Teledyne Dalsa Semiconductor, a BU of Teledyne Imaging
18 Boulevard de l'Aeroport
Bromont, QC J2L 1S7
Canada

The following sample(s) was/were submitted and identified by/on behalf of the client as:	**Sample Description: B704 235656.1** **Model/Part No.: Rejected MEMS wafer 200mm**
Sample Received Date:	**11/04/2024**
Testing Period:	**11/04/2024 – 11/08/2024**

Test Requested : Please refer to the result summary.

Test Method & Results : Please refer to next page(s).

Result Summary :

Test(s) Requested	Conclusion
1. RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU	PASS
2. Halogen Content	See Test Results
3. Antimony Content	See Test Results

Signed for and on behalf of SGS North America, Inc.

Brian Murphy
Laboratory Supervisor, Chemistry Laboratory

Prepared By:

Aissatou Ndiour
Technical Report Writer, Chemistry Laboratory

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1. RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Item(s):	Unit	Test Method	Result 1	MDL	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd and Pb by ICP-OES and /or ICP-MS)	ND	2	100
Lead (Pb)	mg/kg		ND	2	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+A1:2017 (Determination of Hg by ICP-OES and/ or ICP-MS)	ND	2	1000
Hexavalent Chromium (CrVI)	mg/kg	With reference to IEC 62321-7-2:2017 (Determination of CrVI by UV-Vis)	ND*	8	1000
Sum of PBBs	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB and PBDE by GC-MS)	ND	-	1000
Monobromobiphenyl	mg/kg		ND	5	-
Dibromobiphenyl	mg/kg		ND	5	-
Tribromobiphenyl	mg/kg		ND	5	-
Tetrabromobiphenyl	mg/kg		ND	5	-
Pentabromobiphenyl	mg/kg		ND	5	-
Hexabromobiphenyl	mg/kg		ND	5	-
Heptabromobiphenyl	mg/kg		ND	5	-
Octabromobiphenyl	mg/kg		ND	5	-
Nonabromobiphenyl	mg/kg		ND	5	-
Decabromobiphenyl	mg/kg		ND	5	-
Sum of PBDEs	mg/kg		ND	-	1000
Monobromodiphenyl ether	mg/kg		ND	5	-
Dibromodiphenyl ether	mg/kg		ND	5	-
Tribromodiphenyl ether	mg/kg		ND	5	-
Tetrabromodiphenyl ether	mg/kg		ND	5	-
Pentabromodiphenyl ether	mg/kg		ND	5	-
Hexabromodiphenyl ether	mg/kg		ND	5	-
Heptabromodiphenyl ether	mg/kg		ND	5	-
Octabromodiphenyl ether	mg/kg		ND	5	-
Nonabromodiphenyl ether	mg/kg		ND	5	-
Decabromodiphenyl ether	mg/kg		ND	5	-
Bis (2-ethylhexyl) Phthalate (DEHP)	mg/kg	IEC 62321-8:2017 (Determination of DEHP, BBP, DBP and DIBP by GC-MS)	ND	50	1000
Butyl Benzyl Phthalate (BBP)	mg/kg		ND	50	1000
Dibutyl Phthalate (DBP)	mg/kg		ND	50	1000
Diisobutyl Phthalate (DIBP)	mg/kg		ND	50	1000
Conclusion	/	/	PASS	/	/

Sample Description:

1. B704 235656.1

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Note:

(a) mg/kg = ppm；0.1wt% = 1000ppm
(b) ND= not detected
(c) MDL = Method Detection Limit
(d) - = not regulated
(e) * = Total Chromium analysis by ICP-MS and/or ICP-OES was not detected in submitted sample. Therefore, Hexavalent Chromium determination using UV-Visible Spectroscopy was not performed.
(f) IEC 62321 series is equivalent to EN 62321 series http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:1258637,25

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2. Halogen Content

Test Method(s): With reference to IEC 62321-3-2:2020 "Determination of certain substances in electrotechnical products – Part 3-2: Screening – Fluorine, bromine and chlorine in polymer and electronics by combustion-ion chromatography (C-IC), and/or with reference to BS EN 14582:2016 – Analysis was performed by ion chromatography.

