

Test Report

No. : CE/2019/81733

Date : 2019/08/20

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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

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

Sample Submitted By : CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
Sample Description : PUFF DINO DRY FILM LUBRICANT
Style/Item No. : DB198
Sample Receiving Date : 2019/08/13
Testing Period : 2019/08/13 to 2019/08/20

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


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



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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Test Result(s)

PART NAME No.1 : TRANSPARENT LIQUID

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		2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321-4:2013+AMD1:2017 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. ; With reference to IEC 62321-5 (2013) and performed by ICP-AES.	8	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321-6 (2015) and performed by GC/MS.	-	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		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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105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Test Item(s)	Unit	Method	MDL	Result
				No.1
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.
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg		50	n.d.
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg		50	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				
Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	With reference to BS EN 14582 (2016). Analysis was performed by IC.	50	1550
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.
Polychlorinated Biphenyls (PCBs) (CAS No.: 1336-36-3)	mg/kg	With reference to US EPA 3550C (2007). Analysis was performed by GC/MS.	0.5	n.d.
Polychlorinated Terphenyls (PCTs)	mg/kg		0.5	n.d.
Polychlorinated Naphthalene (PCNs)	mg/kg		5	n.d.
Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	mg/kg	With reference to Global SOP RSTS-E&E-121 (2012). Analysis was performed by LC/MS.	10	n.d.
Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide)	mg/kg	With reference to CEN/TS 15968 (2010). Analysis was performed by LC/MS.	0.01	n.d.
PFOA (CAS No.: 335-67-1)	mg/kg		0.01	0.0719

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105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

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. (◆) : The result of Cr(VI) is "n.d." as the result of Chromium (Cr) is less than the MDL of Cr(VI), and confirmation test of Cr(VI) is not required. If the Chromium (Cr) content is not less than the MDL of Cr(VI), confirmation test of Cr(VI) is required.

PFOS Reference Information : POPs - (EU) 2019/1021

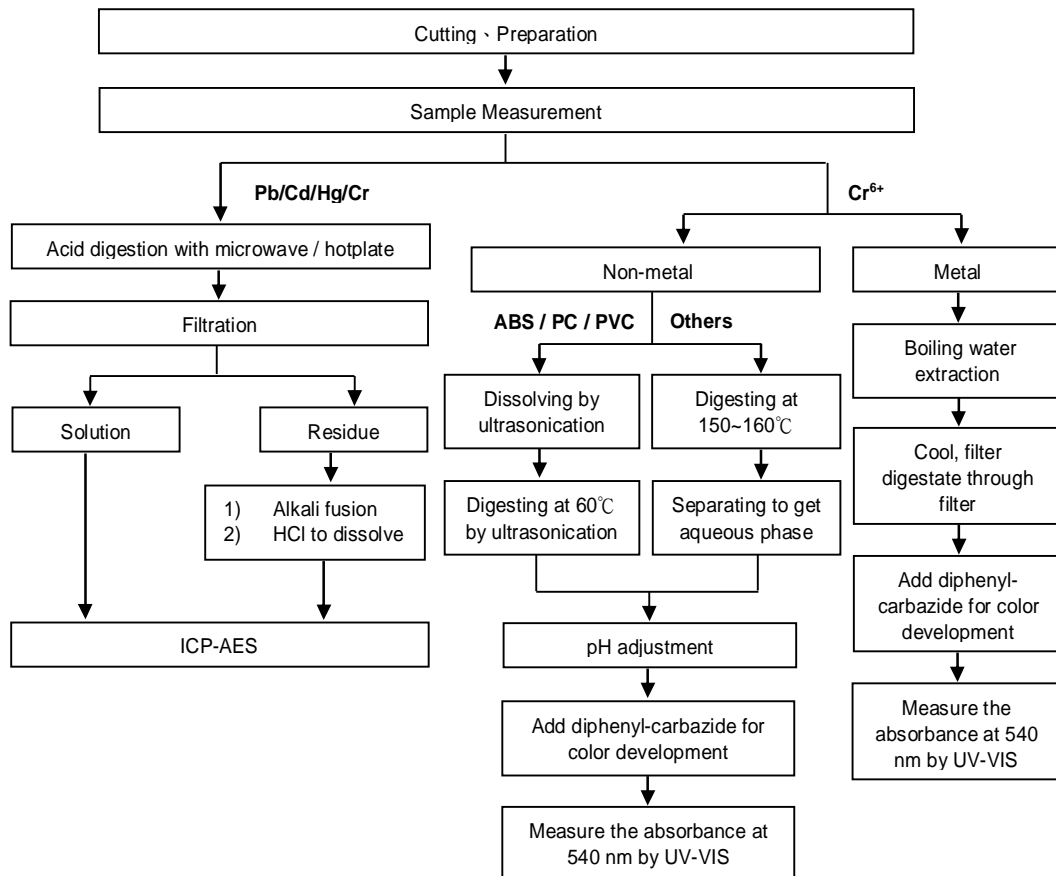
Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².

CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart of Heavy Metal

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

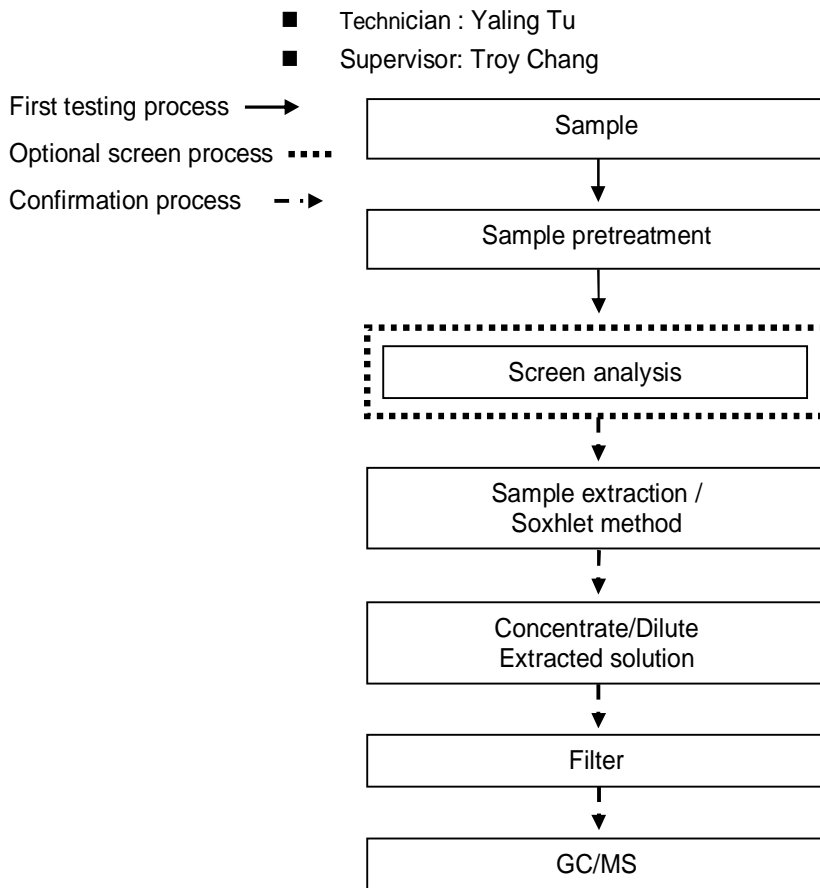
- Technician : Rita Chen
- Supervisor: Troy Chang



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105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart – PBB / PBDE



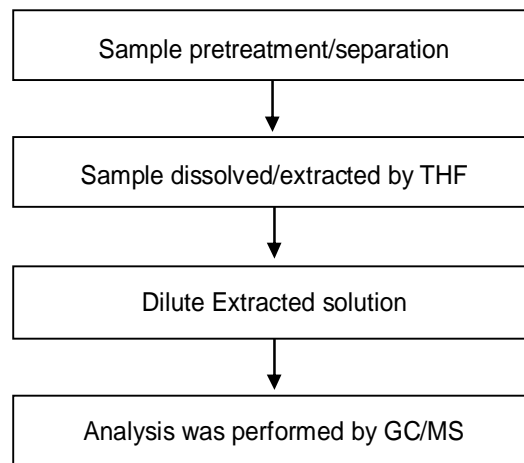
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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart - Phthalate

