

## TEST REPORT

APPLICANT : SAMSUNG ELECTRONICS Co., Ltd.

ADDRESS : 1, Samsungjeonja-ro,  
Hwaseong-si, Gyeonggi-do, Korea

PAGE: 1 of 10

REPORT NO. RT25R-S0537-003-E1

DATE: Jan. 31, 2025

SAMPLE DESCRIPTION : The following submitted sample(s) said to be:-

NAME/TYPE OF PRODUCT : 12 inch wafer (No C/F, No Bump)

NAME OF MATERIAL : Wafer (Patterned)

SAMPLE ID NO. : RT25R-S0537-003

MANUFACTURER/VENDOR : SAMSUNG ELECTRONICS Co., Ltd.

SAMPLE RECEIVED : Jan. 20, 2025

TESTING DATE : Jan. 20, 2025 ~ Jan. 31, 2025

TEST METHOD(S) : Please see the following page(s).

TEST RESULT(S) : Please see the following page(s).

\* Note 1 : The test results presented in this report refer only to the object tested.

\* Note 2 : This report shall not be reproduced except in full without the written approval of the testing laboratory.

Approved by,



Nikkie Lee / Lab. Technical Manager

Authorized by,



Jade Jang / Lab. General Manager



Authenticity check

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## TEST REPORT

PAGE: 2 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

SAMPLE ID NO. : RT25R-S0537-003  
SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

TEST ITEM	UNIT	TEST METHOD	MDL	RESULT
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 Edition 1.0 : 2013, by acid digestion and determined by ICP-OES	0.5	N.D.
Lead (Pb)	mg/kg		5	N.D.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 : 2013/AMD1 : 2017, by acid digestion and determined by ICP-OES	2	N.D.
Hexavalent Chromium (Cr <sup>6+</sup> )	mg/kg	With reference to IEC 62321-7-2 Edition 1.0 : 2017, by alkaline/toluene digestion and determined by UV-VIS Spectrophotometer	8	N.D.
Polybrominated Biphenyl (PBBs)				
Monobromobiphenyl	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	5	N.D.
Dibromobiphenyl	mg/kg		5	N.D.
Tribromobiphenyl	mg/kg		5	N.D.
Tetrabromobiphenyl	mg/kg		5	N.D.
Pentabromobiphenyl	mg/kg		5	N.D.
Hexabromobiphenyl	mg/kg		5	N.D.
Heptabromobiphenyl	mg/kg		5	N.D.
Octabromobiphenyl	mg/kg		5	N.D.
Nonabromobiphenyl	mg/kg		5	N.D.
Decabromobiphenyl	mg/kg		5	N.D.
Polybrominated Diphenyl Ether (PBDEs)				
Monobromodiphenyl ether	mg/kg	With reference to IEC 62321-6 Edition 1.0 : 2015, by solvent extraction and determined by GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg		5	N.D.
Tribromodiphenyl ether	mg/kg		5	N.D.
Tetrabromodiphenyl ether	mg/kg		5	N.D.
Pentabromodiphenyl ether	mg/kg		5	N.D.
Hexabromodiphenyl ether	mg/kg		5	N.D.
Heptabromodiphenyl ether	mg/kg		5	N.D.
Octabromodiphenyl ether	mg/kg		5	N.D.
Nonabromodiphenyl ether	mg/kg		5	N.D.
Decabromodiphenyl ether	mg/kg		5	N.D.

Tested by : Jooyeon Lee, Chano Kim, Hayan Park

Notes : mg/kg = ppm = parts per million  
< = Less than  
N.D. = Not detected ( <MDL )  
MDL = Method detection limit

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## TEST REPORT

PAGE: 3 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

SAMPLE ID NO. : RT25R-S0537-003

SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

TEST ITEM	UNIT	TEST METHOD	MDL	RESULT
Bromine (Br)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Chlorine (Cl)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Fluorine (F)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.
Iodine (I)	mg/kg	With reference to EN 14582, by oxygen combustion with bomb and determined by IC	30	N.D.