Test Item(s):	Result (ppm)	Reporting Limit (ppm)
	1	
Chlorine (Cl)	ND	50
Bromine (Br)	ND	50

Sample Description:

1. B704 235656.1

Note: 1. ppm = parts per million
2. mg/kg = ppm
3. 1% = 10000 ppm (mg/kg)
4. ND = Not Detected, reported when the reading is less than the reporting limit value.

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3. Antimony Content

Test Method: With reference to US EPA Method 3050B followed by analysis using ICP-MS.

Test Item		Result (ppm)	Reporting Limit (ppm)
		1	
Antimony	(Sb)	ND	20

Sample Description:
1. B704 235656.1

Note: 1. ppm = parts per million
2. mg/kg = ppm
3. 1% = 10000 ppm (mg/kg)
4. ND = Not Detected, reported when the reading is less than the reporting limit value.

Decision Rule: When statement of conformity is made, unless the decision rule was mentioned in above specified test items, the decision rule would be based on the non-binary statement with guard band (is equal to the expanded measurement uncertainty with a 95% coverage probability, w = U95) in ILAC-G8:09/2019 Clause 4.2.3.

"Pass - the measured value is within (or below / above) the acceptance limit, where the acceptance limit is below / above to the guard band." or "Pass - The measured values were observed in tolerance at the points tested. The specific false accept risk is up to 2.5%."

"Fail - the measured value is out of (or below / above) the tolerance limit added / subtracted to the guard band." or "Fail - One or more measured values were observed out of tolerance at the points tested." The specific false reject risk is up to 2.5%."

"Guarded Pass if the result is within the uncertainty passing band close to the specification."

"Guarded Fail if the result is within the uncertainty failing band close to the specification."

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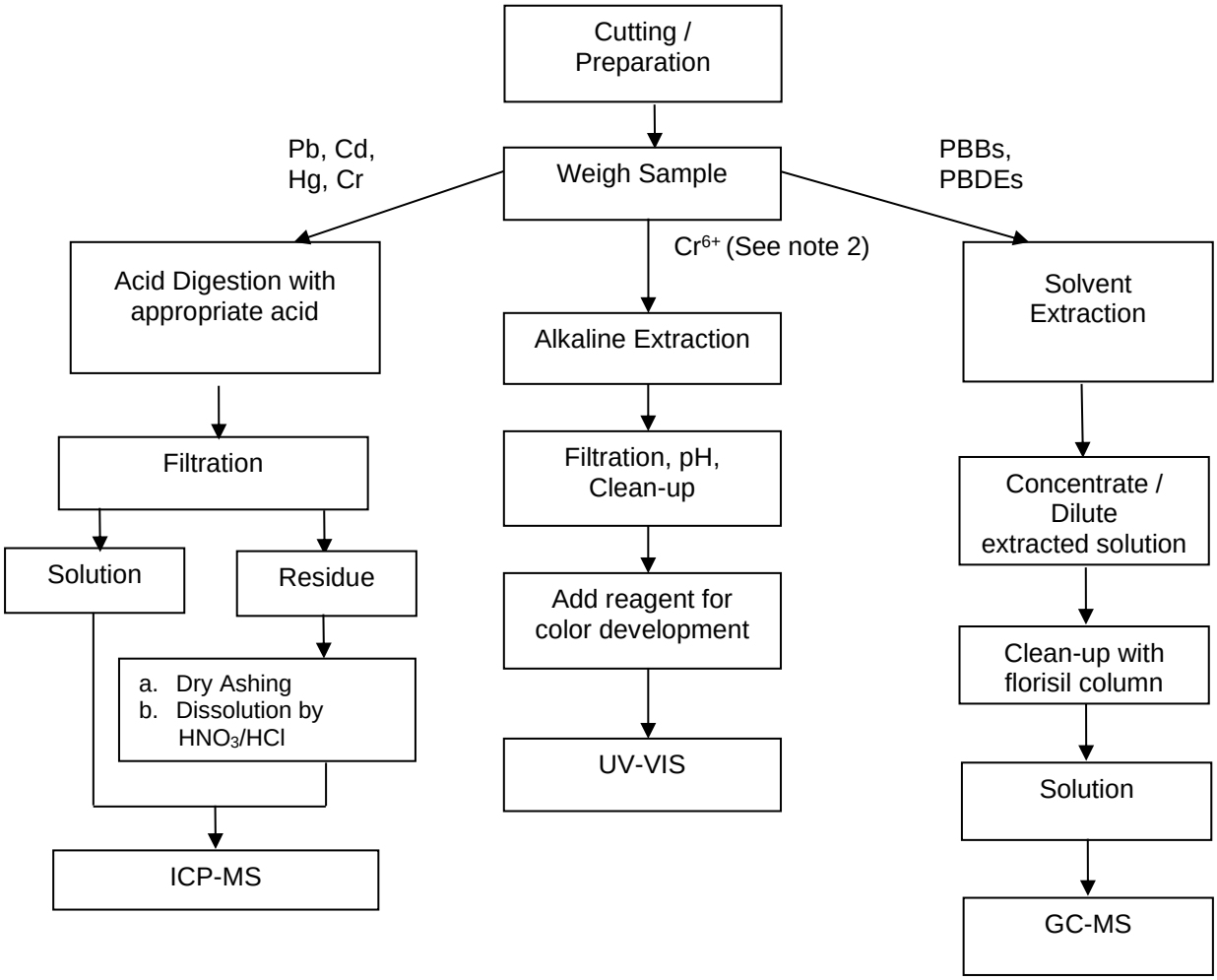
Flowchart for RoHS:



