

Test Report

No. : CE/2020/33902

Date : 2020/03/23

Page : 1 of 9

HENKEL CORPORATION
14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

The following samples was/were submitted and identified by/on behalf of the applicant as :

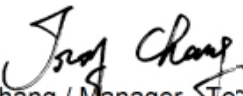
Sample Submitted By : HENKEL CORPORATION
Sample Description : ADHESIVE
Style/Item No. : QMI519
Sample Receiving Date : 2020/03/17
Testing Period : 2020/03/17 TO 2020/03/23

Test Requested :

- (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).
- (2) Please refer to next pages for the other item(s).

Test Result(s) : Please refer to following pages.

Conclusion : (1) Based on the performed tests on submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS and amending Directive (EU) 2015/863.


Troy Chang / Manager - Test
Signed for and behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



PIN CODE: F7F86ABD

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HENKEL CORPORATION
14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

Test Result(s)

PART NAME No.1 : GRAY PASTE

Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-OES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-OES.	2	n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+AMD1:2017 and performed by ICP-OES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321-7-2 (2017) and performed by UV-VIS.	8	n.d.	1000
Sum of PBBs	mg/kg	With reference to IEC 62321-6 (2015) and performed by GC/MS.	-	n.d.	1000
Monobromobiphenyl	mg/kg		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.	-
Sum of PBDEs	mg/kg		-	n.d.	1000
Monobromodiphenyl ether	mg/kg		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.	-	

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Test Item(s)	Unit	Method	MDL	Result	Limit
				No.1	
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	1000
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	1000
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	1000
DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	-
DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0; 68515-48-0)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	-
DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	-
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.	1000
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	With reference to IEC 62321 (2008). Analysis was performed by GC/MS.	5	n.d.	-
Beryllium (Be)	mg/kg	With reference to US EPA 3050B (1996). Analysis was performed by ICP-OES.	2	n.d.	-

Note :

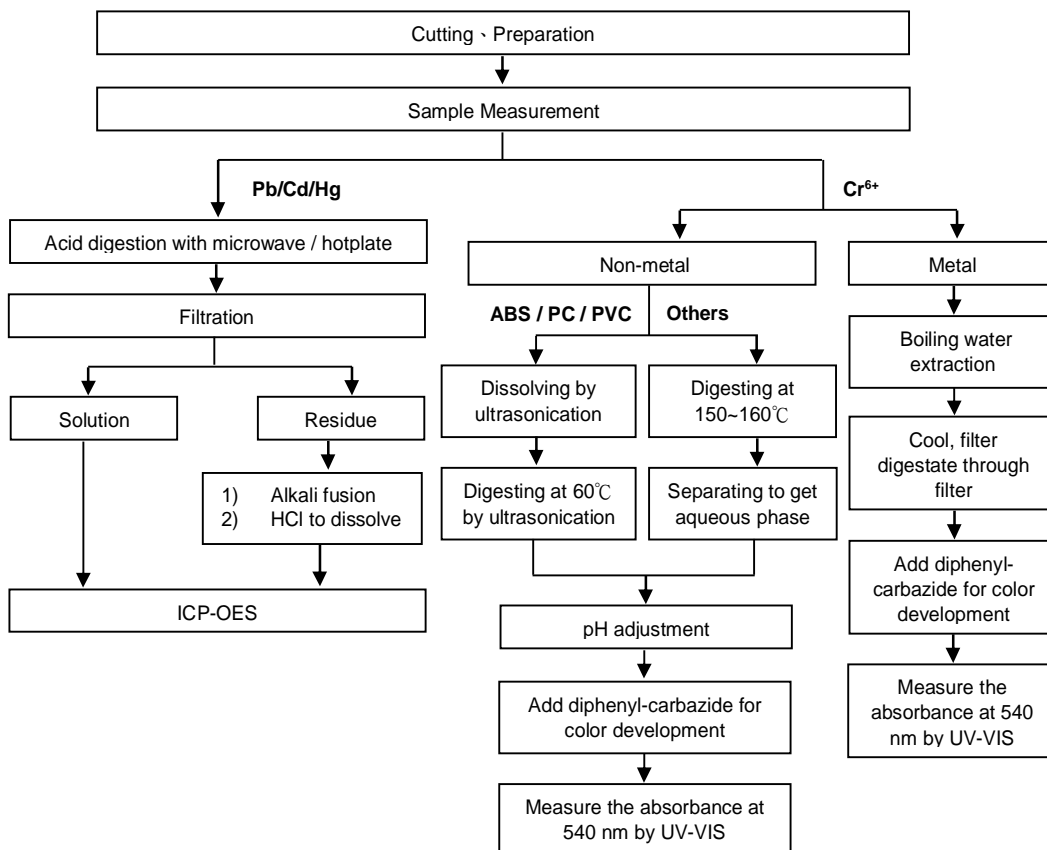
1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected
4. " - " = Not Regulated

