

## Test Report

No. SHAEC2205264801

Date: 07 Jun 2022

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Client Name : TSMC(CHINA)COMPANY LIMITED

Client Address : 4000,WENXIANG ROAD,SONGJIANG,SHANGHAI,CHINA

Sample Name : Wafer

The above sample(s) and information were provided by the client.

SGS Job No. : SP22-008343 - SH

Date of Sample Received : 25 Mar 2022

Testing Period : 25 Mar 2022 - 07 Jun 2022

Test Requested : Selected test(s) as requested by the client.

Test Method(s) : Please refer to next page(s).

Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Sue Sheng

Sue Sheng  
Approved Signatory

scan to see the report



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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SHA22-052648.001	Colorful solid sheet

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected ( < MDL )
- (4) "-" = Not Regulated

### RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, AAS, UV-Vis and GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND
Di-2-Ethyl Hexyl Phthalate (DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series  
[https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:1258637,25](https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25)
- (2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.

## Radioactive element

Test Method : With reference to US EPA Method 3052:1996, analysis was performed by ICP-MS

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cesium (Cs)	mg/kg	1	ND
Strontium (Sr)	mg/kg	1	ND
Uranium (U)	mg/kg	1	ND
Thorium (Th)	mg/kg	1	ND

Notes :

No radioactivity is detected by geiger counter

## Element(s)

Test Method : With reference to US EPA 3052:1996, analysis was performed by ICP-OES.



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<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Beryllium (Be)	mg/kg	5	ND

### Halogen

Test Method : With reference to EN 14582: 2016 , analysis was performed by IC.

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

### Polychlorinated Naphthalenes (PCNs)

Test Method : With reference to US EPA 8081B: 2007, analysis was performed by GC-MS

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
2-Chlorinated Naphthalene	mg/kg	5	ND
1,4-Dichlorinated Naphthalene	mg/kg	5	ND
1,5-Dichlorinated Naphthalene	mg/kg	5	ND
1,2-Dichlorinated Naphthalene	mg/kg	5	ND
1,8-Dichlorinated Naphthalene	mg/kg	5	ND
1,2,3-Trichlorinated Naphthalene	mg/kg	5	ND
1,2,3,4-Tetrachlorinated Naphthalene	mg/kg	5	ND
1,2,3,4,6-Pentachlorinated Naphthalene	mg/kg	5	ND
Octa-chlorinated Naphthalene	mg/kg	5	ND
1-Chlorinated Naphthalene	mg/kg	5	ND

### Organic-tin compounds

Test Method : With reference to ISO 17353: 2004, analysis was performed by GC-MS.



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<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Tributyl tin (TBT)	mg/kg	0.02	ND
Triphenyl tin (TPHT)	mg/kg	0.02	ND

### Asbestos

Test Method : With reference to NIOSH 9000:2015 and ISO 22262-1:2012. analysis was performed by X-ray diffractometer (XRD) and Polarized light microscope (PLM).

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Actinolite	77536-66-4	%	0.1	Negative
Amosite	12172-73-5	%	0.1	Negative
Anthophyllite	77536-67-5	%	0.1	Negative
Chrysotile	12001-29-5 132207-32-0	%	0.1	Negative
Crocidolite	12001-28-4	%	0.1	Negative
Tremolite	77536-68-6	%	0.1	Negative

### Notes :

(1) Negative = the absence of asbestos, Positive = the presence of asbestos.

### Alkanes C10-C13, chloro (short-chain chlorinated paraffins) (SCCP)

Test Method : With reference to ISO 18219: 2015, analysis was performed by GC-NCI-MS

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Short Chain Chlorinated Paraffin(C10-C13)(SCCP)	mg/kg	50	ND

### VOC

Test Method : With reference to US EPA 5021A:2014, analysis was performed by HS-GC-MS.



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<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Trichloroethylene	mg/kg	1	ND

### Polyvinyl chloride (PVC)

Test Method : In-house method (SHTC-CHEM-SOP-115-T), analysis was performed by FTIR/HATR.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Polyvinyl chloride (PVC)	9002-86-2	-	-	Negative

Notes :

(1) Negative=Undetectable,Positive=Detectable

### Azo Dyes

Test Method : According to Ref. EN 14362-1:2012- Analysis was conducted with GC-MS/HPLC-DAD.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
4-Aminobiphenyl	92-67-1	mg/kg	5	ND
Benzidine	92-87-5	mg/kg	5	ND
4-chloro-o-toluidine	95-69-2	mg/kg	5	ND
2-naphthylamine	91-59-8	mg/kg	5	ND
o-aminoazotoluene	97-56-3	mg/kg	5	ND
5-nitro-o-toluidine / 2-Amino-4-nitrotoluene	99-55-8	mg/kg	5	ND
4-chloroaniline	106-47-8	mg/kg	5	ND
4-methoxy-m-phenylenediamine / 2,4-Diaminoanisole	615-05-4	mg/kg	5	ND
4,4'-diaminodiphenylmethane	101-77-9	mg/kg	5	ND
3,3'-dichlorobenzidine	91-94-1	mg/kg	5	ND
3,3'-dimethoxybenzidine	119-90-4	mg/kg	5	ND
3,3'-dimethylbenzidine	119-93-7	mg/kg	5	ND
3,3'-Dimethyl-4,4'-diaminodiphenylmethane /	838-88-0	mg/kg	5	ND
4,4'-methylenedi-o-toluidine				
p-cresidine	120-71-8	mg/kg	5	ND
4,4'-methylene-bis-(2-chloroaniline)	101-14-4	mg/kg	5	ND
4,4'-oxydianiline	101-80-4	mg/kg	5	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
4,4'-thiodianiline	139-65-1	mg/kg	5	ND
o-toluidine	95-53-4	mg/kg	5	ND
4-methyl-m-phenylenediamine / 2,4-Toluylendiamine	95-80-7	mg/kg	5	ND
2,4,5-trimethylaniline	137-17-7	mg/kg	5	ND
4-aminoazobenzene	60-09-3	mg/kg	5	ND
O-Anisidine	90-04-0	mg/kg	5	ND
2,4-Xylidine	95-68-1	mg/kg	5	ND
2,6-Xylidine	87-62-7	mg/kg	5	ND