Note : 1. The Cr, Cd, Pb and Hg contents test on polymeric samples were dissolved totally by pre-conditioning method according to above flow chart.
2. Cr^{6+} is performed only when total Cr is detected

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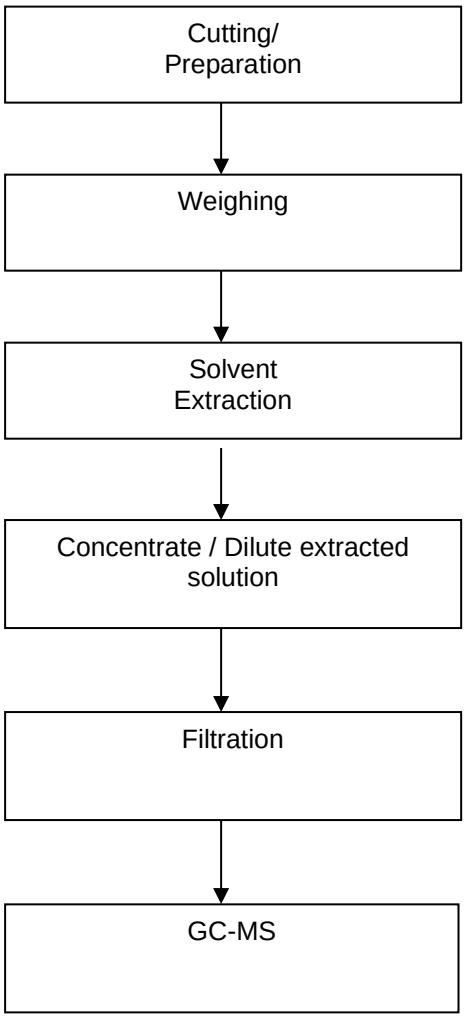
Flowchart for Phthalates:



