

設計驗證
工程課
2024.02.27
發行
鈺鐘科技開發股份有限公司

昱慶誠工藝有限公司

NO.

YU-CHING CHEN CO . , LTD.

承認書

客 戶　鈺緯科技開發股份有限公司

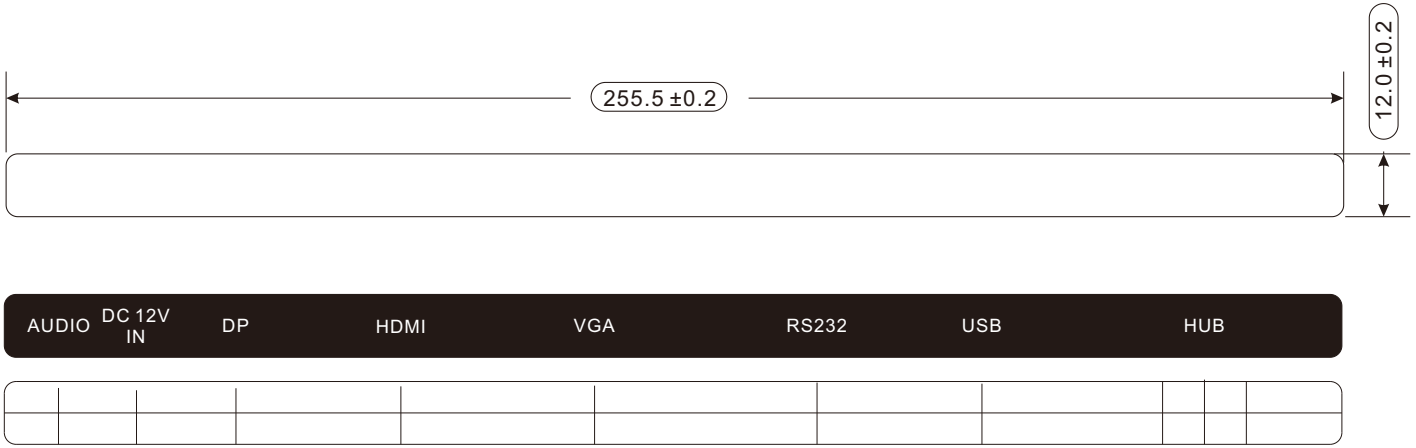
料 號　3MD564FL020 (M2320)

品 名　I/O　LABEL

製　作	客 戶 確 認
	

新北市中和區莒光路 211 號-19
TEL:886-2-82216296~7　FAX:886-2-82216298
E-mail：nameplat@ms53.hinet.net

REV.	DATE	DESCRIPTION	BY	APVD



24. RGD DC黑色(3MD564FL020)
Text color: White
Background color: 5816 Black
Font: Arial
PC190465R_RGD

設計驗證
工程課
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鈺鐘科技開發股份有限公司

3MD564FL020(M2320)

Note:

1.材質 : MYLAR MATERIAL : E121562, SABIC, model 8A35,t=0.25mm
2.單面背膠 : MH15896, 3M, models Y9448H or Y9448HK, t=0.15mm
3.材質+背膠總厚度t=0.4mm±0.05mm
4.須符合RoHS
5.顏色、尺寸參照承認樣品
6.檢驗規範文件編號QWI-016

RANGE OF DIMENSION	TOLERANCE CLASS DESIGNATION		
		V	
	f	m	c
UP TO 30	±0.10	±0.20	±0.50
ABOVE 30~120	±0.15	±0.30	±0.80
ABOVE 120~315	±0.20	±0.50	±1.20
ABOVE 315~1000	±0.30	±0.80	±2.00
ANGLE±1° (±1.75/100)			

THIRD ANGLE PROJECTION	UNITS: mm	SCALE: 1/1	SHEET: 1/5	MODEL NO.: COMMON
	MATERIAL: See Notes		TREATMENT: See Notes	
DSGD by ALICIA	2024/01/22	PART NAME: I/O LABEL(L255.5*H12mm)		
APVD by	2024/02/27	PART NO.:		VER.
APVD NO.: M2320	FILE NAME: 3MD157FLIOL.cdr	DIVA Laboratories ,Ltd.		

昱慶誠工藝有限公司

產品檢驗報告

客戶：鈺緯科技開發股份有限公司	料號：3MD564FL020 (M2320)	號碼：78-1091	日期：113.02.20

	重點尺寸			全尺寸				
編號	長度：255.5±0.2mm	寬度：12±0.2mm	厚度：0.4±0.05mm	長度：255.5±0.2mm	寬度：12±0.2mm	厚度：0.4±0.05mm	外觀	污損
NO：1	255.60	12.00	0.40	255.50	12.00	0.40	OK	OK
NO：2	255.50	12.05	0.40	255.60	12.00	0.40	OK	OK
NO：3	255.60	12.00	0.40	255.50	12.00	0.40	OK	OK
NO：4	255.50	12.00	0.40				OK	OK
NO：5	255.50	12.00	0.40				OK	OK
NO：6								
NO：7								
NO：8								
NO：9								
NO：10								
備註	量測儀器：游標卡尺							

Test Report

No.: ETR23805026 Date: 01-Sep-2023

SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

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

Sample Submitted By	:	SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
Sample Name	:	PC FILM/SHEET
Style/Item No.	:	LEXAN 8A13 / 8A13E / 8A13F / 8A35 / 8A37 / 8A73 / 8A35T / 8A35N
Sample may cover	:	LEXAN 8A13, 8A13D, 8A13T, 8A13E, 8A13EMD, 8A13ESH, 8A13EMSH, 8A13F, 8A13FT, 8A13FD, 8A13FMD, 88A35, 8A35D, 8A35DD, 8A35DA, 8A35L, 8A35T, 8A37, 8A37D, 8A73, 8A35N, 8Axx (x MAY COVER 0 ~ 99, ANY LETTERS [EXCLUDING V] OR COMBINATION WITH DIGITS AND LETTERS)
Main Substance	:	POLYCARBONATE LEXAN IS A TRADEMARK OF SABIC

==========

Sample Receiving Date	:	24-Aug-2023
Testing Period	:	24-Aug-2023 to 01-Sep-2023

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) As specified by client, to test PAHs and other item(s).

Test Results : Please refer to following pages.

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

CHECK REPORT
PIN CODE: 00DF249B

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SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
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Test Part Description

No.1 : TRANSLUCENT SHEET

Test Result(s)

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

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Test Item(s)	Method	Unit	MDL	Result
				No.1
Butyl benzyl phthalate (BBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Dibutyl phthalate (DBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-(2-ethylhexyl) phthalate (DEHP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisobutyl phthalate (DIBP)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-n-pentyl phthalate (DNPP) (CAS No.: 131-18-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Di-n-hexyl phthalate (DNHP) (CAS No.: 84-75-3)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.	mg/kg	20	n.d.
Chlorine (Cl) (CAS No.: 22537-15-1)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
Bromine (Br) (CAS No.: 10097-32-2)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.
Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	With reference to RSTS-E&E-121, analysis was performed by LC/MS.	mg/kg	10	n.d.