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Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ test method excluded)

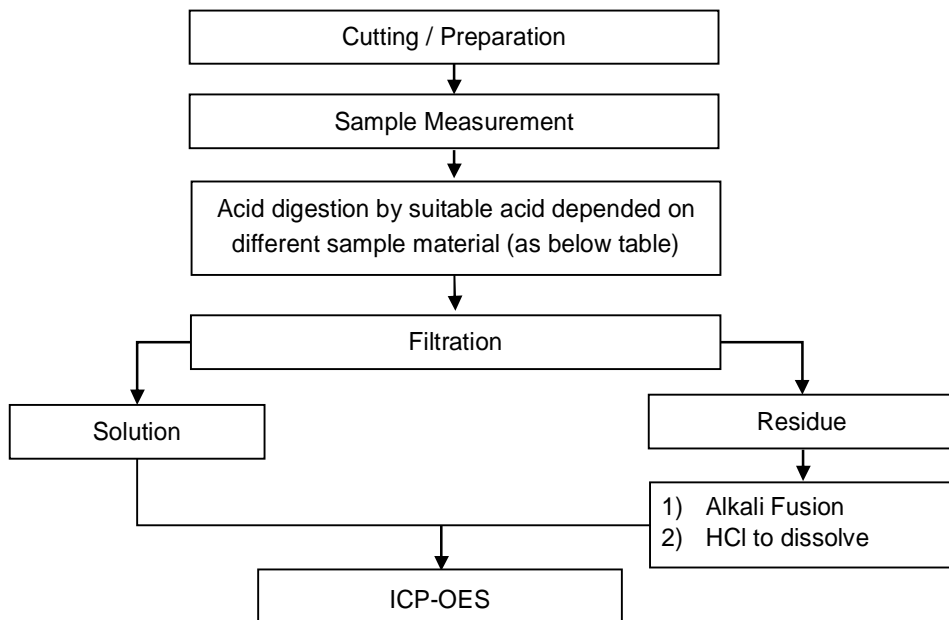


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Flow Chart of digestion for the elements analysis performed by ICP-OES

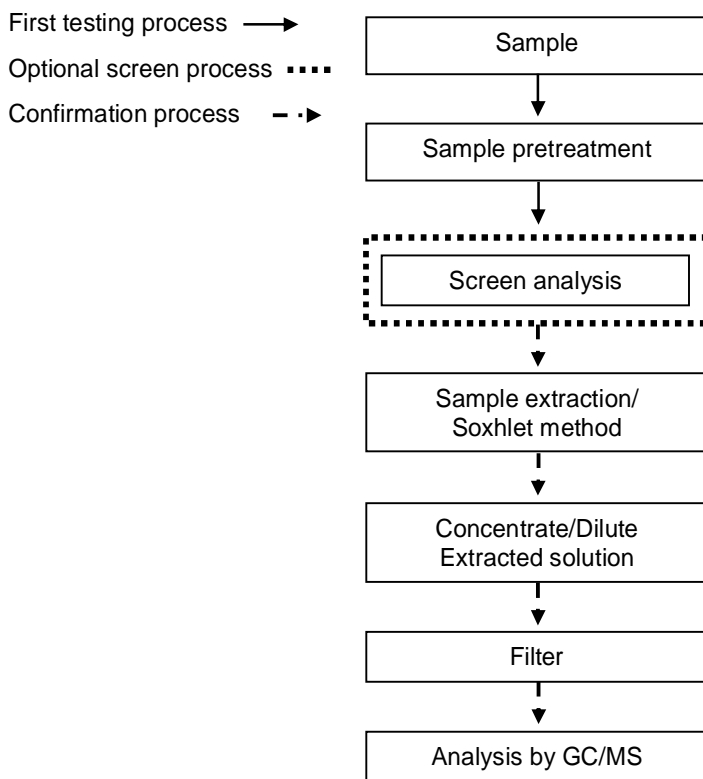
These samples were dissolved totally by pre-conditioning method according to below flow chart.



Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion

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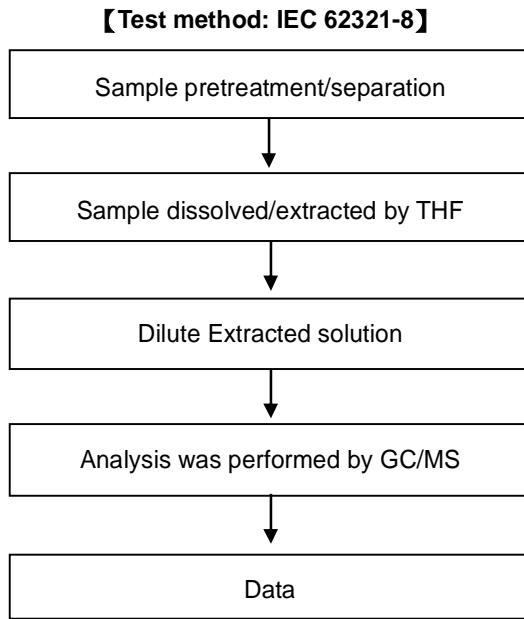
Analytical flow chart - PBB/PBDE



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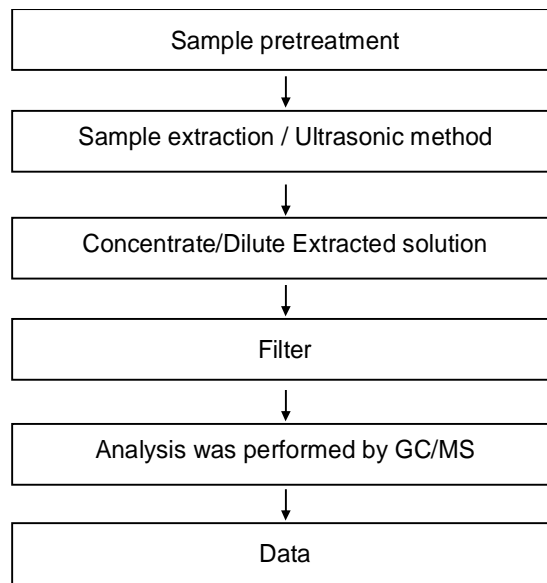
Analytical flow chart - Phthalate



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Analytical flow chart - HBCDD



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HENKEL CORPORATION
14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

* The tested sample / part is marked by an arrow if it's shown on the photo. *

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HENKEL CORPORATION

14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

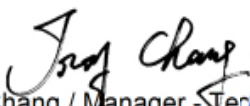
The following sample(s) was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By : HENKEL CORPORATION
Sample Description : ADHESIVE
Style/Item No. : QMI519
Sample Receiving Date : 2020/03/17
Testing Period : 2020/03/17 to 2020/03/23

=====
Test Requested : As specified by client, to test Halogen-Fluorine, Chlorine, Bromine, Iodine in the submitted sample(s).

Test Method : Please refer to following pages.

Test Result(s) : Please refer to following pages.


Troy Chang / Manager - Tech
Signed for and behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



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HENKEL CORPORATION

14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

Test Result(s)

PART NAME No.1 : GRAY PASTE

Test Item(s)	Unit	Method	MDL	Result
				No.1
Halogen				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582 (2016). Analysis was performed by IC.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg		50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg		50	n.d.
Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg		50	n.d.

