TEST REPORT

LAB NO. : (6620)254-1098
DATE : September 24, 2020
PAGE : 1 OF 6

Applicant:
VISHAY SEMICONDUCTOR SHANGHAI CO., LTD
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Date of Submission: 2020-09-10/2020-09-17/2020-09-23
Test Period: 2020-09-10 to 2020-09-24
Sample Mode: Sample Presentation
BV EE Ref. No.: /

Sample Description :	Sample(s) received is(are) stated to be: Solder paste		
Manufacturer:	/	Buyer:	/
Style No(s):	Solder paste	PO No.:	/
Country of Origin:	/	Country of Destination:	Oversea Country

Test Item(s): Details see page 2

SUMMARY OF TEST RESULTS

TEST REQUESTED	**CONCLUSION**	REMARK
Halogen (fluorine, chlorine, bromine, iodine) Content	-	See Result
Total Antimony Content	-	See Result
Total Phosphorus Content	-	See Result
Total Beryllium Content	-	See Result
European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments (EU) 2015/863 & As Applicant's requirement	PASS	-

REMARK
If there are questions or concerns on this report, please contact the following persons:

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BUREAU VERITAS
CONSUMER PRODUCTS SERVICES DIVISION (SHANGHAI)

Laboratory Test Location:
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Sample Description Assigned by Laboratory:

Test Item	Description
1	Grey paste

Note:
g = gram(s)
mcg = microgram(s)
mg/kg = milligram per kilogram
mg/L = milligram per litre
g/kg = gram(s) per kilogram
MDL = Method Detection Limit
ND = Not Detected (< MDL)
EX = Exempted
% = percentage
1 mg/kg = 0.0001%
"<" = less than
">" = Greater than
Req. = Requirement
"-" = Not Regulated
NA = Not applicable

Photo of the Submitted Sample

TEST RESULT

I.Halogen (fluorine, chlorine, bromine, iodine) Content

Test Method: Sample was firstly combusted and absorbed with solvent, then analyzed by ion chromatography (Reference to EN14582:2016).

Parameter	Unit	MDL	Result
			1
Fluorine	mg/kg	100	ND
Chlorine	mg/kg	50	ND
Bromine	mg/kg	50	ND
Iodine	mg/kg	100	ND

II.Total Antimony Content

Test methods: The sample is comminuted and digested with acid mixtures, then analyzed by ICP-AES technique

Parameter	Unit	MDL	Result
			1
Antimony (Sb)	mg/kg	10	ND

III.Total Phosphorus Content

Test methods: The sample is digested with acid mixtures, then analyzed by ICP-AES technique

Parameter	Unit	MDL	Result
			1
Phosphorus (P)	mg/kg	10	ND

IV.Total Beryllium Content

Test methods: The sample is comminuted and digested with acid mixtures, then analyzed by ICP-AES technique

Parameter	Unit	MDL	Result
			1
Beryllium (Be)	mg/kg	10	ND

TEST RESULT

V.European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments (EU) 2015/863 & As Applicant's requirement

Test Method : See Appendix.

-	Unit	MDL	Maximum Allowable Limit (Req.)	Result
Test Item	-	-	-	**1[R2]**
Parameter	-	-	-	-
Lead (Pb)	mg/kg	2	1000	$8.57x10^5$
Cadmium (Cd)	mg/kg	2	100	ND
Mercury (Hg)	mg/kg	2	1000	ND
Chromium VI (Cr VI)	mg/kg	8	1000	ND
MonoBB	mg/kg	5		ND
DiBB	mg/kg	5		ND
TriBB	mg/kg	5		ND
TetraBB	mg/kg	5		ND
PentaBB	mg/kg	5		ND
HexaBB	mg/kg	5		ND
HeptaBB	mg/kg	5		ND
OctaBB	mg/kg	5		ND
NonaBB	mg/kg	5		ND
DecaBB	mg/kg	5		ND
Sum of PBBs	mg/kg	-	1000	ND
MonoBDE	mg/kg	5		ND
DiBDE	mg/kg	5		ND
TriBDE	mg/kg	5		ND
TetraBDE	mg/kg	5		ND
PentaBDE	mg/kg	5		ND
HexaBDE	mg/kg	5		ND
HeptaBDE	mg/kg	5		ND
OctaBDE	mg/kg	5		ND
NonaBDE	mg/kg	5		ND
DecaBDE	mg/kg	5		ND
Sum of PBDEs	mg/kg	-	1000	ND
Dibutyl phthalate (DBP)	mg/kg	50	1000	ND
Butyl benzyl phthalate (BBP)	mg/kg	50	1000	ND
Di-2-ethylhexyl phthalate (DEHP)	mg/kg	50	1000	ND
Diisobuty phthalate (DIBP)	mg/kg	50	1000	ND
Conclusion	-	-	-	EX#

Remark:

- The list of analytes is summarized in table of Appendix.
- Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Parliament and Council Directive 2011/65/EU, Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1).
- According to European Parliament and Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.
- The sample was tested after drying.
- #According to Annex III of European Council Directive 2011/65/EU with Amendment (EU)2018/742, exemptions were granted a few materials and Clause 7(a) is reiterated here "Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).". Test Item(s) was (were) claimed as is by client (received as is). Therefore, this (these) Test Item(s) containing the found lead level should be exempted.
- R1=2020-09-17 Second submission
- R2=2020-09-23 Third submission

END

APPENDIX

List of Analytes and their Corresponding Test Methods [European Parliament and Council Directive 2011/65/EU] :		
No.	Name of Analytes	Test Method(s)
1	Lead (Pb)	With reference to IEC 62321-5: 2013.
2	Cadmium (Cd)	
3	Mercury (Hg)	With reference to IEC 62321-4: 2013+AMD1: 2017 CSV.
4	Chromium VI (Cr VI)	Metal: With reference to IEC 62321-7-1:2015. Polymers & Electronics: With reference to IEC 62321-7-2: 2017.
5	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	With reference to IEC 62321-6:2015.
6	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	
7	Dibutyl phthalate (DBP) Butyl benzyl phthalate (BBP) Di-2-ethylhexyl phthalate (DEHP) Diisobuty phthalate (DIBP)	Reference to IEC 62321-8: 2017.