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Test Item(s)	Method	Unit	MDL	Result No.1
Polycyclic Aromatic Hydrocarbons				
Benzo[a]pyrene (CAS No.: 50-32-8)	With reference to AfPS GS 2019:01 PAK, analysis was performed by GC/MS.	mg/kg	0.2	n.d.
Benzo[e]pyrene (CAS No.: 192-97-2)		mg/kg	0.2	n.d.
Benzo[a]anthracene (CAS No.: 56-55-3)		mg/kg	0.2	n.d.
Benzo[b]fluoranthene (CAS No.: 205-99-2)		mg/kg	0.2	n.d.
Benzo[j]fluoranthene (CAS No.: 205-82-3)		mg/kg	0.2	n.d.
Benzo[k]fluoranthene (CAS No.: 207-08-9)		mg/kg	0.2	n.d.
Chrysene (CAS No.: 218-01-9)		mg/kg	0.2	n.d.
Dibenzo[a,h]anthracene (CAS No.: 53-70-3)		mg/kg	0.2	n.d.
Benzo[g,h,i]perylene (CAS No.: 191-24-2)		mg/kg	0.2	n.d.
Indeno[1,2,3-c,d]pyrene (CAS No.: 193-39-5)		mg/kg	0.2	n.d.
Anthracene (CAS No.: 120-12-7)		mg/kg	0.2	n.d.
Fluoranthene (CAS No.: 206-44-0)		mg/kg	0.2	n.d.
Phenanthrene (CAS No.: 85-01-8)		mg/kg	0.2	n.d.
Pyrene (CAS No.: 129-00-0)		mg/kg	0.2	n.d.
Naphthalene (CAS No.: 91-20-3)		mg/kg	0.2	n.d.
Sum of 15 PAHs		mg/kg	-	n.d.

Note：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected (Less than MDL)
4. "-" = Not Regulated
5. PFOS and its salts including :
   CAS No.: 1763-23-1, 2795-39-3, 29457-72-5, 29081-56-9, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7, 91036-71-4, 4021-47-0 and others.

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PAHs Remark：

Δ AfPS (German commission for Product Safety): GS PAHs requirements

Parameter	Category 1	Category 2		Category 3	
	Materials intended to be placed in the mouth, or materials in toys (Directive 2009/48/EC) or articles for children up to 3 years of age with intended long-term skin contact (> 30 seconds).	Materials that are not in Category 1, with intended or foreseeable long-term skin contact (> 30 seconds) or short-term repetitive contact with the skin.		Materials not covered by Category 1 or 2, with intended or foreseeable short-term skin contact (≦30 seconds).	
		a. Use by children under 14	b. Other consumer products	a. Use by children under 14	b. Other consumer products
Naphthalene	< 1	< 2		< 10	
Phenanthrene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Anthracene					
Fluoranthene					
Pyrene					
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[j]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Sum of 15 PAH	< 1	< 5	< 10	< 20	< 50

Unit：mg/kg

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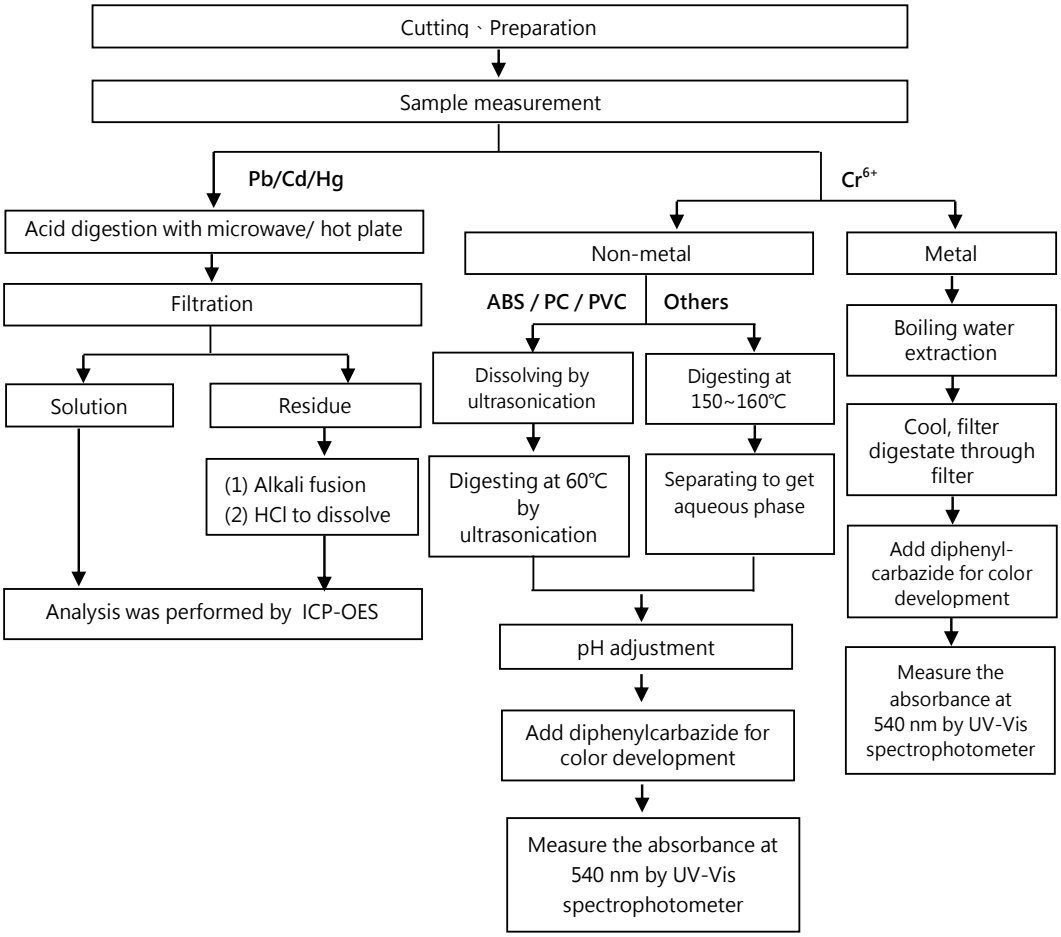
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart of heavy metal

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

(Cr^{6+} test method excluded)