Note :

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected

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No. : CE/2020/33899

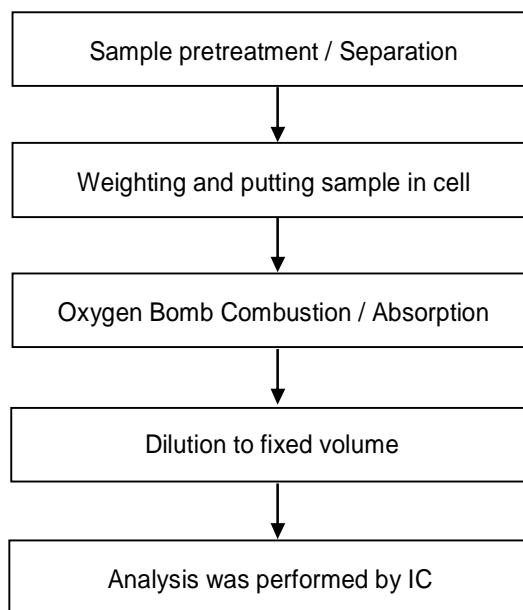
Date : 2020/03/23

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HENKEL CORPORATION

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Analytical flow chart - Halogen



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* The tested sample / part is marked by an arrow if it's shown on the photo. *

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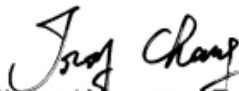
HENKEL CORPORATION

14000 JAMBOREE ROAD, IRVINE, CALIFORNIA, 92606 U.S.A.

The following sample(s) was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By : HENKEL CORPORATION
Sample Description : ADHESIVE
Style/Item No. : QMI519
Sample Receiving Date : 2020/03/17
Testing Period : 2020/03/17 to 2020/03/23

Test Result(s) : Please refer to following pages.


Troy Chang / Manager - Tech
Signed for and behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei



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Test Result(s)

PART NAME No.1 : GRAY PASTE

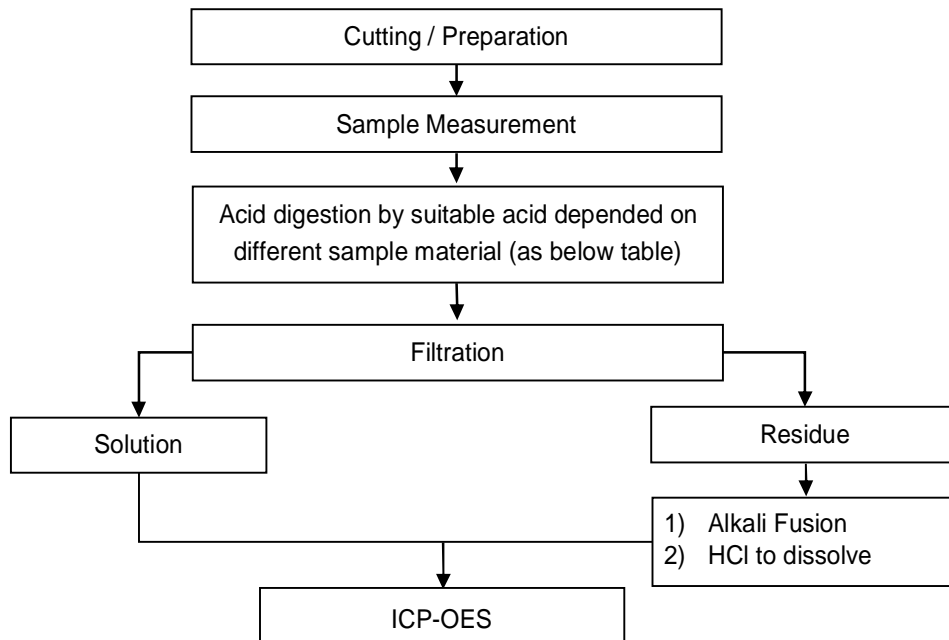
Test Item(s)	Unit	Method	MDL	Result
				No.1
Antimony (Sb)	mg/kg	With reference to US EPA 3052 (1996). Analysis was performed by ICP-OES.	2	n.d.

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected

Flow Chart of digestion for the elements analysis performed by ICP-OES

These samples were dissolved totally by pre-conditioning method according to below flow chart.



Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion

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* The tested sample / part is marked by an arrow if it's shown on the photo. *

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** End of Report **