

# Contact information



**Zhongshan Huayang plastic pigment Co., LTD**  
**Zhongshan Huaqian plastic material Co., LTD**

**PCP**<sup>®</sup>

**Wuzhou**



ISO9001:2015  
Quality management system



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## Patented Products:

1. Matte matte PC material (Invention patent No. :201510645767.4)
- 2, matte matte PMMA material (invention patent No. :2015106457689)
- 3, plate extrusion 102C yellow weather resistant fluorescent masterbatch (invention patent No. :201510899924.4)
4. PC nano reducer (Invention patent No. :201610199856.5)
- 5, GPPS reflective material (invention patent No. :201610199857.X)
- 6, PCPBT reflective material (invention patent No. :201610325214.5)
- 7, HIPS reflection material (invention patent No. :201610381620.3)
8. PPPEPET reflective material (Invention patent No. :201610381619.0)
- 9, ultra-dispersed porcelain white switch panel masterbatch and its preparation method and application (Invention patent No. :201910985960.0)
10. PCP new light-transmitting material (Invention patent No. :201810443635.7)
- 11, ultra-dispersed PC optical diffusion masterbatch and its preparation method and application (Invention patent No. :201910985991.6)
12. Graphene composite plastic for heat dissipation and its preparation method (Invention patent No. :202210361824.6)

Business: graphene cooling materials, LED light diffusion materials, modified plastics, automotive spray free materials



# Huayang Brothers graphene patent

Certificate No. 5587643



## Invention patent certificate

The name of the invention: graphene composite plastic for heat dissipation  
and a preparation method thereof

Inventor: Wu Zhou

ZL202210361824.6

Patent application date: April 07, 2022

Patent holder: Zhongshan Huayang Plastic Pigment Co., LTD

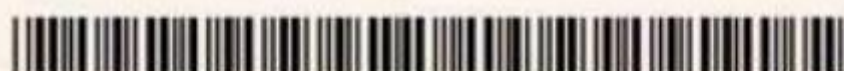
Add: Room 2, Building D, No. 1, Fuyuan Road, Waisha Village, Shenwan Town,  
Zhongshan City, Guangdong 528400, China

Date of Authorization announcement: November 18, 2022

License Announcement number :CN114702752B

The State Intellectual Property Office shall, after examination in accordance with the Patent Law of the People's Republic of China, decide to grant a patent right, issue a patent certificate for invention and register it in the patent register. The patent right shall take effect as of the date of the announcement of authorization. The term of patent right shall be twenty years, counted from the date of filing.

The patent certificate records the legal status of the patent right at the time of registration. The transfer, pledge, invalidation, termination and restoration of the patent right and the change of the name, nationality and address of the patentee are recorded in the patent register.



Director general  
Shen Changyu

*Shen Changyu*





# Huayang Brothers Graphene report

Huayang American Certificate of Invention 11,767,416B1 00



*To Promote the Progress*



*of Science and Useful Arts*

*The Director*

*of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

*Therefore, this United States*

*Patent*

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.



*Katherine Kelly Vidal*



DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE





US011767416B1

(12) **United States Patent**  
**Wu**

(10) **Patent No.:** **US 11,767,416 B1**  
(45) **Date of Patent:** **Sep. 26, 2023**

(54) **GRAPHENE COMPOSITE PLASTIC AND  
PREPARATION METHOD THEREOF**

(71) Applicant: **Zhongshan Huayang Plastic Dyestuffs  
Co., Ltd.**, Zhongshan (CN)

(72) Inventor: **Zhou Wu**, Zhongshan (CN)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **18/095,031**

(22) Filed: **Jan. 10, 2023**

(30) **Foreign Application Priority Data**

Apr. 7, 2022 (CN) ..... 202210361824.6

(51) **Int. Cl.**  
**C08K 13/06** (2006.01)  
**C08K 3/04** (2006.01)  
**C08L 23/12** (2006.01)

(52) **U.S. Cl.**  
CPC ..... **C08K 13/06** (2013.01); **C08K 3/042**  
(2017.05); **C08L 23/12** (2013.01)

(58) **Field of Classification Search**  
CPC ..... C08K 3/042; C08L 23/12  
See application file for complete search history.

(56) **References Cited**

**FOREIGN PATENT DOCUMENTS**

CN	107057192 A	8/2017
CN	109054306 A	12/2018
CN	113773583 A	* 12/2021

**OTHER PUBLICATIONS**

Machine translation of CN 109054306 A, published Dec. 21, 2018.\*  
Machine translation of CN 113773583 A, published Dec. 10, 2021.\*

\* cited by examiner

*Primary Examiner* — Vickey Nerangis

(74) *Attorney, Agent, or Firm* — Jose Cherson Weissbrot

(57) **ABSTRACT**

The present disclosure provides a graphene composite plastic for heat dissipation, comprising 10%-85% of carrier resin, 10%-85% of modified graphene, 1%-10% of lubricant, 1%-5% of coupling agent and a stabilizer. The present disclosure also provides a method for preparing the above graphene composite plastic.

**5 Claims, No Drawings**





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## Company Profile

Zhongshan Huayang Plastic Pigment Co., Ltd. was established in 2008, specializing in the production and sales of reflective materials, modified materials, LED light diffusion materials, PC reflection materials, PS reflection materials, injection blown bubble PC light diffusion, injection molded ultra dispersed PC switch panel porcelain white flame retardant masterbatch, PC light diffusion extrusion masterbatch, PS light diffusion materials, PP light diffusion materials, engineering plastics, graphene heat dissipation materials, carbon fiber materials, etc. Technical support for integrated technology oriented enterprises.