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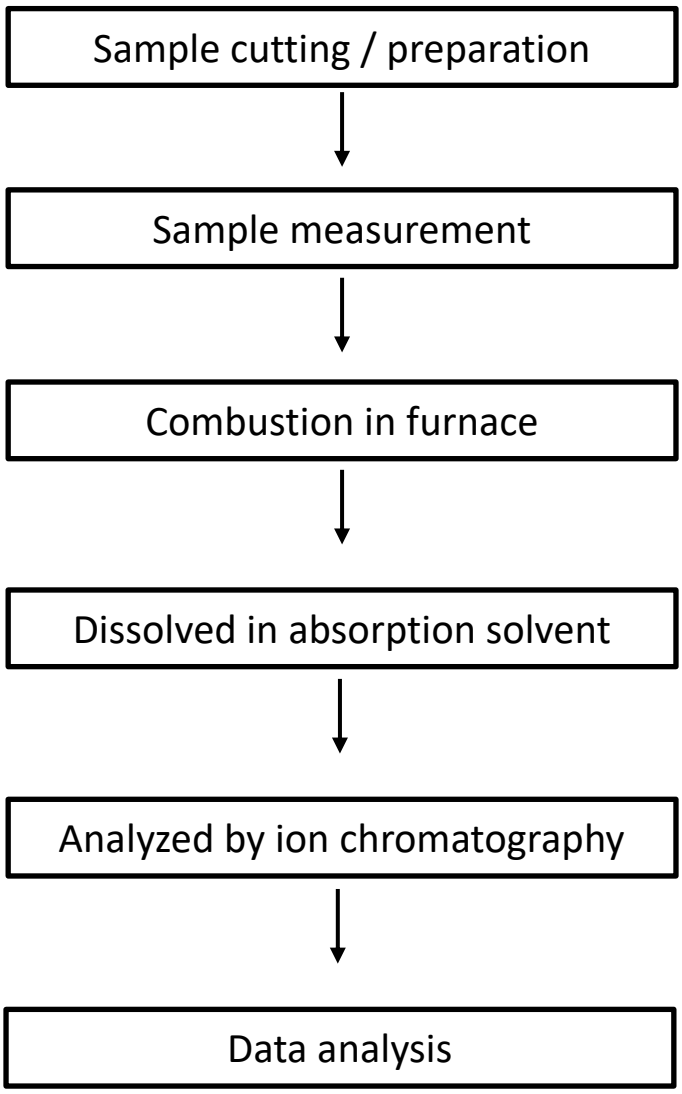
Flow Chart of Halogen Test by Combustion Ion Chromatography:



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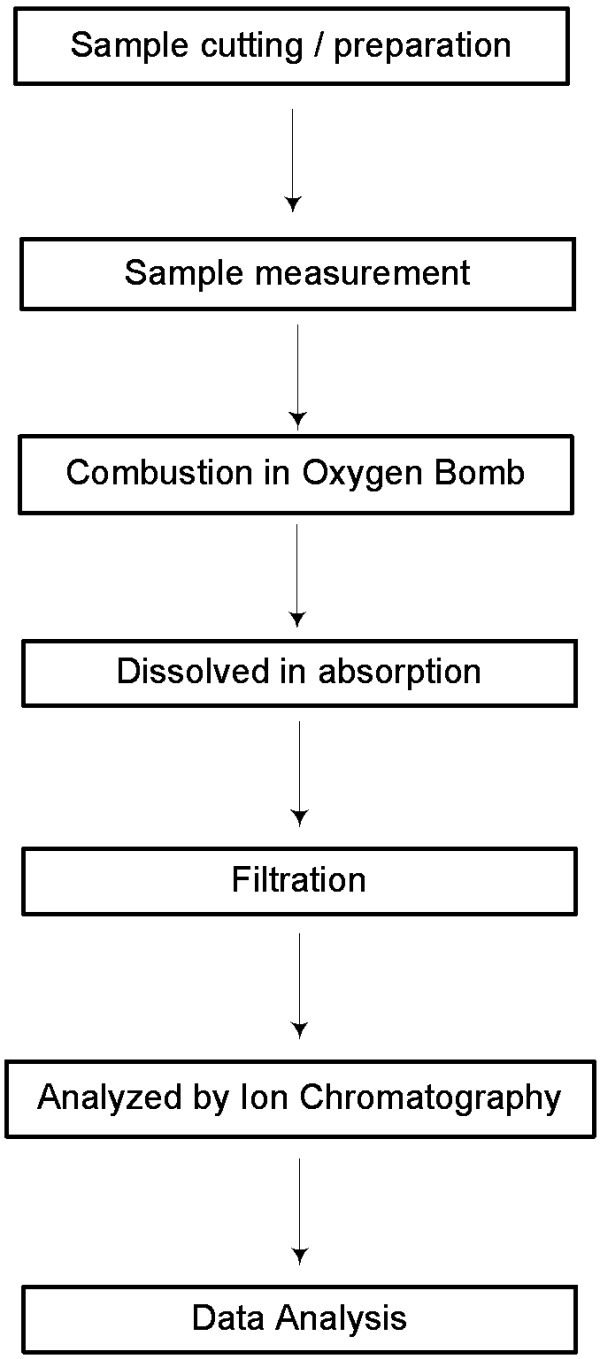
Halogen Testing Flow Chart (EN 14582):