### Notes :

- (1) The EN 14362-1:2012 method will enable further cleavage of 4-aminoazobenzene to non-forbidden amines: aniline and 1,4-phenylenediamine. If aniline and/or 1,4-phenylenediamine is not found (i.e. 5mg/kg) by mentioned test method, test result for 4-aminoazobenzene (CAS no. 60-09-3) is considered as "not detected" (i.e. <5mg/kg). Otherwise, the test method of EN 14362-3:2012 will be employed to verify the presence of 4-aminoazobenzene.
- (2) For textiles no relevant amine exceeding 30 ppm (mg/kg) is required, the test method is only applicable for textile and the result is only for client's information.
- (3) Whenever 4-aminodiphenyl (CAS number 92-67-1), 2-naphylamine (CAS number 91-59-8) and 4-methoxy-m-phenylene-diamine (CAS number 615-05-4) is found, the use of banned azo colorants cannot be reliably ascertained without additional information, e.g. the chemical structure of the colorants used.
- (4) In case polyurethane materials are used, e.g. PU foams and coatings and in prints, it cannot be ruled out that certain amines, e.g. 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) and 2,4-toluylen-diamine (TDA, CAS number 95-80-7) are released from the PU component and not from a banned azo colorant.
- (5) In case of pigment prints care has to be taken that 4,4'-methylene-dianiline (MDA, CAS number 101-77-9) is not released from a source of banned azo colorants but from e.g. a chemical fixing agent.
- (6) These tests were subcontracted to SGS Changzhou Chemical lab .

### Glycol ether content

Test Method : With reference to US EPA method 3550C:2007. Analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
1,2-Dimethoxyethane (EGDME)	110-71-4	mg/kg	10	ND
2-Methoxyethanol (EGME)	109-86-4	mg/kg	10	ND
2-Ethoxyethanol (EGEE)	110-80-5	mg/kg	10	ND
2-methoxypropyl acetate (1PG2MEA)	70657-70-4	mg/kg	10	ND
2-Methoxyethyl acetate (EGMEA)	110-49-6	mg/kg	10	ND
2-Ethoxyethyl acetate (EGEEA)	111-15-9	mg/kg	10	ND



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2-(2-Methoxyethoxy)Ethanol (DEGME)	111-77-3	mg/kg	10	ND
Bis(2-methoxy ethyl)ether(DEGDME)	111-96-6	mg/kg	10	ND
1,1-Di (2-methoxy ethoxy)ethane(TEGDME)	112-49-2	mg/kg	10	ND

## ODS

Test Method : With reference to US EPA 5021A:2014, analysis was performed by HS-GC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
<b>CFC</b>				
CFC-11	75-69-4	µg/g	0.1	ND
CFC-12	75-71-8	µg/g	0.1	ND
CFC-113	76-13-1	µg/g	0.1	ND
CFC-114	76-14-2	µg/g	0.1	ND
CFC-13	75-72-9	µg/g	0.1	ND
CFC-111	354-56-3	µg/g	0.1	ND
CFC-112	76-11-9	µg/g	0.1	ND
CFC-112	76-12-0	µg/g	0.1	ND
CFC-113	354-58-5	µg/g	0.1	ND
CFC-114	374-07-2	µg/g	0.1	ND
CFC-115	76-15-3	µg/g	0.1	ND
CFC-211	422-78-6	µg/g	0.1	ND
CFC-212	661-96-1	µg/g	0.1	ND
CFC-213	1652-89-7	µg/g	0.1	ND
CFC-214	677-68-9	µg/g	0.1	ND
CFC-215	1599-41-3	µg/g	0.1	ND
CFC-215	76-17-5	µg/g	0.1	ND
CFC-216	661-97-2	µg/g	0.1	ND
CFC-216	1652-80-8	µg/g	0.1	ND
CFC-217	422-86-6	µg/g	0.1	ND
<b>HCFC</b>				
HCFC-21	75-43-4	µg/g	0.1	ND
HCFC-22	75-45-6	µg/g	0.1	ND
HCFC-123	306-83-2	µg/g	0.1	ND
HCFC-124	2837-89-0	µg/g	0.1	ND
HCFC-141b	1717-00-6	µg/g	0.1	ND
HCFC-142b	75-68-3	µg/g	0.1	ND
HCFC-31	593-70-4	µg/g	0.1	ND