The company currently has 11 national invention patents and 11 domestically advanced granulation production lines. The company has always attached great importance to independent research and development production capacity, and is committed to the research and development of polymer material modification technology, providing customers with high-quality products.



American Invention Patent PCT for Graphene



### Graphene Knife Shaped Series



### Graphene Golden Bean Series



### Graphene F91 series



### Graphene Spotlight Series



### Graphene UFO Light Series



### Graphene tube lamp series



### Graphene magnetic absorption tree lamp wheel



### Graphene 5054 Series



### Graphene Little Apple Series



#### Application instructions for graphene materials:

Graphene is a material with excellent thermal conductivity that is difficult to be molded by injection molding. Through special modification schemes, large-scale production has been achieved through injection molding technology, replacing the aluminum die-casting floodlight shell to reduce costs by more than 30%~50%, and improving production efficiency, ushering in a true revolution in the industry. All processes and formulas are protected by invention patents.

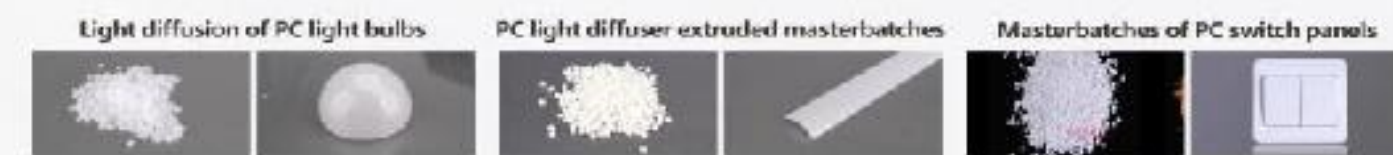
## Company Profile

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The company currently has 11 national invention patents and 11 domestically advanced granulation production lines. The company has always attached great importance to independent research and development production capacity, and is committed to the research and development of polymer material modification technology, providing customers with high-quality products.



American Invention Patent PCT for Graphene



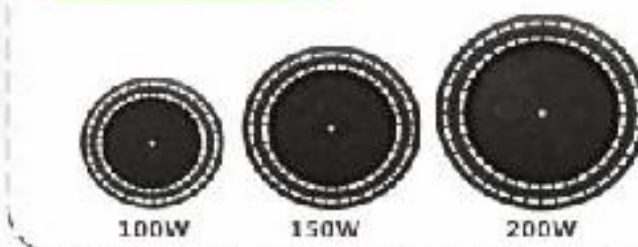
### Graphene Shell of Spotlights



### Graphene Dingding Shell



### Graphene Shell of UFO Lights



### Graphene Shell of UFO Light Power Boxes



### Graphene magnetic absorption radiator



### Modular graphene radiator



### Graphene Knife Shaped Shell



### Graphene Sword Shaped Shell



### Graphene Golden Bean Series



### Graphene Shell of Main Power Supply Box



### Graphene LED Strip Radiator High Bay Light



### Graphene magnetic absorption track spotlight



### Graphene magnetic absorption track floodlight



### Graphene wall washing lamp



### Graphene 5054 Shell



### Graphene Little Apple Shell



#### Application instructions for graphene materials:

Graphene is a material with excellent thermal conductivity that is difficult to be molded by injection molding. Through special modification schemes, large-scale production has been achieved through injection molding technology, replacing the aluminum die-casting floodlight shell to reduce costs by more than 30%~50%, and improving production efficiency, ushering in a true revolution in the industry. All processes and formulas are protected by invention patents.










# Zhongshan Huayang plastic pigment Co., LTD


## Graphene series quotation sheet

Date: September 24, 2023

Small Apple Series	10W	20W	30W	50W	70W	100W	150W	200W
Number of holes	1*4	1*4	1*4	1*2	1*2	1*1	1*1	1*1
Aluminium alloy (Unit: gram)	52	70	110	195	300	375	496	785
PA66+ graphene (Unit: gram)	40	55	90	145	188	305	385	560
Number of holes	0.77 yuan	0.99 yuan	1.53 yuan	2.61yuan	4.00 yuan	5.40 yuan	7.74 yuan	11.25yuan

Black gold steel series	50W	100W	150W	200W	remark
Graphical representation					
Product size	198*228*36	232*263*41.5	287*322*45	352*382*52	
Weight /PCS	140g	240g	410g	500g	
Unit price /PCS	2.61yuan	4.59yuan	6.75yuan	10.80yuan	
Small golden bean unit price /PCS	6.5yuan				

Tree light series	9W tree light		18W tree light		24W tree light		36W tree light		48W tree light	
Graphical representation										
Aluminum alloy weight	227g		314g		416g		482g		641g	
wattage	5-7W		9-12W		12-18W		18-24W		24-36W	
Product size	Outer diameter Ø125/ Inside diameter Ø 84		Outer diameter Ø155/ Inside diameter Ø 115		Outer diameter Ø185/ Inside diameter Ø 146		Outer diameter Ø205/ Inside diameter Ø 164		Outer diameter Ø235/ Inside diameter Ø 188	
Graphene weight	Face cover	base	Face cover	base	Face cover	base	Face cover	base	Face cover	base
	24g	130g	32g	190g	38g	260g	44g	300g	57g	385g
Unit price (Yuan)	0.85	3.4	1.3	5.2	1.5	6.5	1.8	8	2.2	10.3
Total unit price (Yuan)	4.25yuan		6.5yuan		8.0yuan		9.8yuan		12.5yuan	