Tested by : Chano Kim

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PAGE: 4 of 10  
DATE: Jan. 31, 2025

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SAMPLE ID NO. : RT25R-S0537-003

SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

TEST ITEM	UNIT	TEST METHOD	MDL	RESULT
Arsenic (As)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Beryllium (Be)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Phosphorus (P)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Antimony (Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.
Polyvinyl chloride (PVC)	-	With reference to KS K 0210-1, and determined by FT-IR	N.A.	Negative

Tested by : Jooyeon Lee

Notes : mg/kg = ppm = parts per million  
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N.D. = Not detected ( <MDL )  
MDL = Method detection limit  
N.A. = Not applicable  
Negative = Undetectable  
Positive = Detectable

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PAGE: 5 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

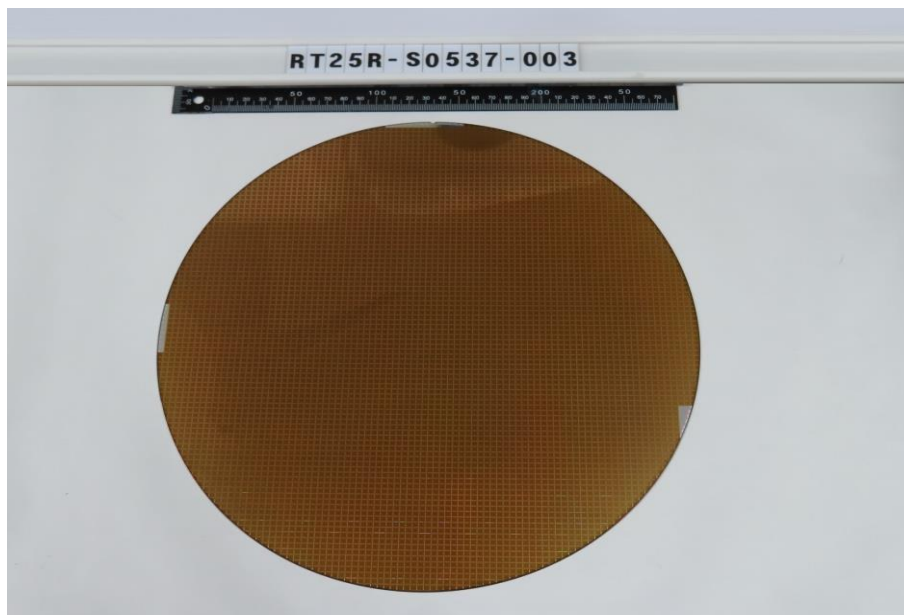
SAMPLE ID NO. : RT25R-S0537-003  
SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

TEST ITEM	CAS NO.	UNIT	TEST METHOD	MDL	RESULT
Dibutyl phthalate (DBP)	84-74-2	mg/kg	With reference to IEC 62321-8 Edition 1.0 : 2017, by solvent extraction and determined by GC/MS	50	N.D.
Di(2-ethylhexyl) phthalate (DEHP)	117-81-7	mg/kg		50	N.D.
Benzyl butyl phthalate (BBP)	85-68-7	mg/kg		50	N.D.
Diisobutyl phthalate (DIBP)	84-69-5	mg/kg		50	N.D.

Tested by : Hayan Park

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\* View of sample as received;-