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Test Item(s)	CAS NO.	Unit	MDL	001
HCFC-121	354-14-3	µg/g	0.1	ND
HCFC-122	354-21-2	µg/g	0.1	ND
HCFC-123a	354-23-4	µg/g	0.1	ND
HCFC-124a	354-25-6	µg/g	0.1	ND
HCFC-131	359-28-4	µg/g	0.1	ND
HCFC-131a	811-95-0	µg/g	0.1	ND
HCFC-132a	471-43-2	µg/g	0.1	ND
HCFC-132b	1649-08-7	µg/g	0.1	ND
HCFC-133a	75-88-7	µg/g	0.1	ND
HCFC-221	422-26-4	µg/g	0.1	ND
HCFC-222	422-30-0	µg/g	0.1	ND
HCFC-223	422-52-6	µg/g	0.1	ND
HCFC-225ca	422-56-0	µg/g	0.1	ND
HCFC-225cb	507-55-1	µg/g	0.1	ND
HCFC-226	431-87-8	µg/g	0.1	ND
HCFC-231	421-94-3	µg/g	0.1	ND
HCFC-232	460-89-9	µg/g	0.1	ND
HCFC-233	7125-84-0	µg/g	0.1	ND
HCFC-234	425-94-5	µg/g	0.1	ND
HCFC-235	460-92-4	µg/g	0.1	ND
HCFC-241	666-27-3	µg/g	0.1	ND
HCFC-242	460-63-9	µg/g	0.1	ND
HCFC-243	338-75-0	µg/g	0.1	ND
HCFC-244	679-85-6	µg/g	0.1	ND
HCFC-251	421-41-0	µg/g	0.1	ND
HCFC-252	819-00-1	µg/g	0.1	ND
HCFC-253	460-35-5	µg/g	0.1	ND
HCFC-261	7799-56-6	µg/g	0.1	ND
HCFC-261	420-97-3	µg/g	0.1	ND
HCFC-271	430-55-7	µg/g	0.1	ND
HCFC-262	102738-79-4	µg/g	0.1	ND
HCFC-262	420-99-5	µg/g	0.1	ND
<b>Halon</b>				
Halon 1211	353-59-3	µg/g	0.1	ND
Halon 1301	75-63-8	µg/g	0.1	ND
Halon 2402	124-73-2	µg/g	0.1	ND
<b>HBFC</b>				
CHF <sub>2</sub> Br	1511-62-2	µg/g	0.1	ND



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CH <sub>2</sub> FBr	373-52-4	µg/g	0.1	ND
C <sub>2</sub> HFBr <sub>4</sub>		µg/g	0.1	ND
C <sub>2</sub> HF <sub>2</sub> Br <sub>3</sub>		µg/g	0.1	ND
C <sub>2</sub> HF <sub>3</sub> Br <sub>2</sub>	354-04-1	µg/g	0.1	ND
C <sub>2</sub> HF <sub>4</sub> Br		µg/g	0.1	ND
C <sub>2</sub> H <sub>2</sub> FBr <sub>3</sub>		µg/g	0.1	ND
C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> Br <sub>2</sub>	75-82-1	µg/g	0.1	ND
C <sub>2</sub> H <sub>2</sub> F <sub>3</sub> Br	421-06-7	µg/g	0.1	ND
C <sub>2</sub> H <sub>3</sub> FBr <sub>2</sub>		µg/g	0.1	ND
C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> Br	359-07-9	µg/g	0.1	ND
C <sub>2</sub> H <sub>4</sub> FBr	762-49-2	µg/g	0.1	ND
C <sub>3</sub> HFBr <sub>6</sub>		µg/g	0.1	ND
C <sub>3</sub> HF <sub>2</sub> Br <sub>5</sub>		µg/g	0.1	ND
C <sub>3</sub> HF <sub>3</sub> Br <sub>4</sub>		µg/g	0.1	ND
C <sub>3</sub> HF <sub>4</sub> Br <sub>3</sub>		µg/g	0.1	ND
C <sub>3</sub> HF <sub>5</sub> Br <sub>2</sub>		µg/g	0.1	ND
C <sub>3</sub> HF <sub>6</sub> Br		µg/g	0.1	ND
C <sub>3</sub> H <sub>2</sub> FBr <sub>5</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>2</sub> F <sub>2</sub> Br <sub>4</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>2</sub> F <sub>3</sub> Br <sub>3</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>2</sub> F <sub>4</sub> Br <sub>2</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>2</sub> F <sub>5</sub> Br		µg/g	0.1	ND
C <sub>3</sub> H <sub>3</sub> FBr <sub>4</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>3</sub> F <sub>2</sub> Br <sub>3</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>3</sub> F <sub>3</sub> Br <sub>2</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>3</sub> F <sub>4</sub> Br		µg/g	0.1	ND
C <sub>3</sub> H <sub>4</sub> FBr <sub>3</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>4</sub> F <sub>2</sub> Br <sub>2</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>4</sub> F <sub>3</sub> Br		µg/g	0.1	ND
C <sub>3</sub> H <sub>5</sub> FBr <sub>2</sub>		µg/g	0.1	ND
C <sub>3</sub> H <sub>5</sub> F <sub>2</sub> Br		µg/g	0.1	ND
C <sub>3</sub> H <sub>6</sub> FBr		µg/g	0.1	ND
<b>Others</b>				
Dibromofluoromethane	1868-53-7	µg/g	0.1	ND
Methyl bromide	74-83-9	µg/g	0.1	ND
Bromochloromethane	74-97-5	µg/g	0.1	ND
<b>HFC</b>				
HFC-23	75-46-7	µg/g	0.1	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
HFC-32	75-10-5	µg/g	0.1	ND
HFC-41	593-53-3	µg/g	0.1	ND
HFC-43-10mee	-	µg/g	0.1	ND
HFC-125	354-33-6	µg/g	0.1	ND
HFC-134	359-35-3	µg/g	0.1	ND
HFC-134a	811-97-2	µg/g	0.1	ND
HFC-152a	75-37-6	µg/g	0.1	ND
HFC-143	420-46-2	µg/g	0.1	ND
HFC-143a	430-66-0	µg/g	0.1	ND
HFC-227ea	-	µg/g	0.1	ND
HFC-236cb	-	µg/g	0.1	ND
HFC-236ea	431-63-0	µg/g	0.1	ND
HFC-236fa	690-39-1	µg/g	0.1	ND
HFC-245ca	679-86-7	µg/g	0.1	ND
HFC-245fa	-	µg/g	0.1	ND
HFC-365mfc	-	µg/g	0.1	ND
<b>PFC</b>				
Perfluoromethane	75-73-0	µg/g	0.1	ND
Perfluoroethane	76-16-4	µg/g	0.1	ND
Perfluoropropane	76-19-7	µg/g	0.1	ND
Perfluorobutane	355-25-9	µg/g	0.1	ND
Perfluoropentane	678-26-2	µg/g	0.1	ND
Perfluorohexane	355-42-0	µg/g	0.1	ND
Perfluorocyclobutane	115-25-3	µg/g	0.1	ND
<b>CHC</b>				
1,3-dichloropropane	142-28-9	µg/g	0.1	ND
2,2-dichloropropane	594-20-7	µg/g	0.1	ND
Carbon tetrachloride	56-23-5	µg/g	0.1	ND
chloroethane	75-00-3	µg/g	0.1	ND
Chloroform	67-66-3	µg/g	0.1	ND
chloromethane	74-87-3	µg/g	0.1	ND
Cis-1,2-dichloroethene	156-59-2	µg/g	0.1	ND
Cis-1,3-dichloropropene	10061-01-5	µg/g	0.1	ND
Hexachlorobutadiene	87-68-3	µg/g	0.1	ND
Methylene chloride	75-09-2	µg/g	0.1	ND
Tetrachloroethene	127-18-4	µg/g	0.1	ND
Trans-1,2-dichloroethene	156-60-5	µg/g	0.1	ND
Trans-1,3-dichloropropene	10061-02-6	µg/g	0.1	ND