UFO	UF0100W	UF0150W	UF0200W
Graphical representation			
Aluminum alloy weight	514g	732g	980g
Product size	Φ290	Φ350	Φ400
Graphene weight	286g	440g	591g
Unit price (Yuan)	6.3yuan	9.9yuan	12.1yuan

UFO power box	100W	150W	200W
Graphical representation			
Aluminum alloy weight	203g	253g	350g
Product size	Φ130	Φ150	Φ180
Graphene weight	102g	130g	160g
Unit price (Yuan)	3.20yuan	4.30yuan	5.20yuan

Note: Cash price does not include tax upon arrival of payment; Zhongshan City within the package delivery, outside the province does not include freight



The name of a product or commodity	UFO100W	UFO150W	UFO200W
Graphical representation			
Aluminum alloy weight	514g	732g	980g
Product size	Φ290	Φ350	Φ400
Graphene weight	286g	440g	591g
Unit price (Yuan)	6.3yuan	9.9yuan	12.1yuan

The name of a product or commodity	UFO power box 100W	UFO power box 150W	UFO power box 200W
Graphical representation			
Aluminum alloy weight	203g	253g	350g
Product size	Φ130	Φ150	Φ180
Graphene weight	102g	130g	160g
Unit price (Yuan)	3.20yuan	4.30yuan	5.20yuan

Note: money to delivery, cash price does not include tax, Zhongshan city within the package delivery, excluding the province freight



## Zhongshan Huayang plastic pigment Co., LTD

### Small Apple series graphene quotation sheet

Date: March 17, 2023

The name of a product or commodity	10W	20W	30W	50W	70W	100W	150W	200W
Number of holes	1*4	1*4	1*4	1*2	1*2	1*1	1*1	1*1
Aluminium alloy (Unit: gram)	52	70	110	195	300	375	496	785
PA66+ graphene (Unit: gram)	40	55	90	145	188	305	385	560
Unit price /pcs	0.7yuan	0.99yuan	1.53yuan	2.61yuan	4.00yuan	5.40yuan	7.74yuan	11.25yuan

### 5054 Black gold steel series graphene quotation

The name of a product or commodity	50W	100W	150W	200W	remark
Graphical representation					
Product size	198*228*36	232*263*41.5	287*322*45	352*382*52	
Weight /pcs	140g	240g	410g	500g	
Unit price /pcs	2.61yuan	4.59yuan	6.75yuan	10.80yuan	
Small golden bean unit price /pcs	6.5yuan				

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight

## Zhongshan Huayang plastic pigment Co., LTD

### Graphene F91 series quotation sheet

Date: October 14, 2023

Product name	50W	100W	150W	200W	300W
Graphical representation					
Graphene weight	160g	250g	350g	380g	580g
Unit price /pcs	2.5yuan	4.5yuan	6.5yuan	7.0yuan	11.0yuan

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight



## Zhongshan Huayang plastic pigment Co., LTD

### Wheel lighting tree light kit quotation

Date: October 18, 2023






The name of a product or commodity	9W wheel light tree light			18W wheel light tree light			24W wheel light tree light			36W wheel light tree light			48W wheel light tree light		
Graphical representation															
Product size	Φ 120			Φ 150			Φ 180			Φ 200			Φ 230		
Graphene weight	Face cover	mesoconch	base	Face cover	mesoconch	base	Face cover	mesoconch	base	Face cover	mesoconch	base	Face cover	mesoconch	base
	24g	137g	82g	44g	195g	120g	48g	250g	160g	55g	300g	192g	70g	363g	243g
Unit price (Yuan)	0.85yuan	3.4yuan	2.2yuan	1.5yuan	4.9yuan	3.1yuan	1.5yuan	6yuan	3.5yuan	1.6yuan	7yuan	4.4yuan	2yuan	8.3yuan	5.2yuan
Total unit price (Yuan)	6.45yuan			9.5yuan			11yuan			13yuan			15.5yuan		

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight

## Zhongshan Huayang plastic pigment Co., LTD

### Graphene quotation sheet

Date: August 16, 2023





Product name	Stud model 2.5 inches	Stud model 4 inches	Stud model 5 inches	Stud model 6 inches	Stud model 8 inches
Graphical representation					
wattage	5W-5.5W	9.5W-10W	14W-15W	18W-19W	20W-21W
Graphene weight	8.5g	21g	31g	40g	66g
Total unit price (Yuan)	0.21yuan	0.3yuan	0.53yuan	0.7yuan	1.25yuan

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight



**Zhongshan Huayang plastic pigment Co., LTD**  
Baodao graphene kit quotation sheet





Date: October 14, 2023

Product name	50W street lamp head	100W street lamp head	150W street lamp head	200W street lamp head
Graphical representation				
Unit price /pcs	11.00yuan	14.20yuan	19.00yuan	27.50yuan

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight

**Zhongshan Huayang plastic pigment Co., LTD**  
Baodao graphene kit quotation sheet

Date: October 14, 2023

Product name	50W street lamp head	100W street lamp head	150W street lamp head	200W street lamp head
Graphical representation				
Graphene weight	327g	395g	615g	985g
Unit price /pcs	6.00yuan	7.20yuan	12.00yuan	16.5yuan

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight



## Zhongshan Huayang plastic pigment Co., LTD

### Price list for floodlight and spotlight



Date: August 8, 2023

Product name	Floodlight 12W	Floodlight 24W	Spotlight 6W	Spotlight 12W	Spotlight 18W	Spotlight 24W
Graphical representation						
Aluminum alloy profile weight	72g	144g	25g	46g	68g	90g
Graphene weight	83g	163g	28g	52g	77g	102g
Graphene wall thickness	1.5	1.5	1.5	1.5	1.5	1.5
Unit price /pcs	1.1yuan	2.2yuan	0.42yuan	0.7yuan	1.05yuan	1.43yuan