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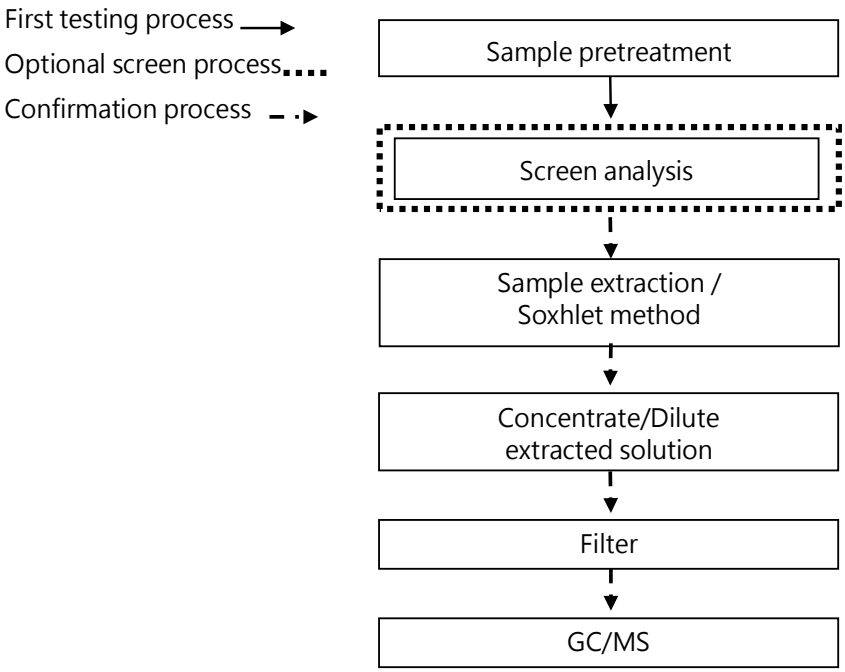
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart – PBBs / PBDEs



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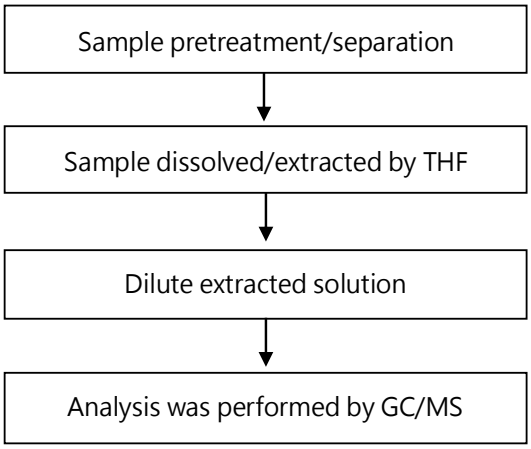
SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart - Phthalate

【Test method: IEC 62321-8】



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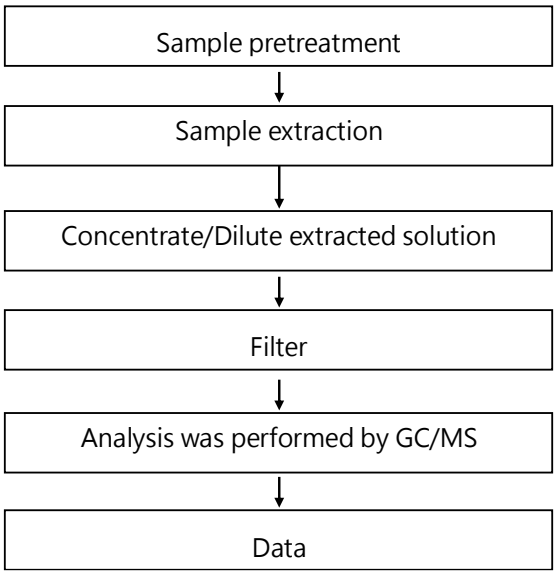
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart - HBCDD



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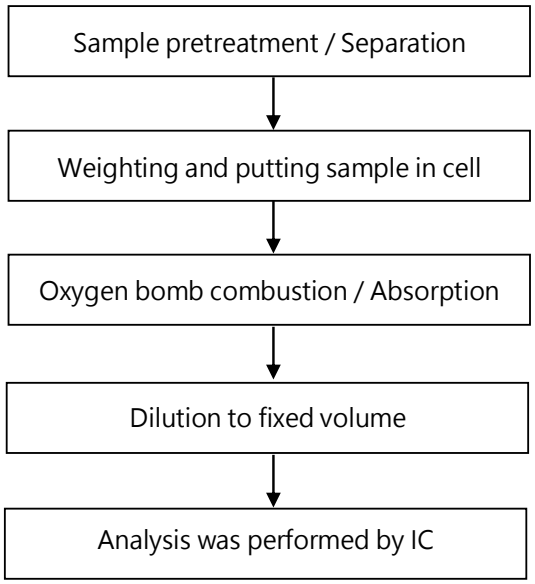
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart - Halogen



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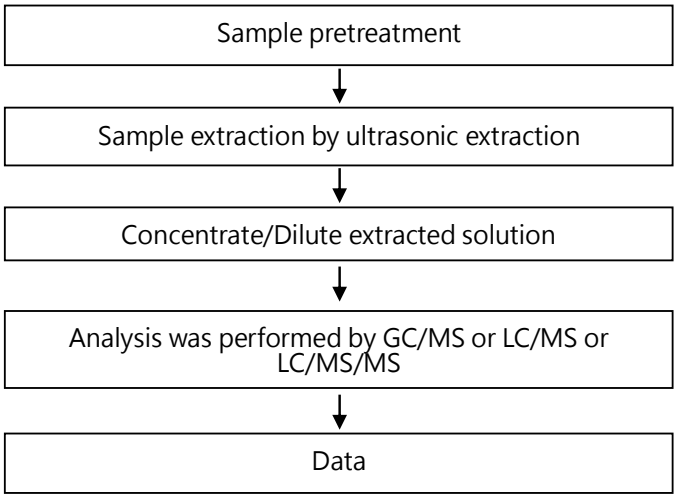
SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)



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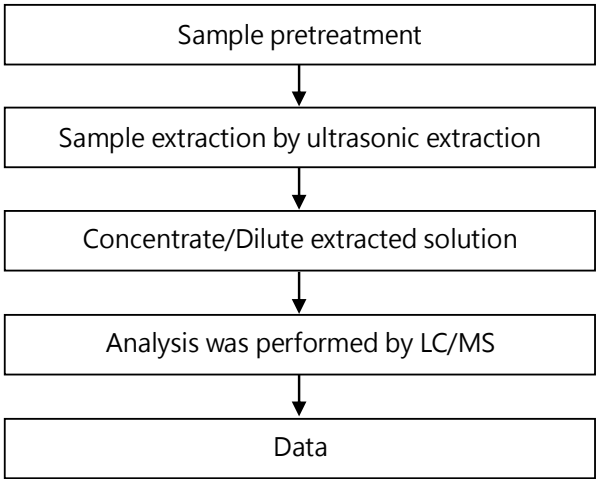
SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart - TBBP-A