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Test Item(s)	CAS NO.	Unit	MDL	001
Trichloroethylene	79-01-6	µg/g	0.1	ND
1,1,1,2-tetrachloroethane	630-20-6	µg/g	0.1	ND
1,1,1-trichloroethane	71-55-6	µg/g	0.1	ND
1,1,2,2-tetrachloroethane	79-34-5	µg/g	0.1	ND
1,1,2-trichloroethane	79-00-5	µg/g	0.1	ND
1,1-dichloroethane	75-34-3	µg/g	0.1	ND
1,1-dichloroethene	75-35-4	µg/g	0.1	ND
1,1-dichloropropene	563-58-6	µg/g	0.1	ND
1,2,3-trichloropropane	96-18-4	µg/g	0.1	ND
1,2-dichloroethane	107-06-2	µg/g	0.1	ND
1,2-dichloropropane	78-87-5	µg/g	0.1	ND

### Polychlorinated Biphenyls (PCBs)

Test Method : With reference to US EPA 8082A: 2007, analysis was performed by GC-MS

Test Item(s)	CAS NO.	Unit	MDL	001
2,4,4'-Trichlorobiphenyl (PCB 28)	7012-37-5	mg/kg	0.5	ND
2,2',5,5'-Tetrachloro-biphenyl (PCB 52)	35693-99-3	mg/kg	0.5	ND
2,2',4,5,5'-Pentachloro-biphenyl (PCB 101)	37680-73-2	mg/kg	0.5	ND
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	31508-00-6	mg/kg	0.5	ND
2,2',3,4,4',5'-Hexachloro-biphenyl (PCB 138)	35065-28-2	mg/kg	0.5	ND
2,2',4,4',5,5'-Hexachloro-biphenyl (PCB 153)	35065-27-1	mg/kg	0.5	ND
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	35065-29-3	mg/kg	0.5	ND

### Perfluorooctanesulfonate (PFOS) and its derivatives and Perfluorooctanoic Acid (PFOA)

Test Method : With reference to CEN/TS 15968:2010, analysis was performed by HPLC-MS.

Test Item(s)	CAS NO.	Unit	MDL	001
Perfluorooctane sulfonates (PFOS) and its derivatives	-	mg/kg	-	ND
Perfluorooctanesulfonate (PFOS) ^	1763-23-1	mg/kg	10	ND
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	mg/kg	10	ND
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	mg/kg	10	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol (EtFOSE)	1691-99-2	mg/kg	10	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (MeFOSE)	24448-09-7	mg/kg	10	ND
Perfluorooctane Sulfonamide (PFOSA)	754-91-6	mg/kg	10	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Perfluorooctanoic Acid (PFOA) and its salts+	-	mg/kg	10	ND

### Notes :

- (1) + PFOA refer to its salts including PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) and APFO (CAS No.: 3825-26-1);  
 (2) ^ PFOS including PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)2 (CAS No.: 70225-14-8), PFOS-N(C2H5)4 (CAS No.: 56773-42-3), PFOS-DDA(CAS No.:251099-16-8) and POSF (CAS No.: 307-35-7)

## VOC

Test Method : With reference to US EPA Method 8260D: 2018 & US EPA Method 5000: 1996, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
1,4-dioxane	123-91-1	mg/kg	5	ND

Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (  $w=0$ ) stated in ILAC-G8:09/2019.