## Zhongshan Huayang plastic pigment Co., LTD

### Quotation for downlight kit

Date: October 30, 2023

Product name	Graphene downlights	pp support
Graphical representation		
Product size	Φ63	Φ59.2
Product weight	62g	7.5g
Unit price (Yuan)	1.15yuan	0.12yuan

Note: Cash price does not include tax, payment to delivery, outside the province does not include freight





## TEST REPORT

No. : GZMR230802333501

Date : Sep 15, 2023

Page: 1 of 4



CUSTOMER NAME: ZHONG SHAN CITY HUA YANG PLASTIC PIGMENT CO.,LTD.  
ADDRESS: 1 FUYUAN ROAD,WAISHA VILLAGE,SHENWAN TOWN,  
ZHOINGSHAN CITY

Sample Name : GRAPHENE PROJECTION LAMP HOUSING  
Model No. : 3113 (MATERIAL MODEL)

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

\*\*\*\*\*

SGS Ref. No. : GZP23-010392  
Date of Receipt : Aug 14, 2023  
Testing Start Date : Aug 14, 2023  
Testing End Date : Sep 15, 2023  
Test result(s) : For further details, please refer to the following page(s)  
(Unless otherwise stated the results shown in this test report refer only to the sample(s) tested)

Signed for  
SGS-CSTC Standards Technical  
Services Co., Ltd. Guangzhou Branch

Gary Bai  
Authorized signatory



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## TEST REPORT

No. : GZMR230802333501

Date : Sep 15, 2023

Page: 2 of 4

### Summary of Results:

No.	Test Item	Test Method	Result	Conclusion
1	Change of Temperature with Specified Rate of Change	Provided by client	No evidence of cracking, blistering, discoloration	Pass

Note: Pass : Meet the requirements;  
Fail : Does not meet the requirements;  
/ : Not Apply to the judgment.

### Original Sample Photo:



Original sample A



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中国·广东·广州高新技术产业开发区科学城科珠路198号 中国·广东·广州市黄埔区开创大道1501号3栋101房 t(86-20) 8215555 sgs.china@sgs.com



## TEST REPORT

No. : GZMR230802333501

Date : Sep 15, 2023

Page: 3 of 4

Test Item: Change of Temperature with Specified Rate of Change

Sample Description: Graphene projection lamp housing

Test Method: Provided by client

Test Condition:

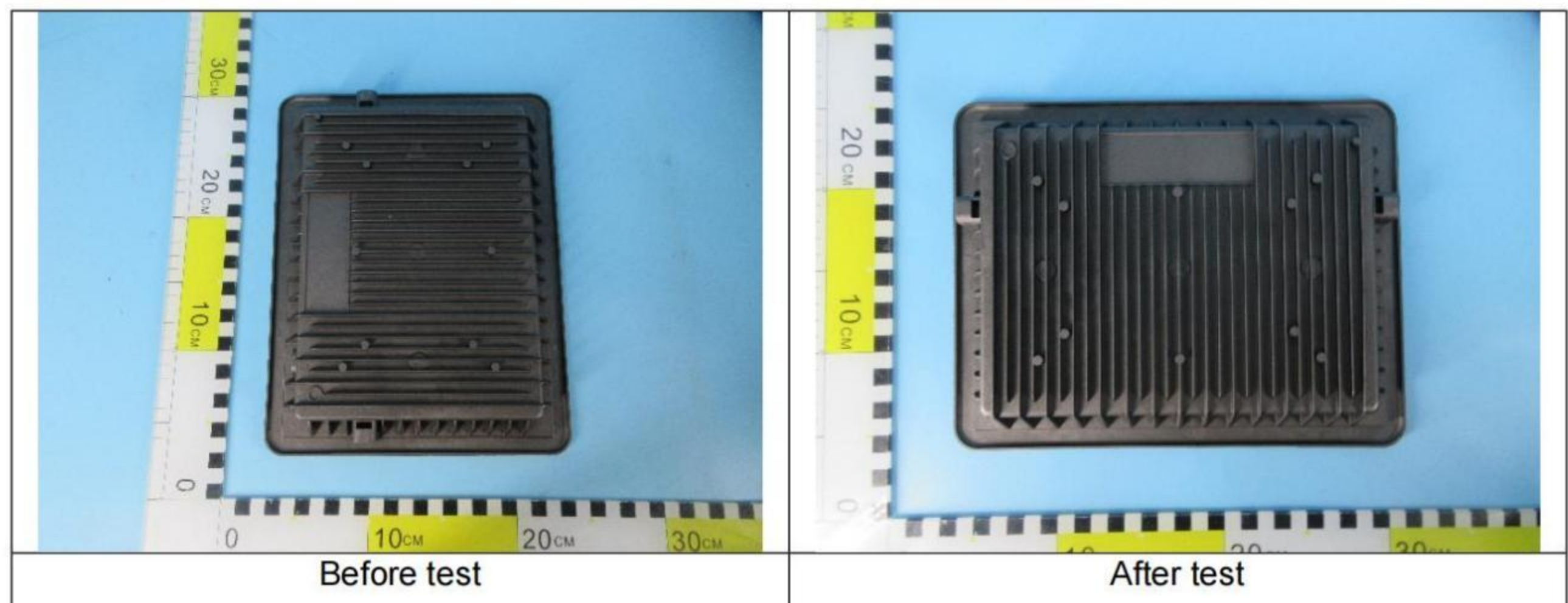
Interval	Test temperature	Duration
1	-30℃	30min
2	120℃	30min
Temperature change rate:15℃/minute		
Cycles: 375 (500h)		