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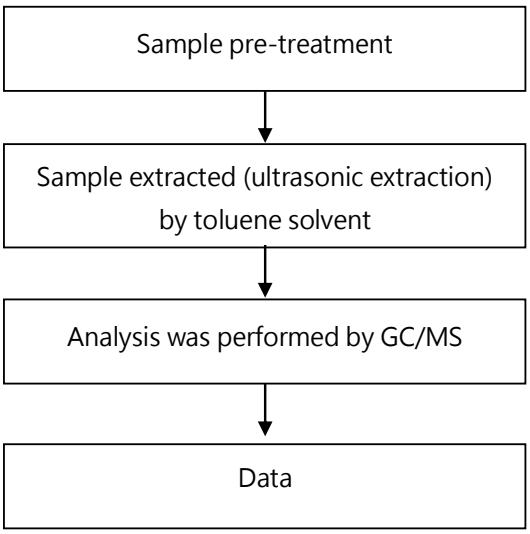
SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

Analytical flow chart - PAHs (Polycyclic Aromatic Hydrocarbons)



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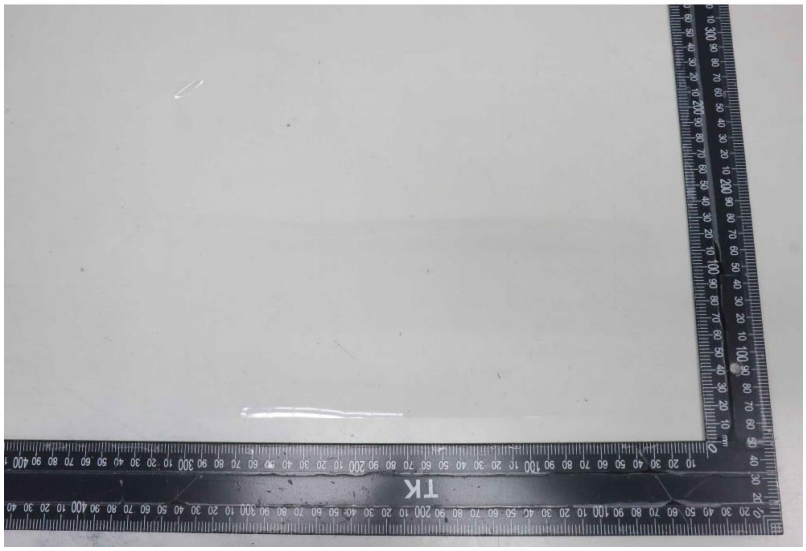
SABIC TAIWAN HOLDING LIMITED, TAIWAN BRANCH
ROOM B, 7F, NO. 8, MIN SHENG E. RD., SEC. 3, TAIPEI CITY 10480, TAIWAN

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

ETR23805026



** End of Report **

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PRODUCT DATASHEET
LEXAN™ 8A35 Film

DESCRIPTION

LEXAN 8A35 is a one side velvet, one side polished transparent polycarbonate film. It offers high temperature resistance, excellent dimensional stability, as well as good printability without pre- treatment making it very suitable for multi-layer printing for applications such as overlays, floor graphics, high-performance labels and in-mould decoration. It can be screen printed using traditional solvent based or water based inks, as well as UV or infrared drying inks and offers ease of processing for thermoforming, embossing, die-cutting, hydro-forming and bending. The velvet texture offers mar resistance, and can be used over light-emitting devices (LEDs).

TYPICAL PROPERTY VALUES◆

Property	ASTM Test Method	Units (USCS)	Value	ISO Test Method	Units (SI)	Value
Mechanical						
Tensile Strength @ Yield	ASTM D882	psi	8500	ISO 527	MPa	62
Ultimate	ASTM D882	psi	9000	ISO 527	MPa	65
Tensile Modulus	ASTM D882	psi	300000	ISO 527	MPa	2100
Tensile Elongation at Break	ASTM D882	%	100-160	ISO 527	%	100
Gardner Impact Strength at 0.03" (0.75 mm)	ASTM D3029	ft-lb	23	ISO 6603-1	J	31
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.4-1.8		kN/m	245
Propagation	ASTM D1922	g/mil	30-55		kN/m	10-20
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
Fold Endurance (MIT)						
0.010" (0.25 mm)	ASTM D2176-69	double folds	130			
0.020" (0.50 mm)	ASTM D2176-69	double folds	35			
Thermal						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft2/°F/in	1.35		W/m°K	0.2
Coefficient of Thermal Expansion	ASTM E831	($x10^{-5}$/°F)	3.2	ISO 11359	($x10^{-5}$/°C)	7
Specific Heat @40°F (4°C)	ASTM E1269	Btu/lb/°F	0.3		KJ/Kg-°C	1.25
Glass Transition Temperature	ASTM D3417 / D3418	°F	307	ISO 11357	°C	153
Vicat Softening Temperature, B	ASTM 1525-00 modified	°F	323		°C	150
Heat Deflection Temp. by TMA at 1.8 Mpa		°F	290	ISO 75 Modified	°C	135
Brittleness Temperature	ASTM D746	°F	-211		°C	-135
Physical						
Density	ASTM D792	$slug/ft^3$	2.3	ISO 1183	kg/m^3	1200
Water Absorption, 24 hrs.	ASTM D570	% change	0.35	ISO 62	% change	0.35
Surface Roughness (RMS)	ASME B46-1	µ	55			
Surface Energy(1st surface/ 2nd surface)	ASTM D5946-01	-	34/34			
Surface Tension(1st surface/ 2nd surface)	Dyne Pens	Dyne	40-42/38-40			
Optical						
Refractive Index @77°F (25°C)	ASTM D542A	-	1.6			
Light Transmission	ASTM D1003	%	90			
Yellowness Index	ASTM D1925	%	0.9			
Haze	ASTM D1003	%	42			
Gloss over Flat Black min/max @ 60°	ASTM D523-60	-	See chart	ISO 2813	-	See chart
Electrical						
Dielectric Strength at 23°C in oil, short time, 250 micron				IEC 243-1	kV/mm	67
Relative Permittivity				IEC 250		
50 Hz					-	2.99
1 MHz					-	2.93
Dissipation Factor				IEC 250		
50 Hz					-	0.0009
1 MHz					-	0.010
Volume Resistivity				IEC 93	Ohm.cm	10^{15}
Surface Resistivity				IEC 93	Ohm	
Arc Resistance, Tungsten	ASTM D495	S	120			

PRODUCT DATASHEET
LEXAN™ 8A35 Film

◆ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, Please contact your local SABIC representative or the SABIC Quality Services Department.
Reported Values are Based on 0.250 mm (0.010") Thickness unless otherwise noted.

