (BL) 50 < X < 170(IN) 170 < X (OL)	X < 50 (BL) 50 < X < 170(IN) 170 < X (OL)
Pb	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)
Hg	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)	X < 500 (BL) 500 < X < 1500 (IN) 1500 < X (OL)
Cr	X < 500 (BL) 500 < X (IN)	X < 500 (BL) 500 < X (IN)	X < 500 (BL) 500 < X (IN)
Br	X < 500 (BL) 500 < X (IN)	-	X < 500 (BL) 500 < X (IN)

(c) BL=Below Limit , OL=Over Limit, IN=Inconclusive.

(d) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample of non-uniformity composition.

(2) (a) mg/kg=ppm=0.0001%, N.D.=not detected (<MDL), - =not conducted.

(b) Unit and Method Detection Limit (MDL) in wet chemical test.

Test Items	Pb	Cd	Hg	PBBs&PBDEs	Cr6+ (for polymer & composite sample)	Phthalates (DEHP, DBP, BBP, DIBP)
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	5	0.5	2	5	1	50

(c) According to IEC 62321, result on Cr6+ for metal sample is shown as Positive/Negative.
Negative = Absence of Cr6+ coating, Positive=Presence of Cr6+ coating.

(3) (a) The detail of the exemptions are stated in Annex III of RoHS Directive 2011/65/EU.

Photo Index

Picture of Sample as Received



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SGS authenticate the photo on original report only

*** End of Report ***

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