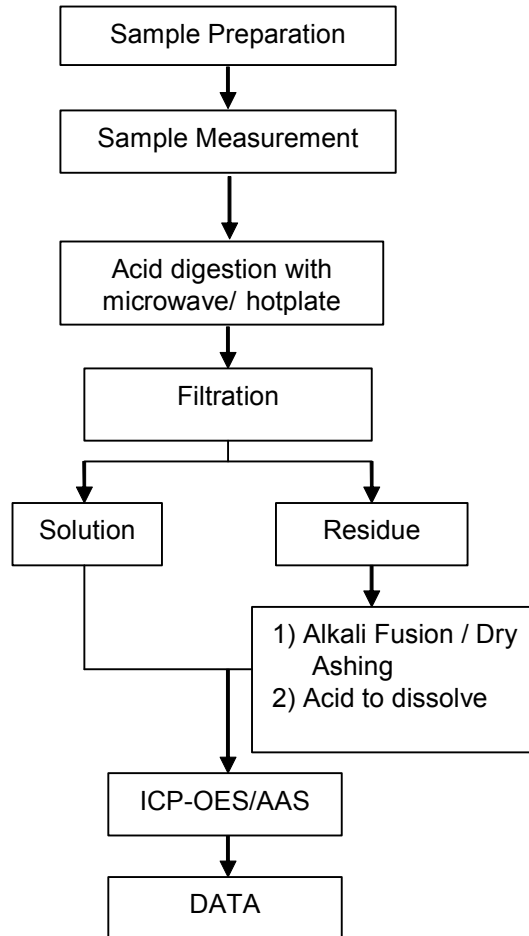
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**Elements (IEC62321) Testing Flow Chart**

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

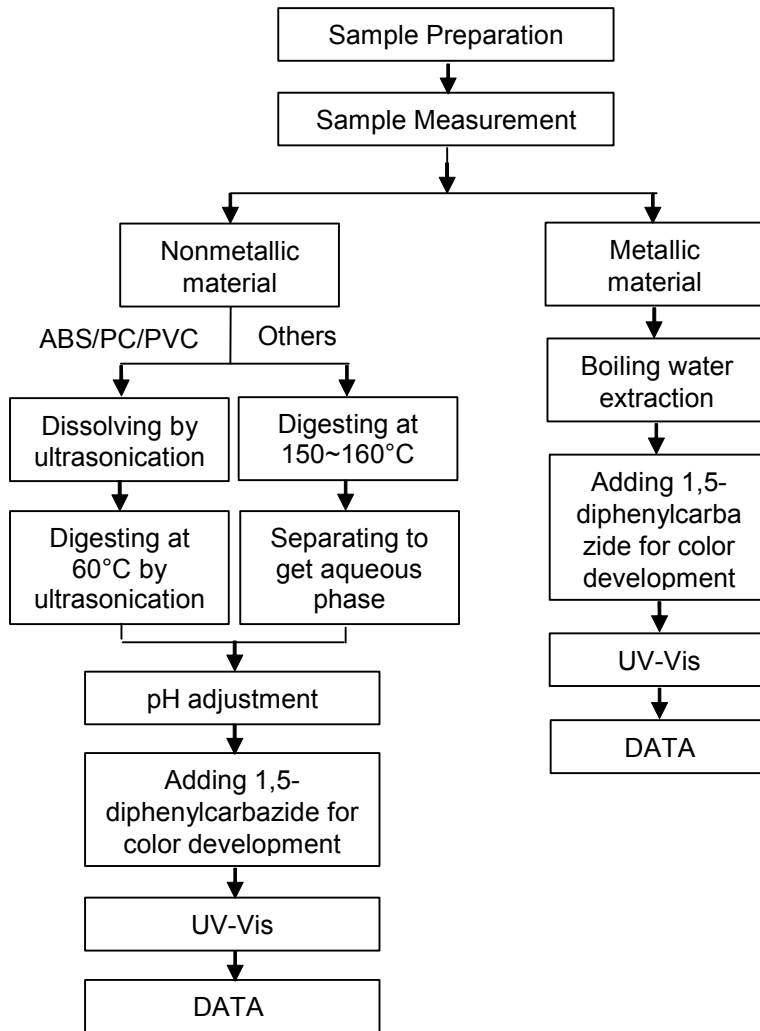


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart

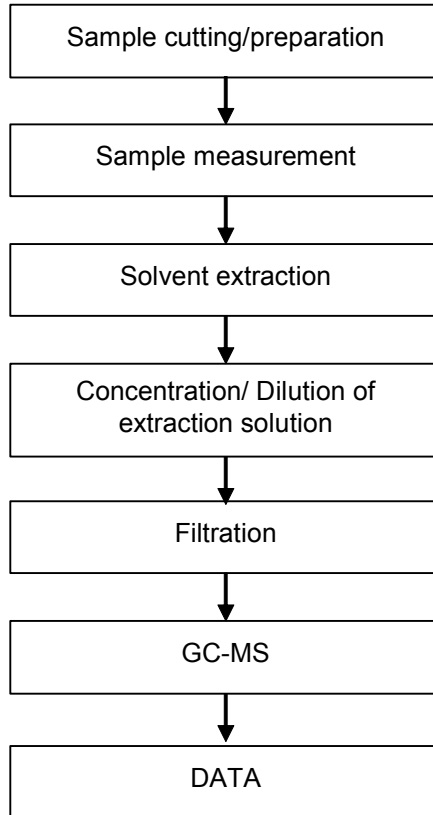


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**PBBs/PBDEs Testing Flow Chart**