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MANUFACTURING SPECIFICATIONS

Nominal Gauge Ranges	Min/Max Limit of Nominal
0.010-0.015" (0.250-0.375 mm)	± 5%
0.020" (0.500 mm)	± 3%

Americas Headquarters
SABIC Innovative Plastics
One Plastics Avenue
Pittsfield, MA 01201
USA
T +1-413-448-7125
Toll-free: 1-800-323-3783
F +1 (888) 443-2033
sfscustomerservice@sabic-ip.com

European Headquarters
SABIC Innovative Plastics
Plasticslaan 1
4612 PX
Bergen op Zoom
The Netherlands
T +31 164 293684
F +31 164 293272
Sfs.info@sabic-ip.com

Pacific Headquarters
SABIC Innovative Plastics
Specialty Film & Sheet
1266 Nanjing Road (W)
16th Floor, Plaza 66
200040 Shanghai
China
T +86 21 62881088 ext. 6733
F +86 21 6288 0818

E-mail
sfscustomerservice@sabic-ip.com

Lexan* Polycarbonate Film

* Trademark of SABIC Innovative Plastics IP BV

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ARTICLE SAFETY DATA SHEET

Print date: 17-Aug-2016 *Revision Number: 5* *Revision date: 17-Aug-2016*

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trademark:	LEXAN™ Sheet LEXAN™ Film ILLUMINEX™ sheet GEPAX™ Sheet VEROLITE™ Sheet XYLEX™ Film LEXAN EXELL™ D sheet MARGARD™ sheet PLASTECH™ Sheet SOUNDGLAZE™ sheet SUNXP™ sheet THERMOCLEAR-PLUS™ sheet THERMOCLEAR™ sheet THERMOCLICK™ sheet THERMOROOF™ sheet CLINIWALL™ sheet CARBORON™ Sheet CRYSTALITE™ sheet
Product Code:	GEN-SFS-PC
Product Description:	Polycarbonate based film, sheet or strand
Product Type:	Commercial Product
Recommended use:	May be used as received, processed or thermoformed to produce other articles, or as a component of other industrial products.
Company:	-SABIC Japan LLC. Tokyo Club Building, 2-6 3Chome Kasumigaseki, Chiyoda-Ku Tokyo, 100-0013 Japan -SABIC Innovative Plastics (China) Ltd.or SABIC Innovative Plastics International Trading Shanghai Ltd. 2550 Xiupu Road, Pudong New Area, Shanghai 201319, China (Contact address) -SABIC Korea Ltd. 20F, Donghoon Building, 317, Teheran-ro, Seoul, Korea -SABIC Innovative Plastics Singapore Pte Ltd 23, Benoi Road, 629895 Singapore -SABIC Innovative Plastics (Thailand) Co. Ltd 64/22 Moo 4 Tumbol Pluak Daeng, Amphur Pluak Daeng,Rayong 21140 Thailand -SABIC Innovative Plastics India Ltd. Plastics Avenue, P.O. Jawaharnagar,District Vadodara 391320 India -SABIC Taiwan Holding Ltd, Taiwan Branch, Room B,7F,No. 8,Min-Sheng E. Rd. Sec. 3,Taipei City 10480 Taiwan -SABIC Innovative Plastics Hong Kong Limited. Flat/ RM 1701, Tower 1, the Gateway 25 Canton Road, Tsimshatsui, Hong Kong -SABIC Innovative Plastics (Aust.) Pty. Ltd. Suite 14, Building 3, 195 Wellington Road, Clayton, Victoria, Australia 3168
Emergency Telephone Number:	Japan: +(81)-3-3593-4735 China: +86 532 83889090, +86 20 84980148 Korea: +(82)-2-510-6546 Singapore: +(65)-6210 4199 Thailand: +(66)-22312323-4 ext. 46, +(66)-38927000 ext. 7026 India: +(91)-265 3068554 Australia: +61 (0)3 9566 3000
Emergency Transportation/CHEMTREC (24 HOUR):	800 424-9300 (USA) +1 703-527-3887 (globally, outside USA)
E-mail:	Asiaproductinquiries@sabic.com
Website Address:	**www.sabic.com**

2. HAZARDS IDENTIFICATION

This product consists primarily of high molecular weight polymers which are not expected to be hazardous.

EMERGENCY OVERVIEW:

- Plastic film, sheet or strand
- Can burn in a fire creating dense, toxic smoke
- Molten plastic can cause severe thermal burns
- Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever. See below for additional effects.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

HMIS Rating **Health:** 0 **Flammability:** 1 **Reactivity:** 0

Chronic/Carcinogenic Information

Chronic Toxicity: There are no toxicological hazards associated with this product.

Processing Issues: Processing vapors may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing vapor condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.

Aggravated Medical Conditions: MEDICAL RESTRICTIONS: There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Product Type Article

This product consists primarily of high molecular weight polymers which are not expected to be hazardous.

4. FIRST AID MEASURES

If Inhalation: Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If symptoms persist, call a physician.

On skin contact: For hot product, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

On contact with eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, consult a specialist.

On ingestion: No hazards which require special first aid measures.

Precautions: Processing vapors inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

5. FIRE-FIGHTING MEASURES

Autoignition Temperature: Not applicable

Explosive Limits

upper: Not applicable
lower: Not applicable

Suitable Extinguishing Media: Use dry chemical, CO2, water spray or "alcohol" foam. Water is the best extinguishing medium. Carbon dioxide and dry chemical are not generally recommended because their lack of cooling capacity may permit re-ignition on larger resin fires (blobs, drools, etc.).

Unsuitable Extinguishing Media for Safety Reasons: Do not use a solid water stream as it may scatter and spread fire.

Hazards from Combustion Products: Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

Specific Hazards: Take precautionary measures against static discharges. Thermal decomposition can lead to release of irritating gases and vapors. Dust formed by operations such as cutting or grinding may form an explosive mixture in air.

Special Protective Equipment for Firefighters: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: See section 8.

Environmental Precautions: Dispose of in compliance with all Federal, state and local laws and regulations.

