

TEST REPORT

APPLICANT : KYOCERA Corporation Ceramic Packages Division 1
ADDRESS : 1810 Taki-cho, Satsumasendai, kagoshima 895-0292, Japan

PAGE: 1 of 8

REPORT NO. RT24R-S3112-001-E

DATE: May 27, 2024

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

NAME/TYPE OF PRODUCT : CERAMIC GL771

SAMPLE ID NO. : RT24R-S3112-001

MANUFACTURER/VENDOR : KYOCERA Corporation Ceramic Packages Division 1

SAMPLE RECEIVED : Apr. 29, 2024

TESTING DATE : Apr. 29, 2024 ~ May 27, 2024

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,



Jade Jang / Lab. Technical Manager

Authorized by,



Bo Park / Lab. General Manager



Authenticity check

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TEST REPORT

PAGE: 2 of 8
DATE: May 27, 2024

REPORT NO. RT24R-S3112-001-E

SAMPLE ID NO. : RT24R-S3112-001

SAMPLE DESCRIPTION : CERAMIC GL771

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 ⁶⁺)	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 8
DATE: May 27, 2024

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SAMPLE ID NO. : RT24R-S3112-001

SAMPLE DESCRIPTION : CERAMIC GL771

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.
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.
Antimony (Sb)	mg/kg	With reference to US EPA 3052, by acid digestion and determined by ICP-OES	2	N.D.