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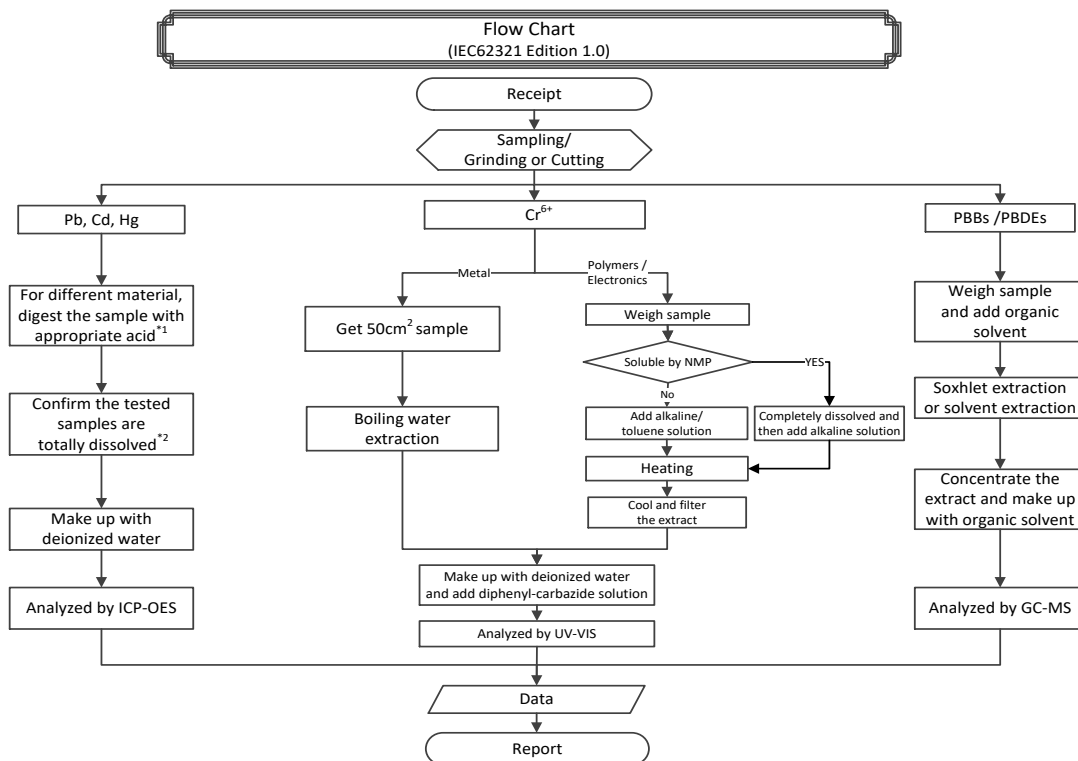
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## TEST REPORT

REPORT NO. RT25R-S0537-003-E1

PAGE: 6 of 10  
DATE: Jan. 31, 2025

SAMPLE ID NO. : RT25R-S0537-003  
SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)



**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 : The samples were dissolved totally by pre-conditioning method according to above flow chart.

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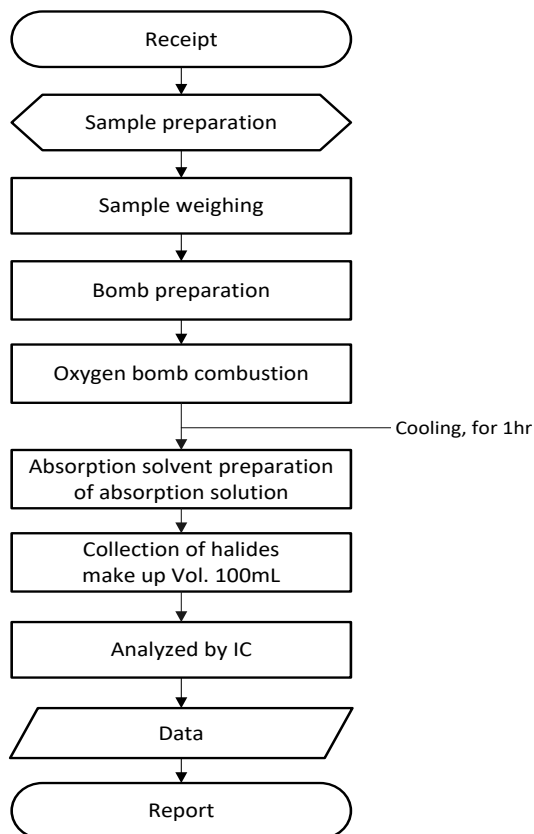
PAGE: 7 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

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SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