Clean up: Gather and store in a closed container pending a recyclability or waste disposal evaluation.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practices Provide for appropriate exhaust ventilation and dust collection at machinery Avoid dust formation Accumulation of waste films, sheets and/or masking may create a slipping hazard

Storage: Keep away from heat sources and sources of ignition.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures to Reduce Exposure:	Handle in accordance with good industrial hygiene and safety practices. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.
Hand Protection:	Protective gloves should be worn
Eye Protection:	Safety glasses.
Respiratory Protection:	When using this product at elevated temperatures, implement engineering systems, administrative controls or a respiratory protection program (including a respirator approved for protection from organic vapors, acid, gases, and particulate matter) if processing vapors are not adequately controlled or operators experience symptoms of overexposure. If dust or powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.
Body Protection:	Long sleeved clothing
Hygiene Measures:	When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Sheet or film
Color:	Same as color code
Odor:	None or slight
Melting point/range:	This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.
Autoignition Temperature:	Not applicable
Explosive Limits	
upper:	Not applicable
lower:	Not applicable

10. STABILITY AND REACTIVITY

Stability:	Stable.
Conditions to Avoid:	Do not exceed maximum temperatures recommended in the product literature.
Hazardous Decomposition Products:	Process vapors under recommended processing conditions may include trace levels of hydrocarbons, phenols, alkylphenols, diarylcarbonates.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information:

Component Information:

Component Information Text: No data available

Other information on acute toxicity: There are no toxicological hazards associated with this product

Sensitization

Respiratory Sensitization: Not classified

Irritation:

Eye Irritation: no data available

Subchronic Toxicity (28 days)

Repeated Oral Toxicity(28d): No information available

Repeated Dermal Toxicity(28d): No Information available

Chronic Toxicity

Carcinogenicity: There are no known carcinogenic chemicals in this product above de minimus reporting levels, except as specifically mentioned below.

Mutagenic Effects: No data is available on the product itself

Reproductive Toxicity: No information available

Developmental Toxicity: No information available.

Neurological effects: No information available.

Specific Target Organ Toxicity(STOT)

Target Organ Effects: Not established.

Aspiration Hazard

Aspiration Hazard Statement: No data available

Other relevant toxicity information

Special Studies: No Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component Information:

Product Information:

Other information: Ecological damages are not known or expected under normal use.

Persistence and Degradability

Biodegradation: Not inherently biodegradable

Partition coefficient (n-octanol/water) Not established.

Bioaccumulative Potential:

Bioaccumulation: Not established.

Mobility

Mobility: May be separated mechanically in waste water plants.

Other Adverse Effects

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:	Where possible recycling is preferred to disposal or incineration. Dispose of in accordance with local regulations.
Waste Disposal:	Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

14. TRANSPORT INFORMATION

Transport Classification:	Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.
IMO / IMDG	Not regulated
ICAO	Not regulated
IATA-DGR	Not regulated
DOT	Not regulated
ADR/RID	Not regulated
ADR	Not regulated
ADN	Not regulated

15. REGULATORY INFORMATION

International Inventories:
Film and sheet products are articles, exempt from registration or notification in those countries that have national chemical inventories.

CERCLA/SARA 311/312/313:
This product is a non-hazardous article and therefore not subject to the requirements of Title III of SARA (Emergency Planning and Community Right-To-Know Act).

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

WHMIS hazard class:
Non-controlled, article

RoHS EU Directive 2011/65/EU:
This product is in compliance with the EU RoHS Directive 2002/95/EC. The following are not intentionally added during the manufacture of this product: a - cadmium and its compounds, b - lead and its compounds, c - mercury and its compounds, d - hexavalent chromium compounds, e - polybrominated biphenyls (PBBs), f - polybrominated diphenyl ethers (PBDEs, including Deca-BDE).

HMIS Rating
Health: 0
Flammability: 1
Reactivity: 0

16. OTHER INFORMATION

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http://eur.sabic-ip.com/ordeur/pages/msds/MSDSSearch.jsp?app=sabic-ip

SDS Scope:
Singapore: Conforms to Singapore workplace Safety and Health (WSH) Act, WSH Regulations, and GHS Standard 586
China: Conforms to Chinese Regulation on the Control over Safety of Hazardous Chemicals (Decree No 591) and GHS standards GB15258,GB13698,GB/T16483 etc.
Japan: Conforms to Industrial Safety and Health Law, Japan (2015) and Industrial GHS Standards JIS Z7253
Korea: Conforms to Industrial Safety & Health Act, Ministry of Labor, Korea
Taiwan: Conforms to Taiwan Rules on Hazard Communication and Labeling of Hazardous Substances, (Council of Labor Affairs, Taiwan) and GHS standards Z1051
Thailand: Conforms to Notification of the Ministry of Industry on the System of Classification and Hazard Communication of Hazardous Substances B.E. 2555 (2012)
Australia: National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC:2011 (2003)]
This document is also applicable in other countries and regions.

Prepared by: Product Stewardship & Toxicology

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End of Safety Data Sheet

測試報告
Test Report

號碼(No.): ETR23A05501　　日期(Date): 07-Nov-2023　　

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by the applicant as)：

送樣廠商(Sample Submitted By)	:	明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
樣品名稱(Sample Name)	:	MIN HUEY SCREEN INK (明輝油墨)
樣品型號(Style/Item No.)	:	白色 (無鹵) (WHITE (NON-HALOGEN))

==========

收件日(Sample Receiving Date)	:	31-Oct-2023
測試期間(Testing Period)	:	31-Oct-2023 to 07-Nov-2023

測試需求(Test Requested) :

(1) 依據客戶指定，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP。 (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) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

結　論(Conclusion) :

(1) 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS 2011/65/EU Annex II暨其修訂指令(EU) 2015/863之限值要求。 (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 Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

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

PIN CODE: 53E444E9

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測試報告
Test Report

號碼(No.): ETR23A05525　　日期(Date): 07-Nov-2023　　

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by the applicant as)：

送樣廠商(Sample Submitted By)	:	明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
樣品名稱(Sample Name)	:	MIN HUEY SCREEN INK (明輝油墨)
樣品型號(Style/Item No.)	:	黑色 (無鹵) (BLACK (NON-HALOGEN))

==========

收件日(Sample Receiving Date)	:	31-Oct-2023
測試期間(Testing Period)	:	31-Oct-2023 to 07-Nov-2023

測試需求(Test Requested) :

(1) 依據客戶指定，參考RoHS 2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP。 (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) 其他測試項目請見下一頁。 (Please refer to next pages for the other item(s).)

測試結果(Test Results) : 請參閱下一頁 (Please refer to following pages.)

結　論(Conclusion) :

(1) 根據客戶所提供的樣品，其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS 2011/65/EU Annex II暨其修訂指令(EU) 2015/863之限值要求。 (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 Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.)