Tested by : Chano Kim, Jooyeon Lee

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TEST REPORT

PAGE: 4 of 8
DATE: May 27, 2024

REPORT NO. RT24R-S3112-001-E

SAMPLE ID NO. : RT24R-S3112-001

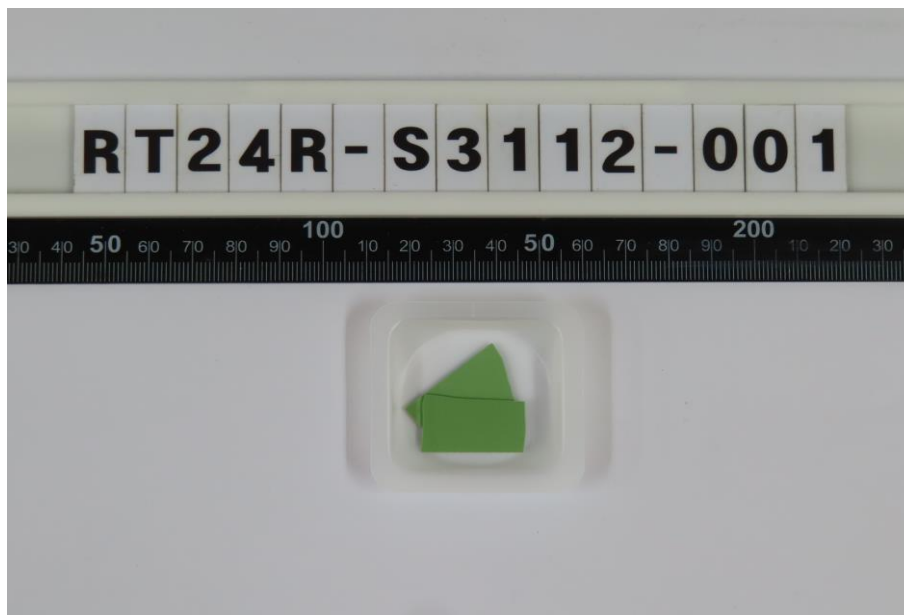
SAMPLE DESCRIPTION : CERAMIC GL771

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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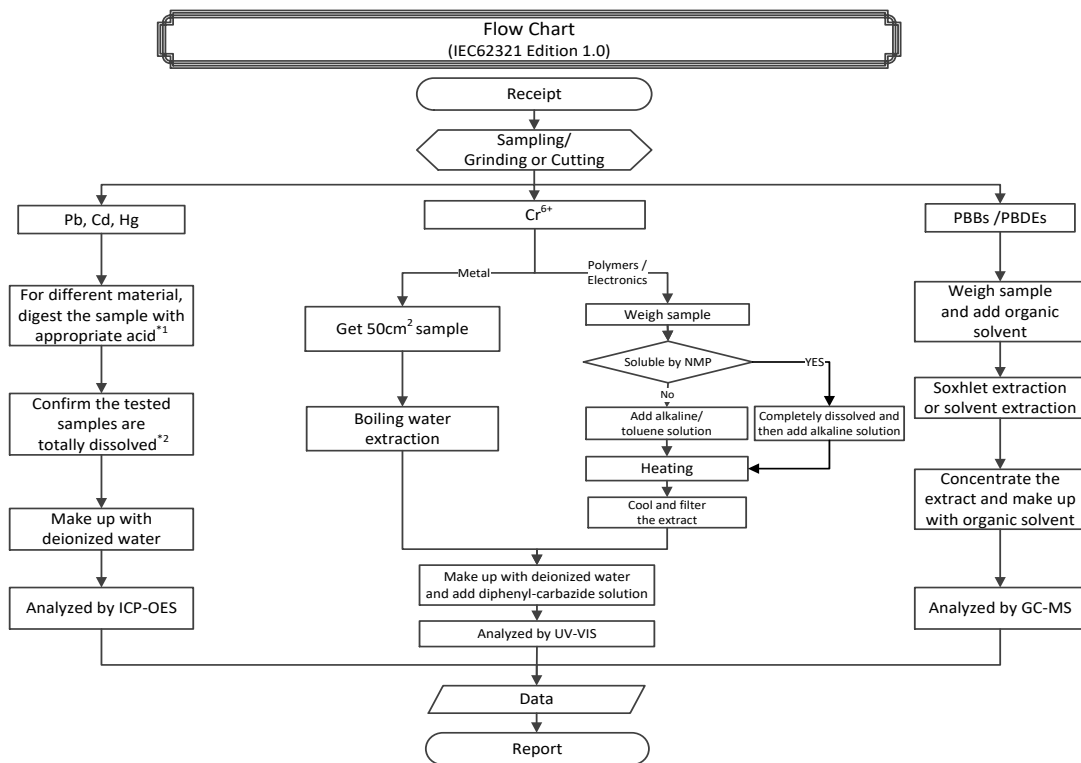
REPORT NO. RT24R-S3112-001-E

PAGE: 5 of 8

DATE: May 27, 2024

SAMPLE ID NO. : RT24R-S3112-001

SAMPLE DESCRIPTION : CERAMIC GL771



Remarks :

*1 : List of appropriate acid :

Material	Acid added for digestion
Polymers	HNO ₃ , HCl, HF, H ₂ O ₂ , H ₃ BO ₃
Metals	HNO ₃ , HCl, HF
Electronics	HNO ₃ , HCl, H ₂ O ₂ , HBF ₄

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

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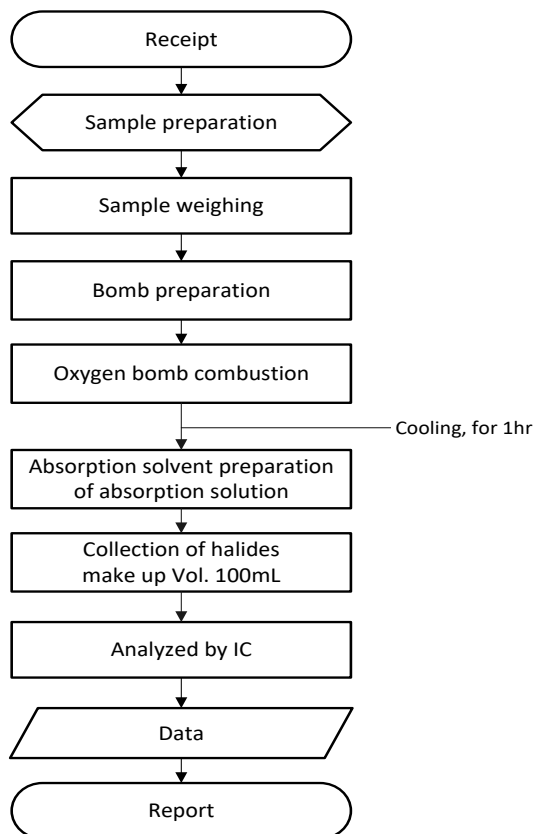
PAGE: 6 of 8

