

Test Report Page: 1 of 19 No.: CE/2018/90525 Date: 2018/09/11

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. : 3230

Sample Receiving Date: 2018/09/05

Testing Period : 2018/09/05 TO 2018/09/11

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).

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





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



Test Result(s)

PART NAME No.1 : SILVER COLORED PASTE

Test Item(s)	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321-7-2 (2017) and performed by UV-VIS.	8	n.d.
Sum of PBBs	mg/kg		-	n.d.
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	With reference to IEC 62321-6 (2015) and performed by GC/MS.	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.
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
Antimony (Sb)		With reference to US EPA 3050B (1996).	2	No.1
, ,	mg/kg	Analysis was performed by ICP-AÈS.	_	n.d.
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	With reference to US EPA 3540C (1996). Analysis was performed by GC/MS.	0.5	n.d.
Polychlorinated Naphthalene (PCNs)	mg/kg	With reference to US EPA 3540C (1996). Analysis was performed by GC/MS.	5	n.d.
Polychlorinated Terphenyls (PCTs)	mg/kg	With reference to US EPA 3540C (1996). Analysis was performed by GC/MS.	0.5	n.d.
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins) (CAS No.: 85535-84-8)	mg/kg	With reference to US EPA 3550C (2007). Analysis was performed by GC/MS.	100	n.d.
Beryllium (Be)	mg/kg	With reference to US EPA 3050B (1996). Analysis was performed by ICP-AES.	2	n.d.
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to CEN/TS 15968 (2010). Analysis was performed by LC/MS.	10	n.d.
PFOA (CAS No.: 335-67-1)	mg/kg	With reference to CEN/TS 15968 (2010). Analysis was performed by LC/MS.	10	n.d.
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.
Halogen-Chlorine (CI) (CAS No.: 22537-15-1)	mg/kg	With reference to BS EN 14582 (2016). Analysis was performed by IC.	50	n.d.
Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	With reference to BS EN 14582 (2016). Analysis was performed by IC.	50	n.d.
Dibutyl Tin (DBT)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD.	0.03	n.d.
Dioctyl Tin (DOT)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD.	0.03	n.d.
Bis(tributyltin)oxide (TBTO) (CAS No.: 56-35-9)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD. Calculated from the result of Tributyl Tin (TBT).	0.03 (▲)	n.d.

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Test Item(s)	Unit	Method	MDL	Result No.1
PVC	**	Analysis was performed by FTIR and FLAME Test.	-	Negative
Tributyl Tin (TBT)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD.	0.03	n.d.
Triphenyl Tin (TphT)	mg/kg	With reference to ISO 17353 (2004). Analysis was performed by GC/FPD.	0.03	n.d.
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.
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.
DNHP (Di-n-hexyl phthalate) (CAS No.: 84-75-3)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.
DIHP (1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich) (CAS No.: 71888-89-6)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.
DHNUP (1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters) (CAS No.: 68515-42-4)	mg/kg	With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS.	50	n.d.
DMEP (Bis (2-methoxyethyl) phthalate) (CAS No.: 117-82-8)	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.
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.
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.

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Note:

1. mg/kg = ppm; 0.1wt% = 1000ppm

2. MDL = Method Detection Limit

3. n.d. = Not Detected = less than MDL

4. " - " = Not Regulated

5. ** = Qualitative analysis (No Unit)

6. Negative = Undetectable / Positive = Detectable

7. (A): The MDL was evaluated for element / tested substance.

Conversion Formula : $AX = A \times F$

AX	Α	F
Bis(tributyItin)oxide (TBTO)	Tributyl Tin (TBT)	1.024



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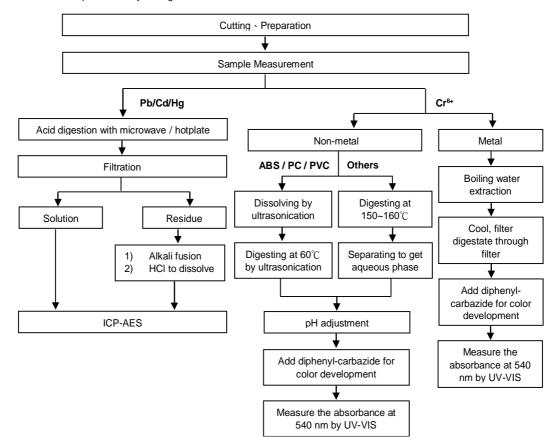
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Analytical flow chart of Heavy Metal

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

Technician: Rita Chen Supervisor: Troy Chang





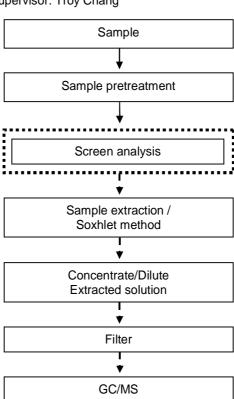
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Analytical flow chart - PBB / PBDE

Technician: Yaling Tu Supervisor: Troy Chang

First testing process -Optional screen process Confirmation process





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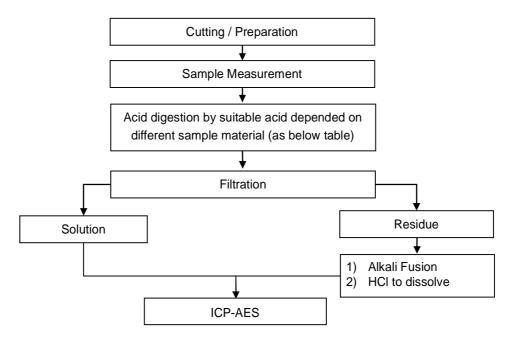