Lab Environment Condition: 15℃~35℃, 25% ~75%RH

Test Result:

Sample	Appearance after test	Client's requirement	Conclusion
#1	No evidence of cracking, blistering, discoloration	No evidence of cracking, blistering, discoloration	Pass

Test Photo:



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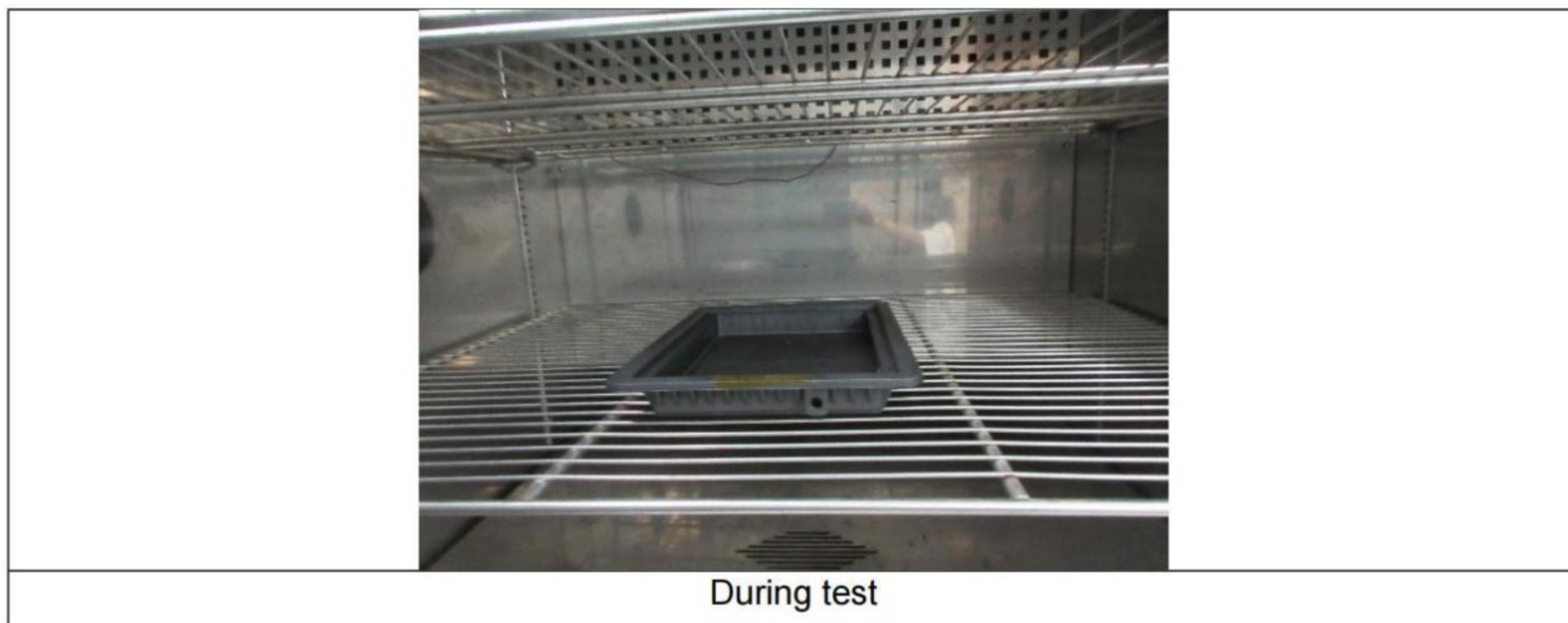


## TEST REPORT

No. : GZMR230802333501

Date : Sep 15, 2023

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### Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Temperature Rapid Change Chamber	SE-400-15-15	GZMR-RL-E064	2023-04-03	2024-04-02

\*\*\*\*\* End of report\*\*\*\*\*



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## Test Report

No.: CANEC23006250302

Date: Aug 02, 2023

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Client Name: ZHONG SHAN CITY HUA YANG PLASTIC PIGMENT CO.,LTD.

Client Address: 1 FUYUAN ROAD, WAISHA VILLAGE, SHENWAN TOWN, ZHONGSHAN CITY

Sample Name: Graphene

Model No.: 3113

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

SGS Job No.: GZP23-007305

Sample Receiving Date: Jul 17, 2023

Testing Period: Jul 17, 2023 ~ Jul 20, 2023

Test Requested: Select 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).

Test Requirement	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

Zm Guan

Zm Guan  
Approved Signatory

scan to see the report



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Guangzhou Branch

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# Test Report

No.: CANEC23006250302

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## Test Result(s):

