

COA No.: TCOA18-0199-01

188, Moonji-ro, Yuseong-gu, Daejeon, 34122, Korea

Tel: +82-42-866-2701 Fax: +82-42-861-2057 MAR. 19, 2018

Client Name JIN A KWAK

Client Company ABS Division, LG Chem, Ltd.

Application Requested by Client

Sample Name/Description ABS AF312B **Sample Received** March 12, 2018

Testing Date March 14, 2018 ~ March 16, 2018

Testing Environment Temperature : (25 ± 2) °C, Humidity : (35 ± 7) % R.H.

Reporting Date MAR. 19, 2018

Testing method Please see the following page(s). **Results** Please see the following page(s).

- 1. The results shown in this report refer only to the sample with which the client provided. The sample name is referred as client assigned.
- 2. This report cannot be duplicated or utilized without prior permission.
- 3. This report can be reissued after approval by technical manager and director of analytical center

Tested by

Son Jihyang / Analyst

152/36

Authorized by

Woongjin Lee / Technical Manager

Qualified Laboratory

SUD Rediffer Laboratory

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Result(s)

Sample Description: ABS AF312B

Heavy Metals

Test Items	Results	MDL	Test Method
Pb all	ND	5 0	MA LO LID
Cd	ND	2	ICP/OES, IEC 62321-5:2013
Cr. Cr	ND	2	A Children
Hg	ND	1 STO	TD(G)-AAS, IEC 62321-4:2013

^{*} Cr content includes entire Cr species including Cr6+

Flame Retardants-PBBs/PBDEs

lame Retardants-PBB	s/PBDEs	Unit : mg/kg	
Test Items	Results	MDL	Test Method
Monobromobiphenyl	ND	5	
Dibromobiphenyl	ND	5	(this little)
Tribromobiphenyl	ND	5	AND FAIL CHILD
Tetrabromobiphenyl	ND	5	RIST
Pentabromobiphenyl	ND	5	
Hexabromobiphenyl	ND	5	
Heptabromobiphenyl	ND	5	MIL ITO
Octabromobiphenyl	ND	5	AND THE PARTY OF T
Nonabromobiphenyl	ND CO	5	TENETH CHI
Decabromobiphenyl	ND	5	GC/MS, IEC62321-6:2015
Monobromodiphenyl ether	ND	5	GC/NG, 1LC02321-0.2013
Dibromodiphenyl ether	ND	5	
Tribromodiphenyl ether	ND	5	
Tetrabromodiphenyl ether	ND	5	
Pentabromodiphenyl ether	ND	5	WILL TO
Hexabromodiphenyl ether	ND (5	AND STATE AND THE AND
Heptabromodiphenyl ether	ND	5	TEXTERNICH TEXTER
Octabromodiphenyl ether	ND	5	
Nonabromodiphenyl ether	ND	5	
Decabromodiphenyl ether	ND	5	7

^{*} ND : Not Detected

^{*} MDL : Method Detection Limit



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Phthalates Unit: mg/kg

Test Items	Results	MDL	Test Method
Dimethyl phthalate	ND	50	GC/MS, KOI-0052 (In house method in compliance with KS M
Diethyl phthalate	ND	50	1991:2015)
Di-n-butyl phthalate	ND	50	0 4120
Di-iso-butyl phthalate	ND	50	
Butyl benzyl phthalate	ND	50	A Italian County
Di-(2-ethylhexyl)- phthalate	ND	50	GC/MS, KS M 1991:2015
Di-n-octyl phthalate	ND	50	
Di-iso-nonyl phthalate	ND	50	
Di-iso-decyl phthalate	ND	50	

^{*} ND: Not Detected

^{*} MDL: Method Detection Limit





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The Test Procedures (RoHS) Sample Cutting Pass (Not Detected) **ED-XRF** Screening Material Identification (FT-IR) PBBs/PBDEs Pb,Cd,Cr Sample Preparation: Sample Preparation: Sample Preparation: - Freeze Mill - Freeze Mill - Freeze Mill - Weighing - Weighing Weighing Extraction -Total Digestion - Concentration : Microwave Digestion -Mass-up Complete Dissolution ICP-OES Analysis TD(G)-AAS GC/MS Analysis Cr Detected Cr(VI) Spot test Cr(VI) Not Detected Sample Preparation: - Freeze Mill -Extraction* Cr(VI) Detected Color development **UV-VIS Analysis** TEST REPORT

- * (1) For non-metallic material, add alkaline digestion reagent
- (2) For metallic material, add pure water and heat to boiling



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