- Technician: Yaling Tu
- Supervisor: Troy Chang

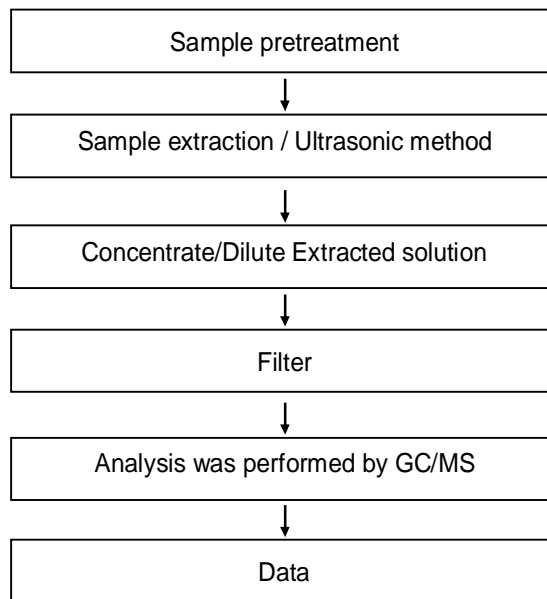
【Test method: IEC 62321-8】



CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
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Analytical flow chart - HBCDD

- Technician: Yaling Tu
- Supervisor: Troy Chang

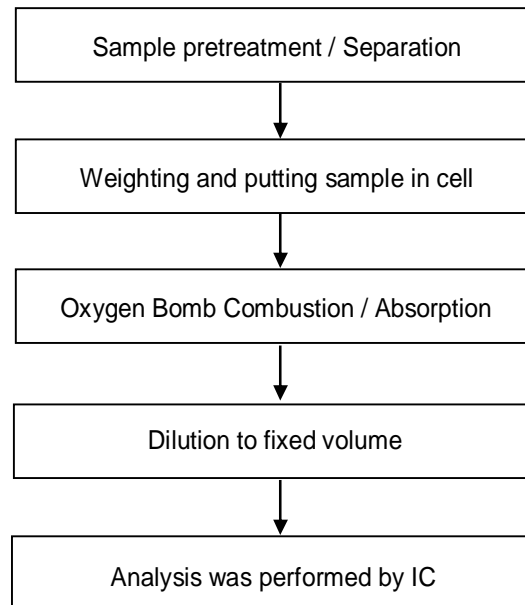


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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart - Halogen

- Technician: Rita Chen
- Supervisor: Troy Chang

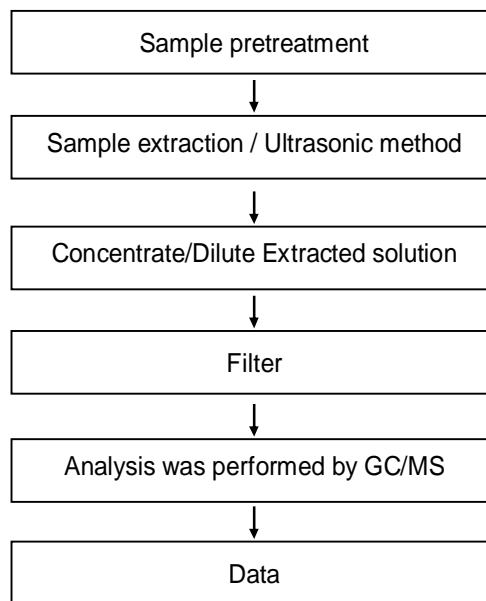


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Analytical flow chart - PCBs

- Technician: Yaling Tu
- Supervisor: Troy Chang

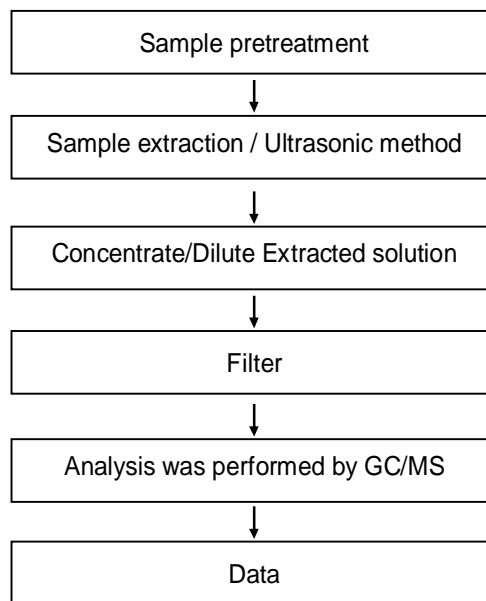


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Analytical flow chart - PCTs