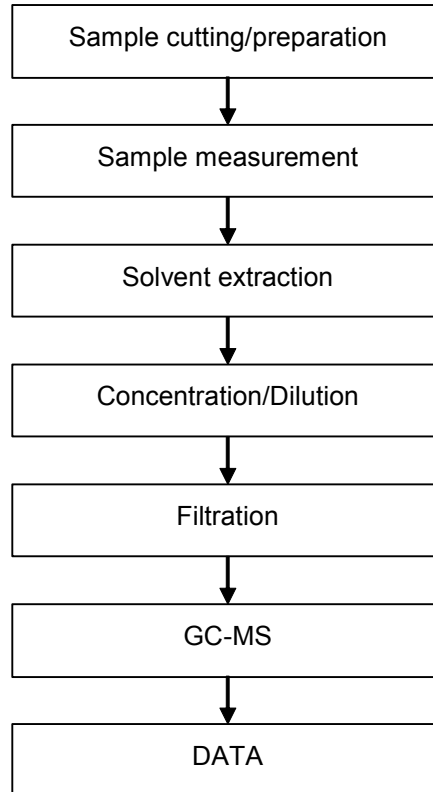
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### Phthalates Testing Flow Chart

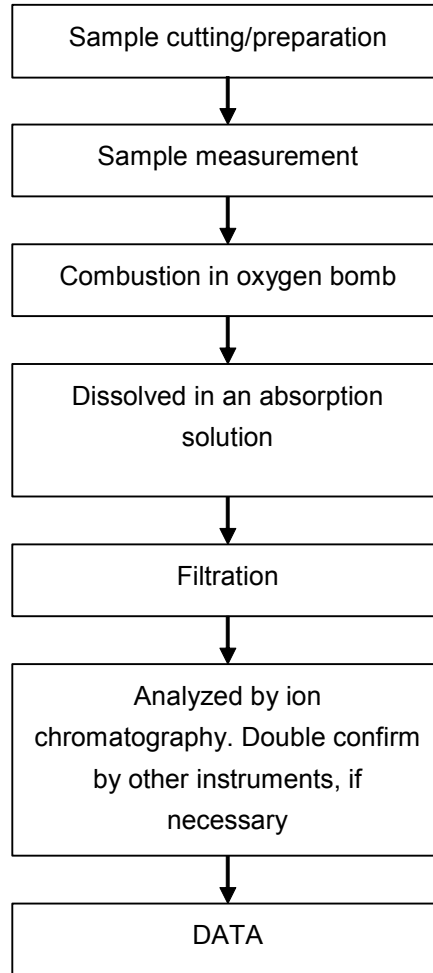


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### Halogen Testing (oxygen bomb) Flow Chart

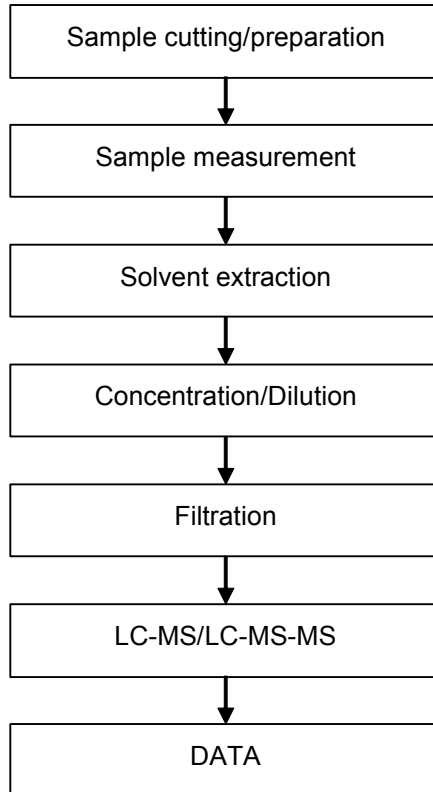


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### PFASs/ PFOS/PFOA Testing Flow Chart

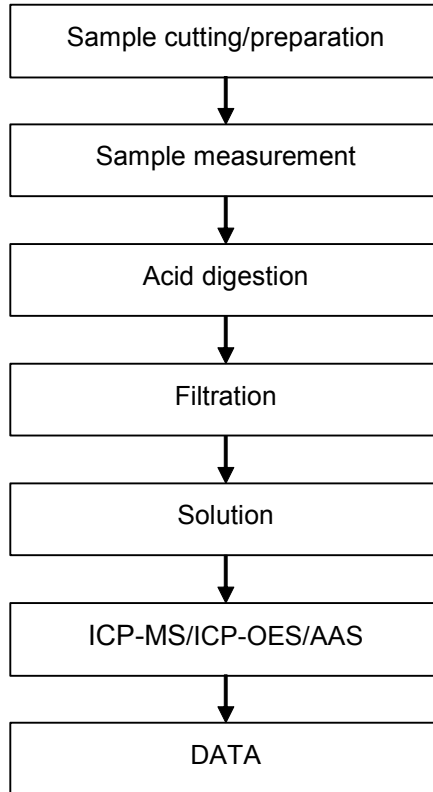


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### Elements Testing Flow Chart