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

PIN CODE: 1A1439D8

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測試報告
Test Report

號碼(No.): ETR23A05525　　日期(Date): 07-Nov-2023　　

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試部位敘述 (Test Part Description)

No.1　：　黑色油墨 (BLACK INK)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
鎘 (Cd) (Cadmium (Cd))	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb))		mg/kg	2	n.d.	1000
汞 (Hg) (Mercury (Hg))	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI))	參考IEC 62321-7-2: 2017，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	1000
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000

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測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP))	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)		mg/kg	50	n.d.	-
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.	-
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)		mg/kg	50	n.d.	-

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測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321-9: 2021，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.)	mg/kg	20	n.d.	-

備註(Note)：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)；小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(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. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

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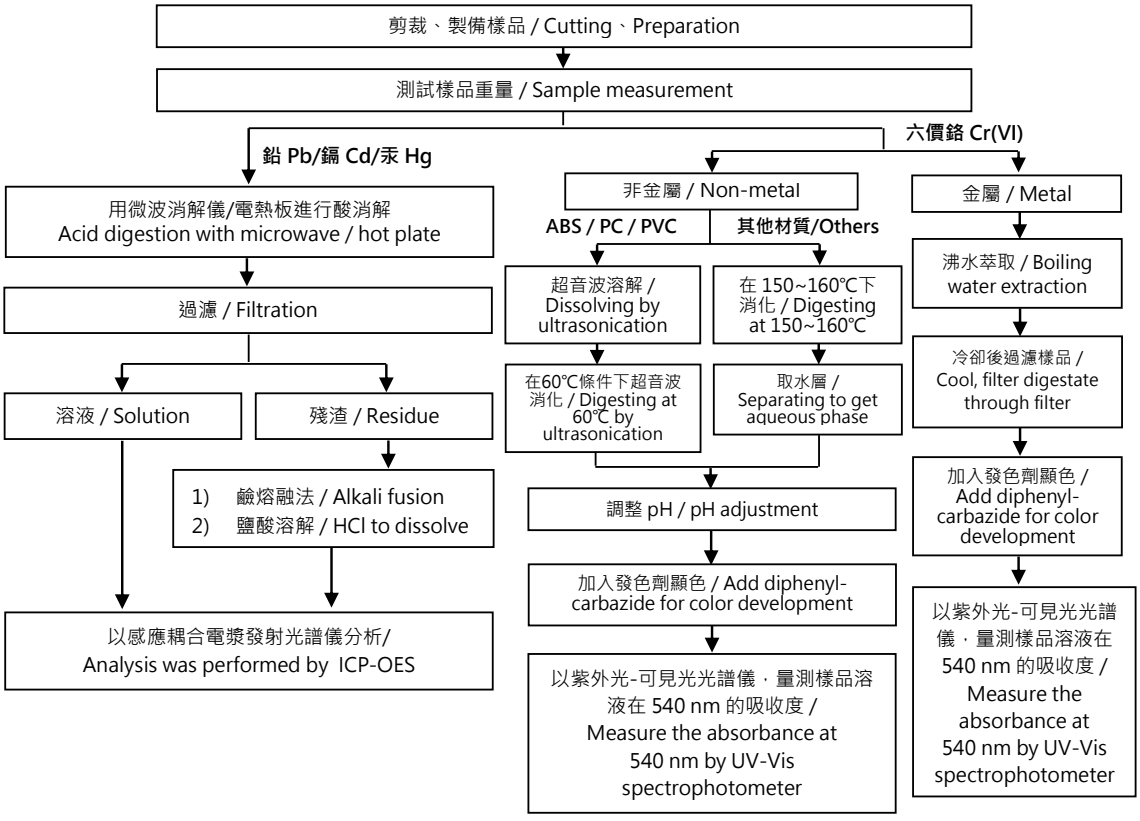
明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

重金屬流程圖 / Analytical flow chart of heavy metal

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）

These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr^{6+} test method excluded）



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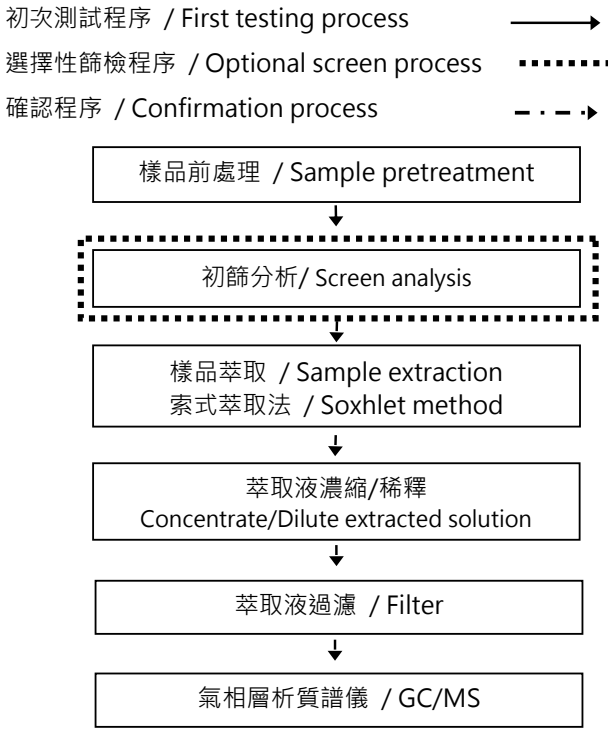
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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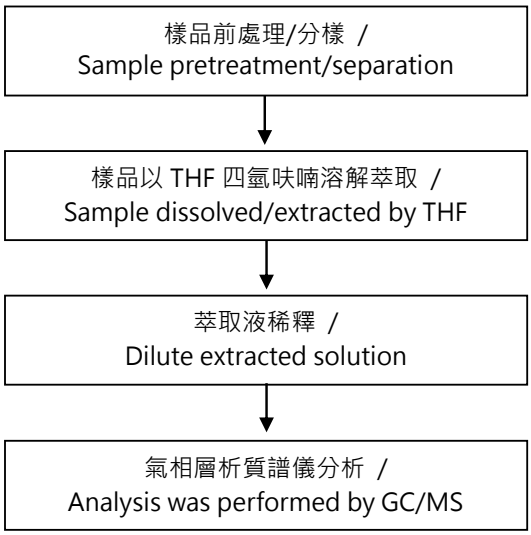
明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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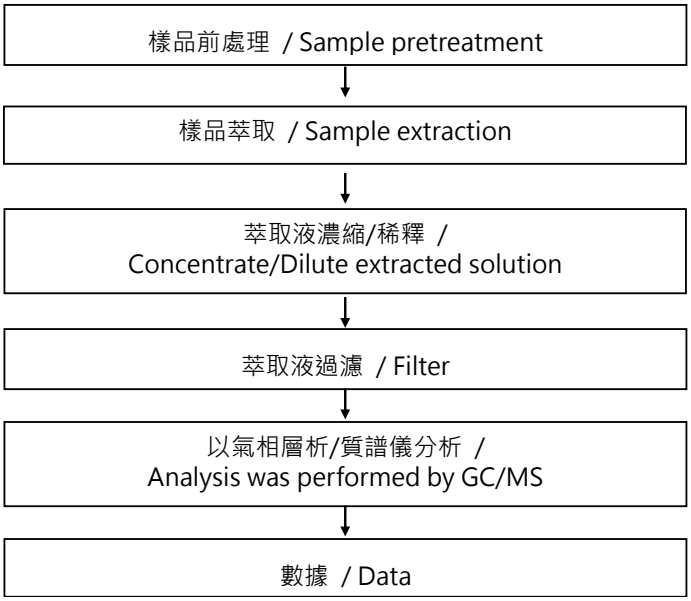
明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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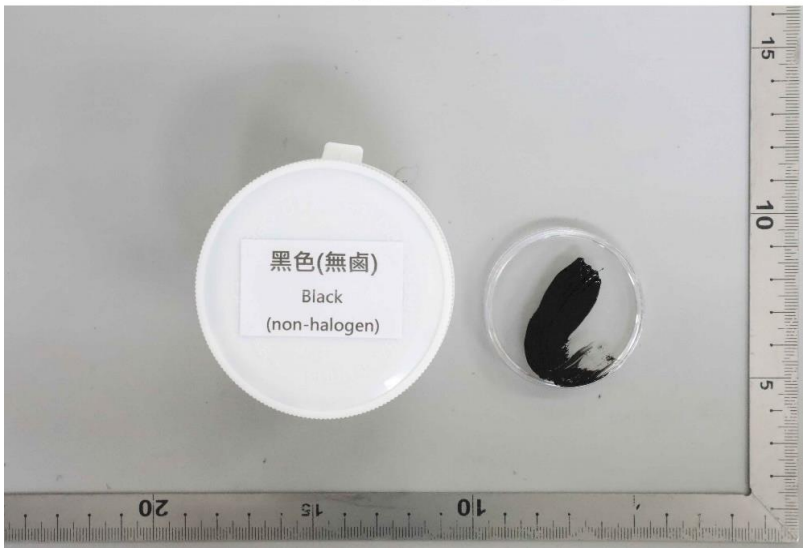
測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