### Test Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	CAN23-0062503-0001.C001	Black material

### Remarks:

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

**EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU- Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)**

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

Test Item(s)	Limit	Unit(s)	MDL	A1
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	18
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Polybromobiphenyl (PBBs)	1000	mg/kg	-	ND
Monobromobiphenyl (MonoBB)	-	mg/kg	5	ND
Dibromobiphenyl (DiBB)	-	mg/kg	5	ND
Tribromobiphenyl (TriBB)	-	mg/kg	5	ND
Tetrabromobiphenyl (TetraBB)	-	mg/kg	5	ND
Pentabromobiphenyl (PentaBB)	-	mg/kg	5	ND
Hexabromobiphenyl (HexaBB)	-	mg/kg	5	ND
Heptabromobiphenyl (HeptaBB)	-	mg/kg	5	ND
Octabromobiphenyl (OctaBB)	-	mg/kg	5	ND
Nonabromobiphenyl (NonaBB)	-	mg/kg	5	ND
Decabromobiphenyl (DecaBB)	-	mg/kg	5	ND
Polybromodiphenyl ether(PBDEs)	1000	mg/kg	-	ND
Monobromodiphenylether (MonoBDE)	-	mg/kg	5	ND
Dibromodiphenylether (DiBDE)	-	mg/kg	5	ND
Tribromodiphenylether (TriBDE)	-	mg/kg	5	ND
Tetrabromodiphenylether (TetraBDE)	-	mg/kg	5	ND
Pentabromodiphenylether (PentaBDE)	-	mg/kg	5	ND
Hexabromodiphenylether (HexaBDE)	-	mg/kg	5	ND
Heptabromodiphenylether (HeptaBDE)	-	mg/kg	5	ND
Octabromodiphenylether (OctaBDE)	-	mg/kg	5	ND
Nonabromodiphenylether (NonaBDE)	-	mg/kg	5	ND
Decabromodiphenylether (DecaBDE)	-	mg/kg	5	ND
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND



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Test Item(s)	Limit	Unit(s)	MDL	A1
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

### Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) 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.

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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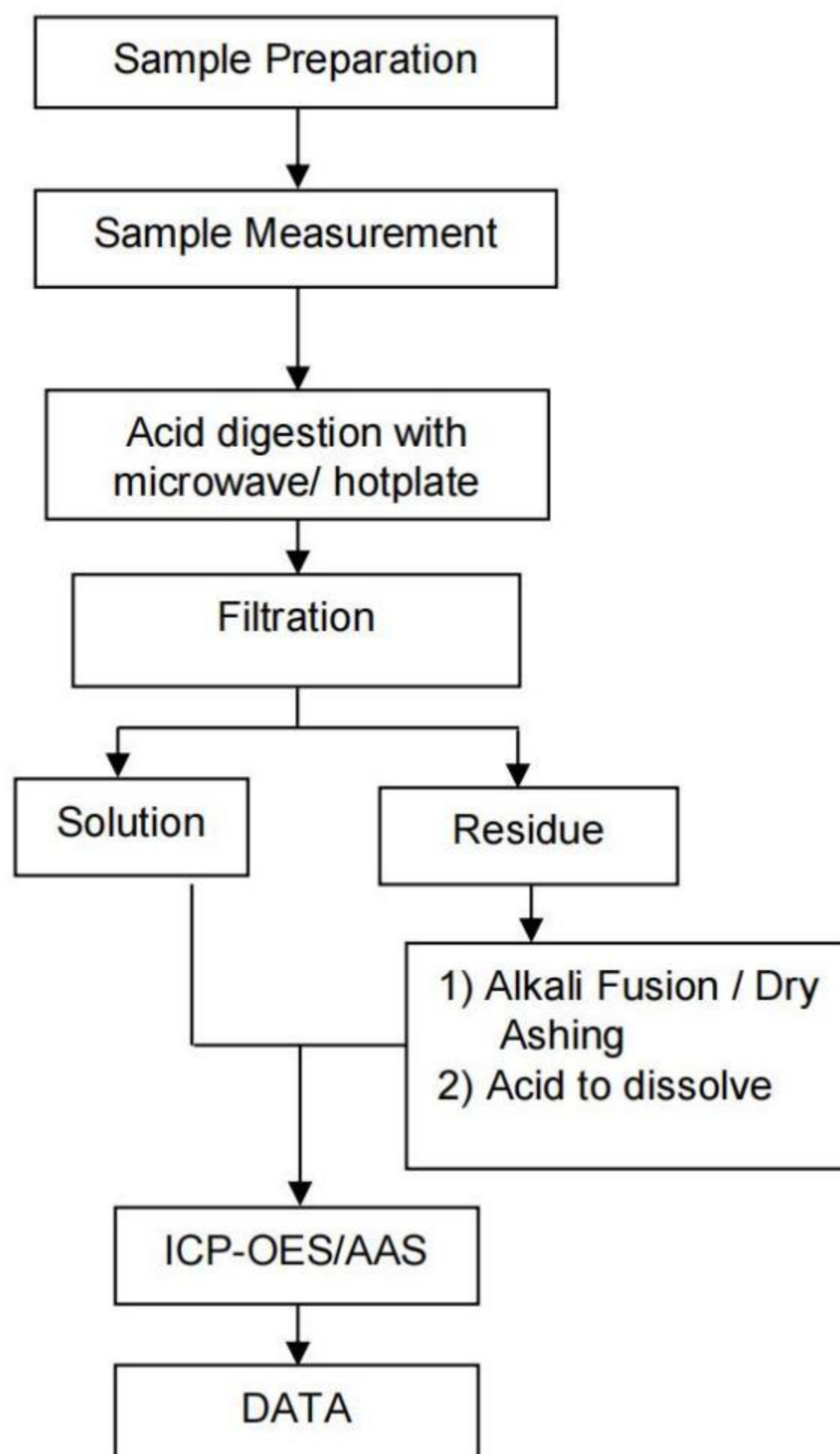
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### Elements Testing Flow Chart