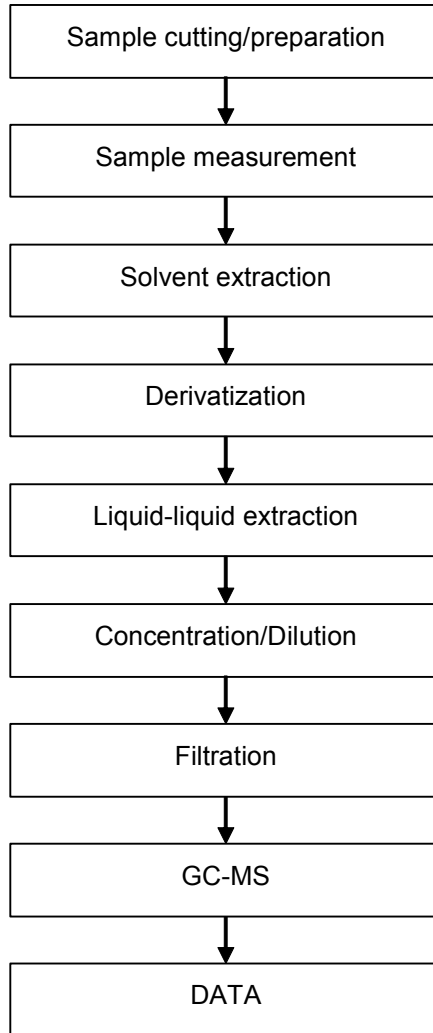


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Organotin Testing Flow Chart