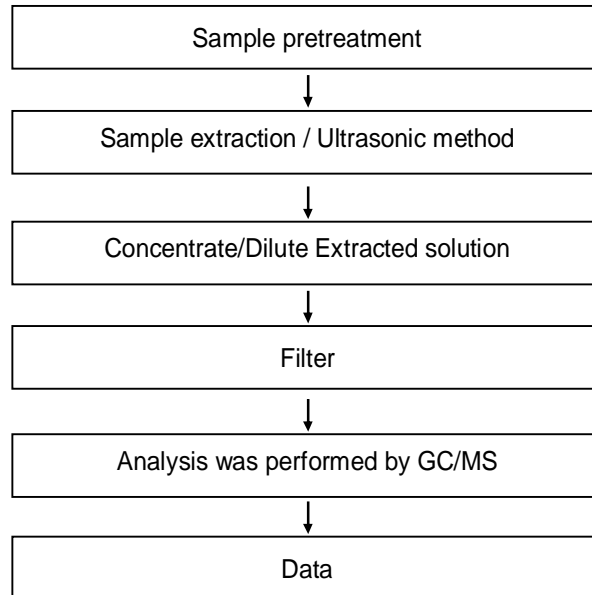
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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
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Analytical flow chart - PCNs

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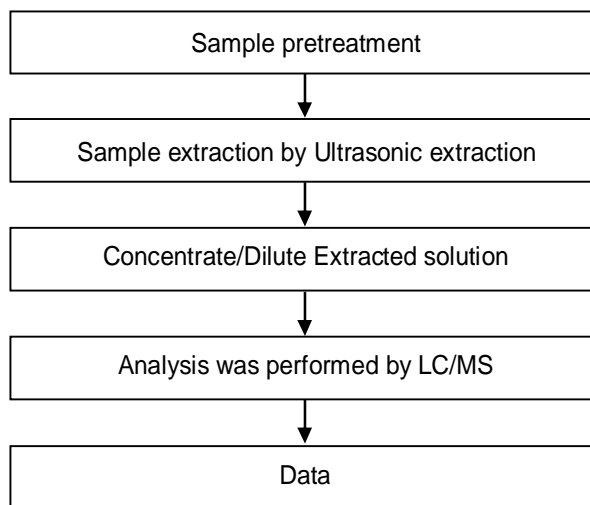
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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart - TBBP-A

- Technician: Yaling Tu
- Supervisor: Troy Chang



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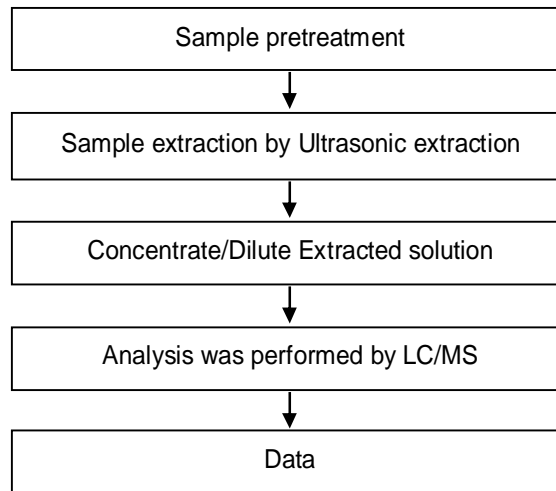
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CHUNG TAI SING CHEMICAL INDUSTRY CO., LTD.
105 NIU PU SOUTH ROAD, HSINCHU, TAIWAN

Analytical flow chart - PFOA/PFOS

- Technician: Yaling Tu
- Supervisor: Troy Chang



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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 **