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



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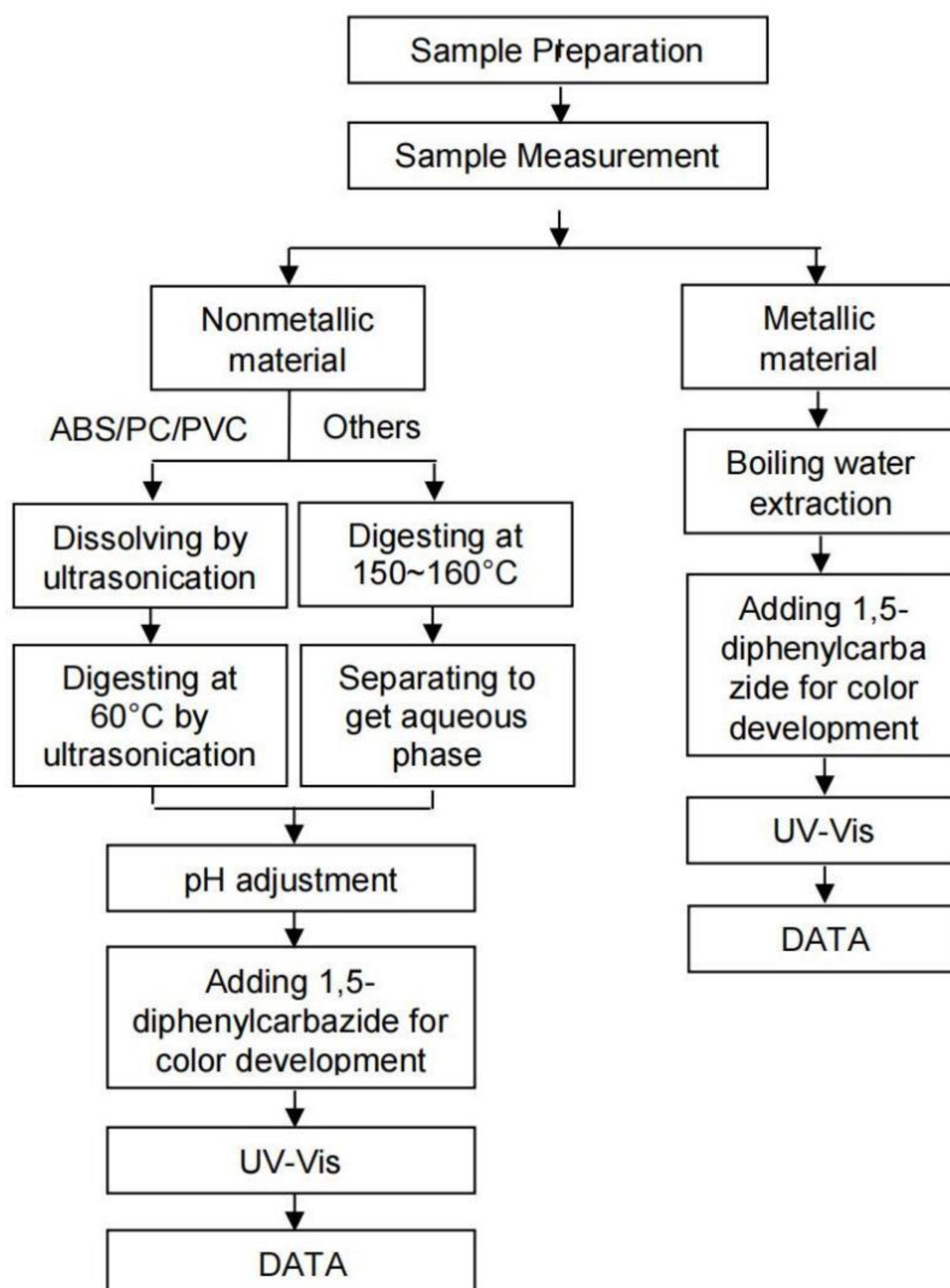
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### ATTACHMENTS

### Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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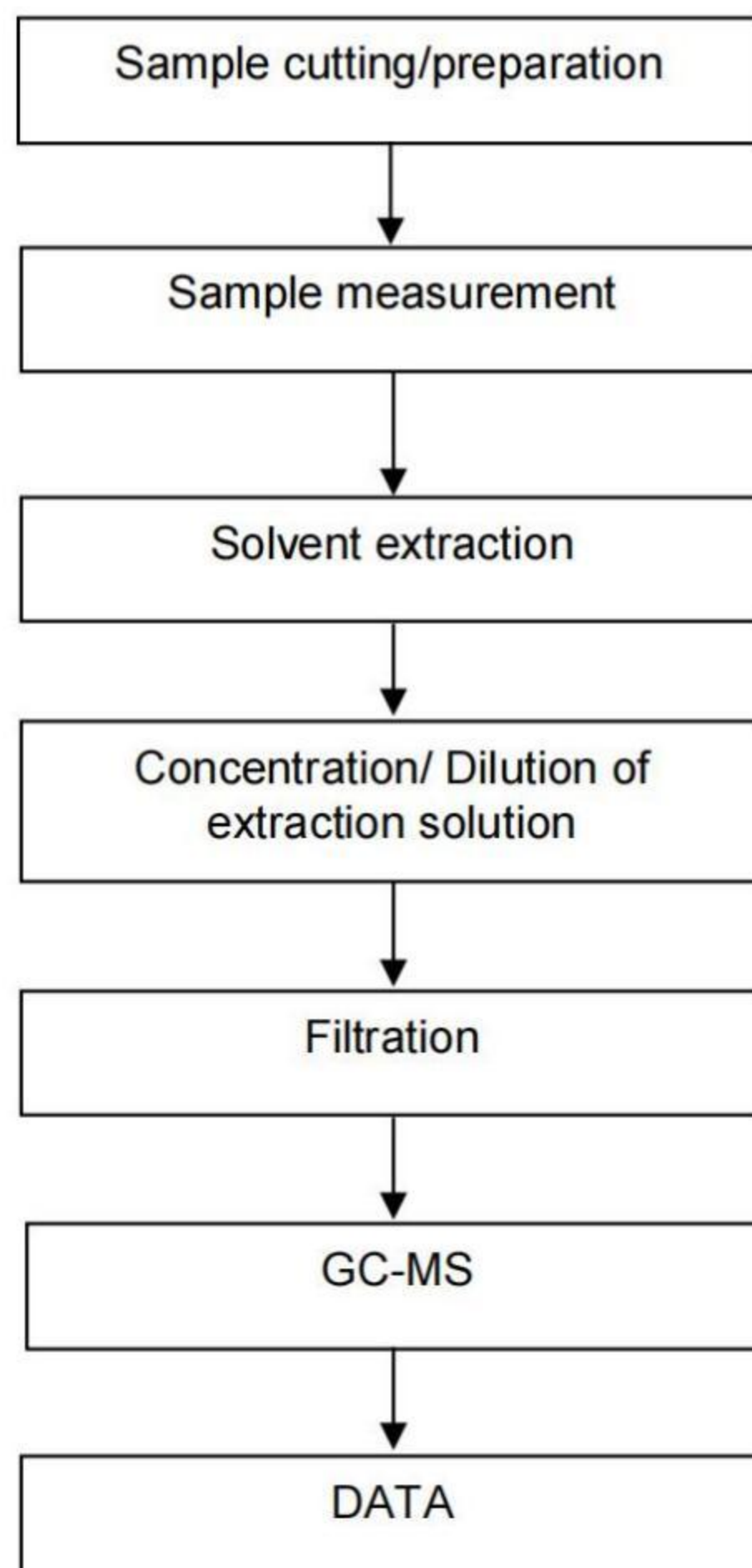
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### PBBs/PBDEs Testing Flow Chart