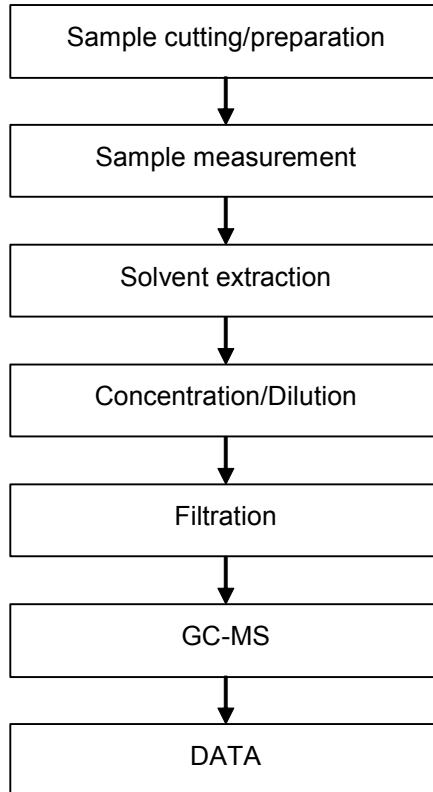


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### PCB Testing Flow Chart

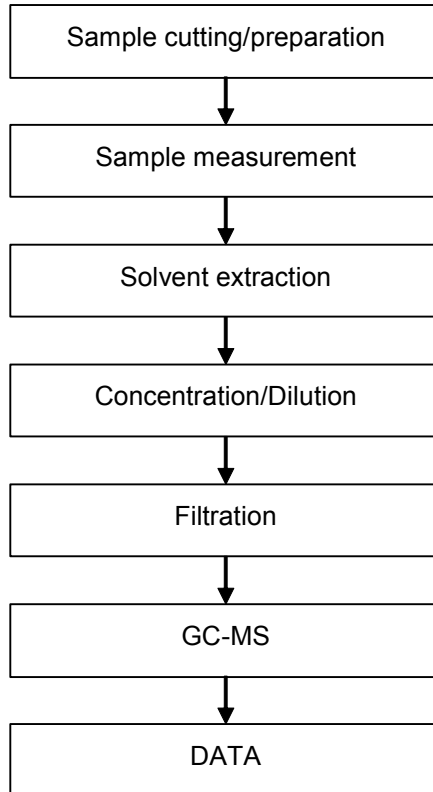


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PCN Testing Flow Chart

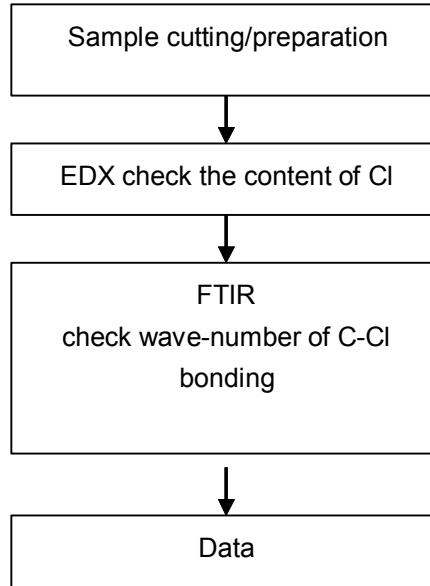


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### PVC Testing Flow Chart



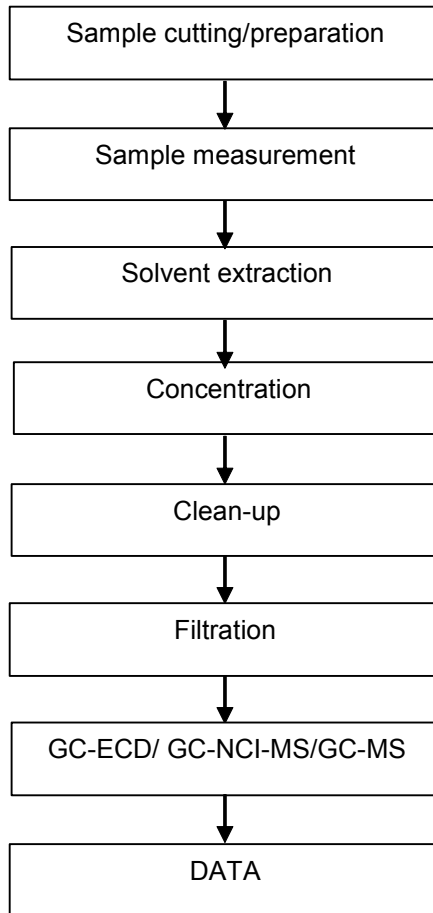
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**Chlorinated Paraffin Testing Flow Chart**

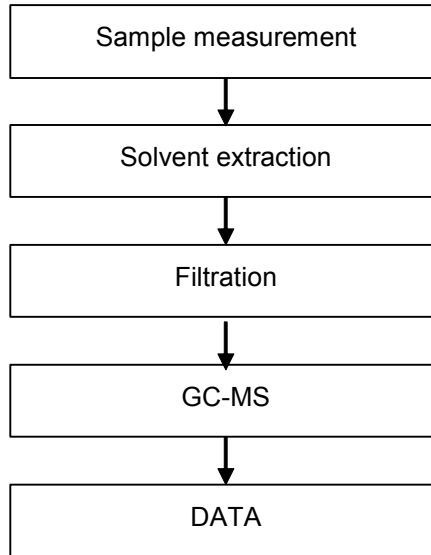


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### VOC Testing Flow Chart

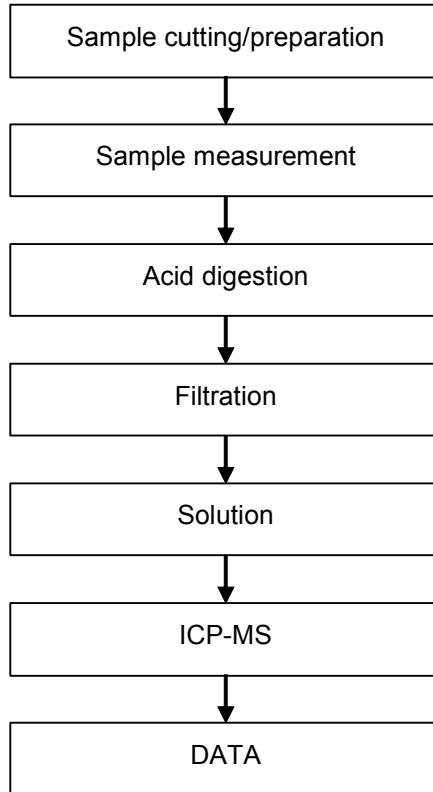


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Elements Testing Flow Chart

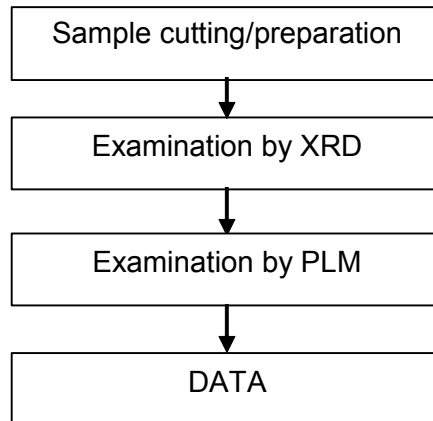


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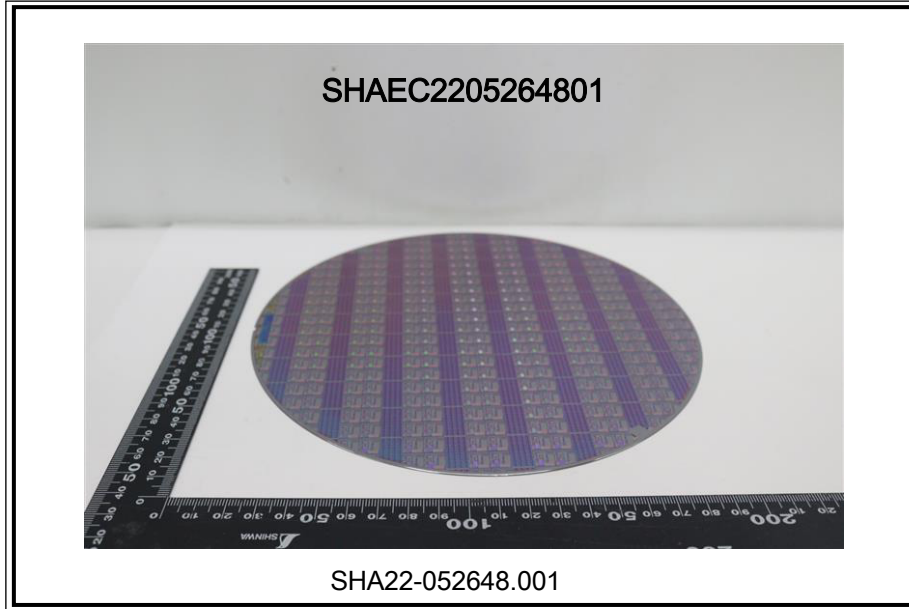
Asbestos Testing Flow Chart



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