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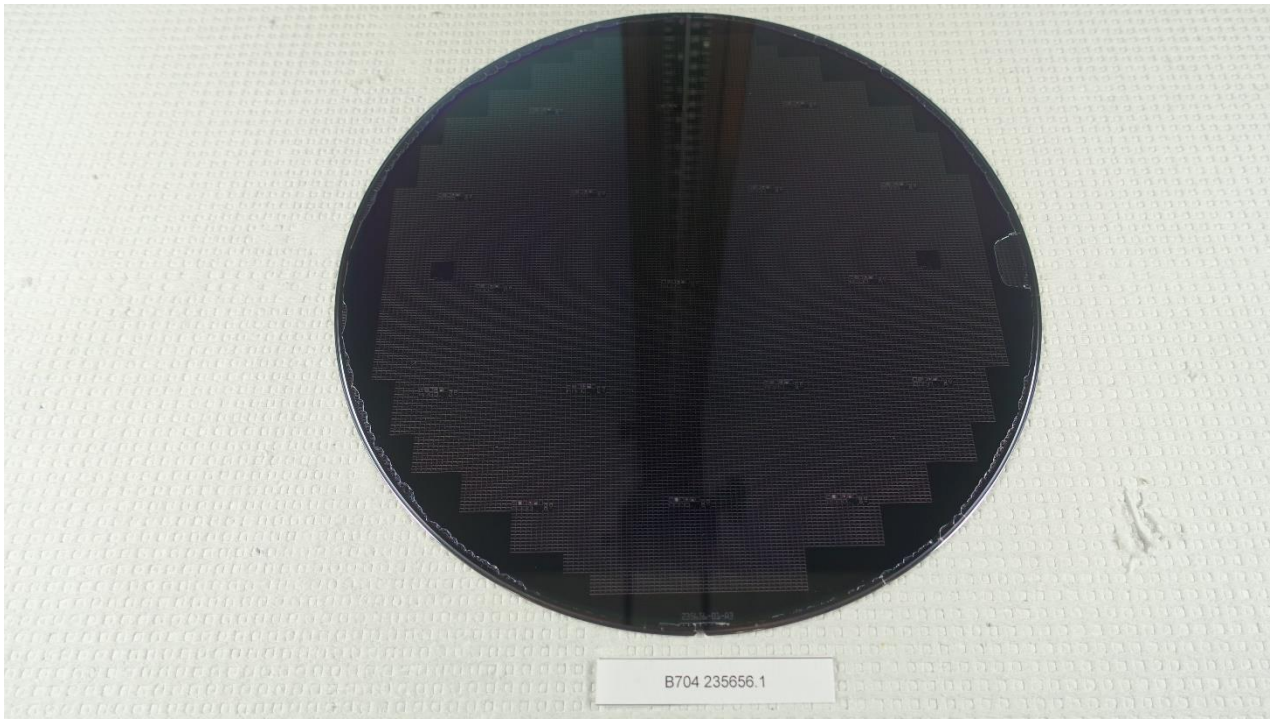
Sample Photo(s):



SGS authenticates the photo(s) on the original report only

*** End of Report ***

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