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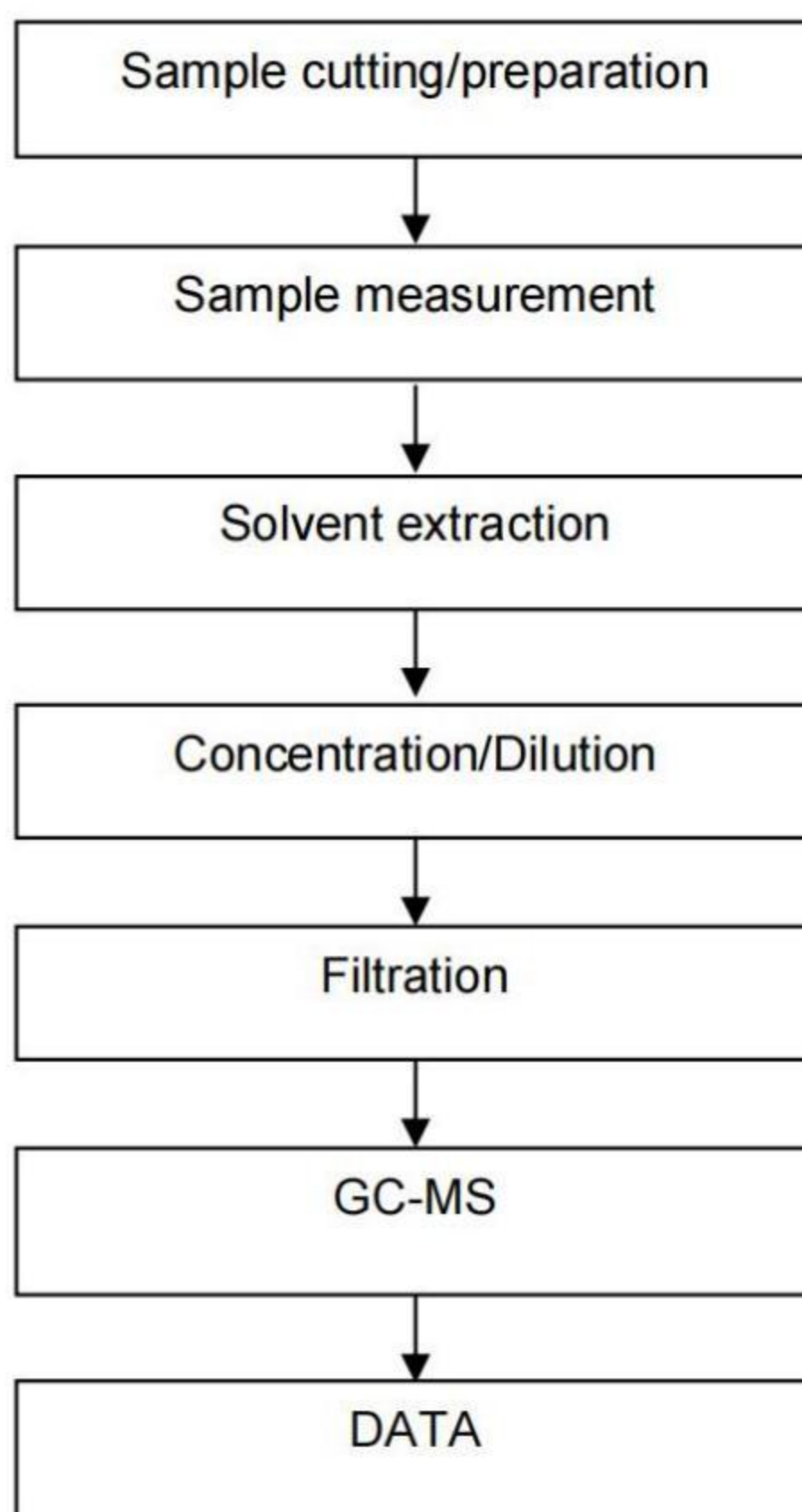
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### Phthalates Testing Flow Chart



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