DATE: May 27, 2024

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Flow Chart (EN14582)



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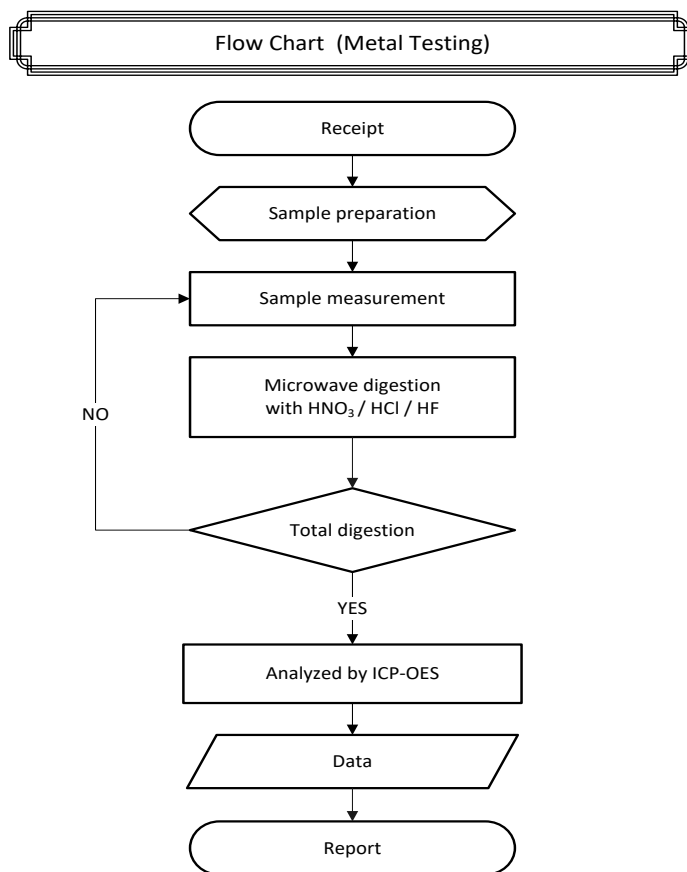
TEST REPORT

PAGE: 7 of 8
DATE: May 27, 2024

REPORT NO. RT24R-S3112-001-E

SAMPLE ID NO. : RT24R-S3112-001

SAMPLE DESCRIPTION : CERAMIC GL771



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



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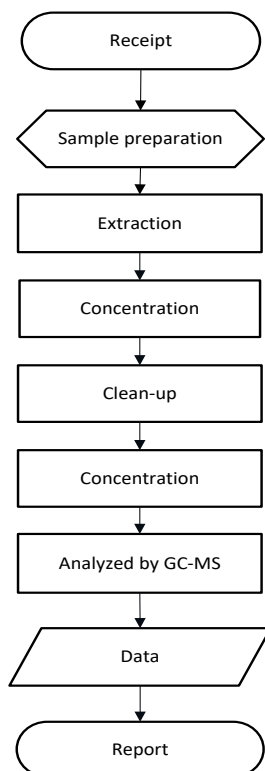
PAGE: 8 of 8

DATE: May 27, 2024

SAMPLE ID NO. : RT24R-S3112-001

SAMPLE DESCRIPTION : CERAMIC GL771

Flow Chart (Phthalates)



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

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