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These samples were dissolved totally by pre-conditioning method according to below flow

Technician: Rita Chen Supervisor: Troy Chang

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



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	HNO₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Added appropriate reagent to total digestion



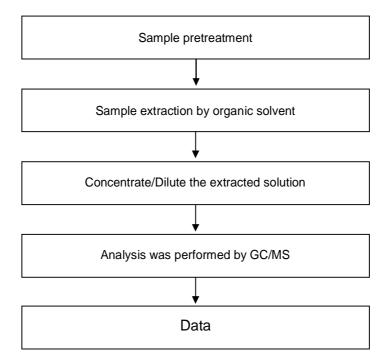
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Analytical flow chart - PCBs

Technician: Barry Tseng Supervisor: Troy Chang





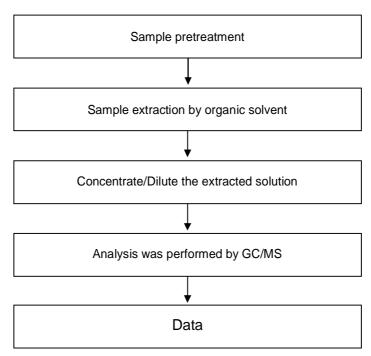
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Analytical flow chart - PCNs

Technician: Barry Tseng Supervisor: Troy Chang





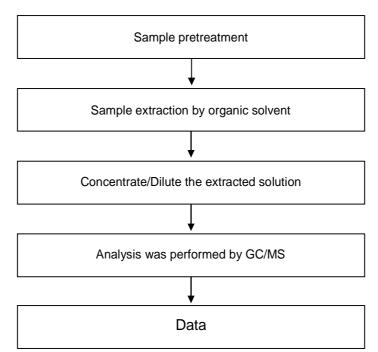
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Analytical flow chart - PCTs

■ Technician: Barry Tseng ■ Supervisor: Troy Chang





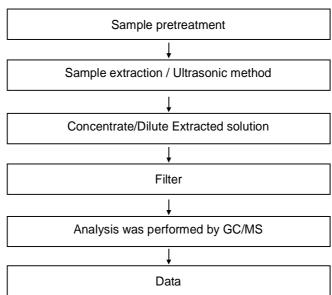
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Analytical flow chart - Chlorinated Paraffins

Technician: Yaling Tu Supervisor: Troy Chang





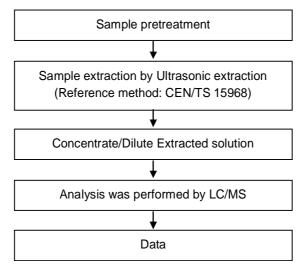
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Analytical flow chart - PFOA/PFOS

Technician: Yaling Tu Supervisor: Troy Chang





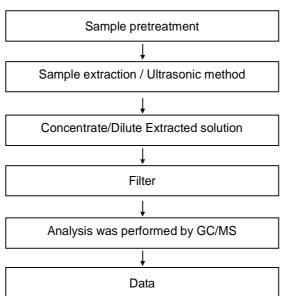
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Analytical flow chart - HBCDD

Technician: Yaling Tu Supervisor: Troy Chang





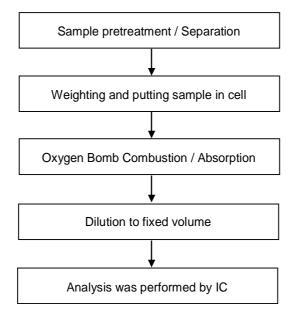
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Analytical flow chart - Halogen

Technician: Rita Chen Supervisor: Troy Chang





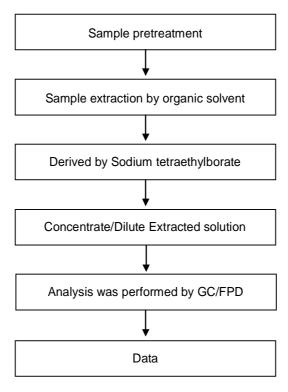
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Analytical flow chart - Organic-Tin

Technician: Yaling Tu Supervisor: Troy Chang





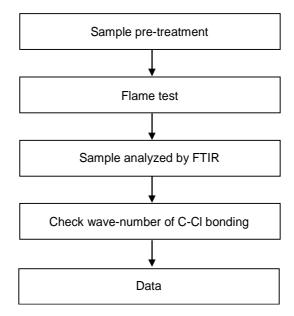
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Analysis flow chart - PVC

Technician: Yaling Tu Supervisor: Troy Chang





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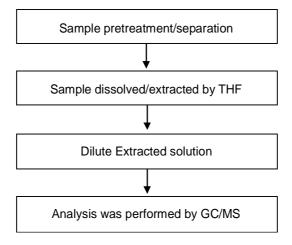
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Analytical flow chart - Phthalate

Technician: Yaling Tu Supervisor: Troy Chang

[Test method: IEC 62321-8]





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

CE/2018/90525



** End of Report **