### Flow Chart (EN14582)



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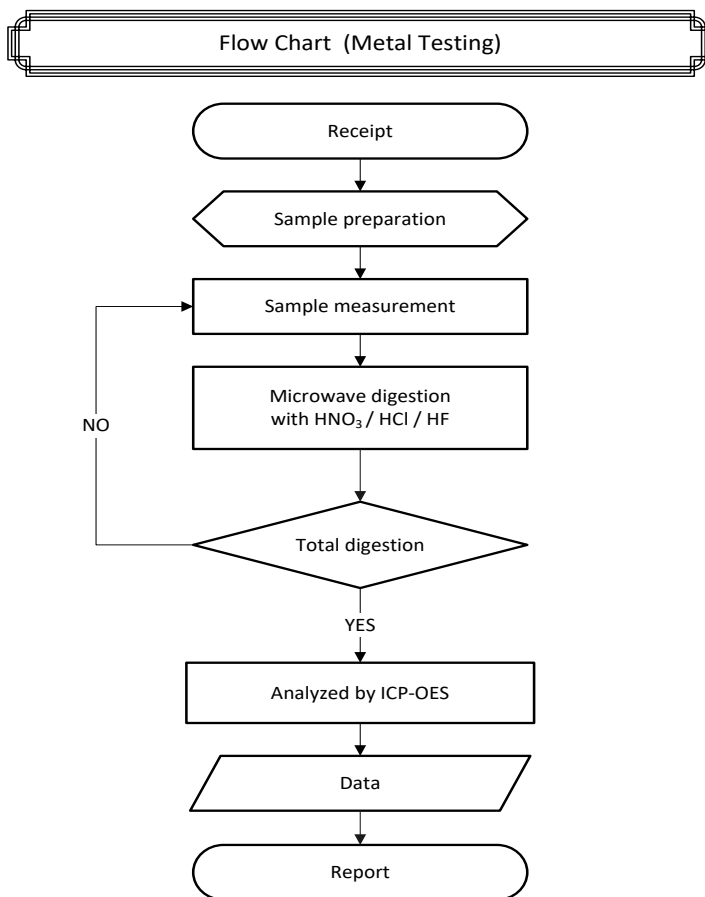
## TEST REPORT

PAGE: 8 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

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\*\* Remarks : The samples were dissolved totally by pre-conditioning method according to above flow chart.

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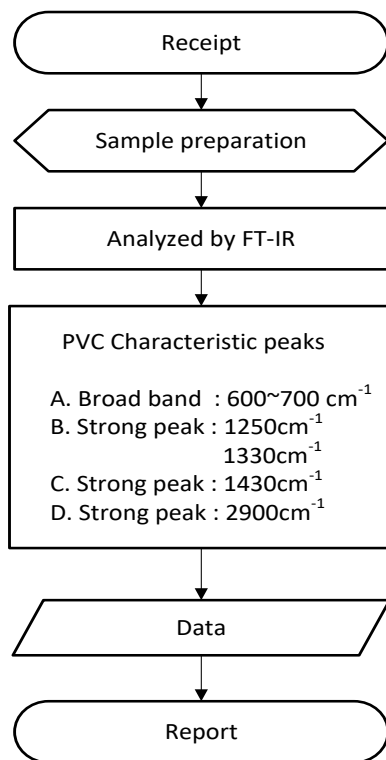
PAGE: 9 of 10  
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

SAMPLE ID NO. : RT25R-S0537-003

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### Flow Chart (PVC)



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PAGE: 10 of 10

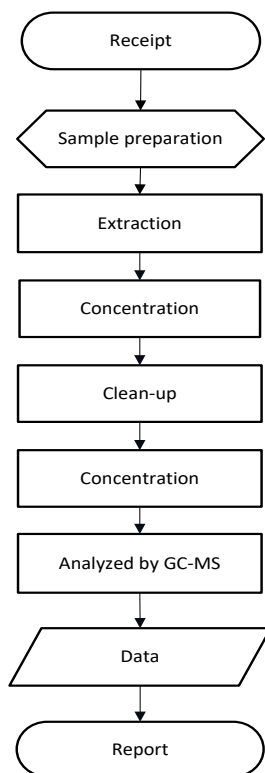
DATE: Jan. 31, 2025

REPORT NO. RT25R-S0537-003-E1

SAMPLE ID NO. : RT25R-S0537-003

SAMPLE DESCRIPTION : 12 inch wafer (No C/F, No Bump)

### Flow Chart (Phthalates)



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

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