*** 照片中如有箭頭標示，則表示為實際檢測之樣品/部位. ***
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR23A05525



** 報告結尾 (End of Report) **

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測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試部位敘述 (Test Part Description)

No.1 : 白色油墨 (WHITE INK)

測試結果 (Test Results)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
鎘 (Cd) (Cadmium (Cd))	參考IEC 62321-5: 2013，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	100
鉛 (Pb) (Lead (Pb))		mg/kg	2	n.d.	1000
汞 (Hg) (Mercury (Hg))	參考IEC 62321-4: 2013+ AMD1: 2017，以感應耦合電漿發射光譜儀分析。(With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.)	mg/kg	2	n.d.	1000
六價鉻 Cr(VI) (Hexavalent Chromium Cr(VI))	參考IEC 62321-7-2: 2017，以紫外光-可見光分光光度計分析。(With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.)	mg/kg	8	n.d.	1000
一溴聯苯 (Monobromobiphenyl)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯 (Dibromobiphenyl)		mg/kg	5	n.d.	-
三溴聯苯 (Tribromobiphenyl)		mg/kg	5	n.d.	-
四溴聯苯 (Tetrabromobiphenyl)		mg/kg	5	n.d.	-
五溴聯苯 (Pentabromobiphenyl)		mg/kg	5	n.d.	-
六溴聯苯 (Hexabromobiphenyl)		mg/kg	5	n.d.	-
七溴聯苯 (Heptabromobiphenyl)		mg/kg	5	n.d.	-
八溴聯苯 (Octabromobiphenyl)		mg/kg	5	n.d.	-
九溴聯苯 (Nonabromobiphenyl)		mg/kg	5	n.d.	-
十溴聯苯 (Decabromobiphenyl)		mg/kg	5	n.d.	-
多溴聯苯總和 (Sum of PBBs)		mg/kg	-	n.d.	1000

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測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
一溴聯苯醚 (Monobromodiphenyl ether)	參考IEC 62321-6: 2015，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.)	mg/kg	5	n.d.	-
二溴聯苯醚 (Dibromodiphenyl ether)		mg/kg	5	n.d.	-
三溴聯苯醚 (Tribromodiphenyl ether)		mg/kg	5	n.d.	-
四溴聯苯醚 (Tetrabromodiphenyl ether)		mg/kg	5	n.d.	-
五溴聯苯醚 (Pentabromodiphenyl ether)		mg/kg	5	n.d.	-
六溴聯苯醚 (Hexabromodiphenyl ether)		mg/kg	5	n.d.	-
七溴聯苯醚 (Heptabromodiphenyl ether)		mg/kg	5	n.d.	-
八溴聯苯醚 (Octabromodiphenyl ether)		mg/kg	5	n.d.	-
九溴聯苯醚 (Nonabromodiphenyl ether)		mg/kg	5	n.d.	-
十溴聯苯醚 (Decabromodiphenyl ether)		mg/kg	5	n.d.	-
多溴聯苯醚總和 (Sum of PBDEs)		mg/kg	-	n.d.	1000
鄰苯二甲酸丁苯甲酯 (BBP) (Butyl benzyl phthalate (BBP))	參考IEC 62321-8: 2017，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.)	mg/kg	50	n.d.	1000
鄰苯二甲酸二丁酯 (DBP) (Dibutyl phthalate (DBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 (DEHP) (Di-(2-ethylhexyl) phthalate (DEHP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異丁酯 (DIBP) (Diisobutyl phthalate (DIBP))		mg/kg	50	n.d.	1000
鄰苯二甲酸二異癸酯 (DIDP) (Diisodecyl phthalate (DIDP)) (CAS No.: 26761-40-0, 68515-49-1)		mg/kg	50	n.d.	-
鄰苯二甲酸二異壬酯 (DINP) (Diisononyl phthalate (DINP)) (CAS No.: 28553-12-0, 68515-48-0)		mg/kg	50	n.d.	-
鄰苯二甲酸二正辛酯 (DNOP) (Di-n-octyl phthalate (DNOP)) (CAS No.: 117-84-0)		mg/kg	50	n.d.	-

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測試報告
Test Report

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新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

測試項目 (Test Items)	測試方法 (Method)	單位 (Unit)	MDL	結果 (Result) No.1	限值 (Limit)
六溴環十二烷及所有主要被辨別出的異構物(HBCDD) (α- HBCDD, β- HBCDD, γ- HBCDD) (Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α- HBCDD, β- HBCDD, γ- HBCDD)) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	參考IEC 62321-9: 2021，以氣相層析儀/質譜儀分析。(With reference to IEC 62321-9: 2021, analysis was performed by GC/MS.)	mg/kg	20	n.d.	-

備註(Note)：

1. mg/kg = ppm；0.1wt% = 0.1% = 1000ppm
2. MDL = Method Detection Limit (方法偵測極限值)
3. n.d. = Not Detected (未檢出)；小於MDL / Less than MDL
4. "-" = Not Regulated (無規格值)
5. 除非另有說明，參照ILAC-G8:09/2019，採用簡單二元(w=0)允收規則進行符合性判定；根據此規則，符合性結果之判定係以測試結果與限值做比較。(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. According to this rule, the judgement of conformity is based on the comparing test results with limits.)

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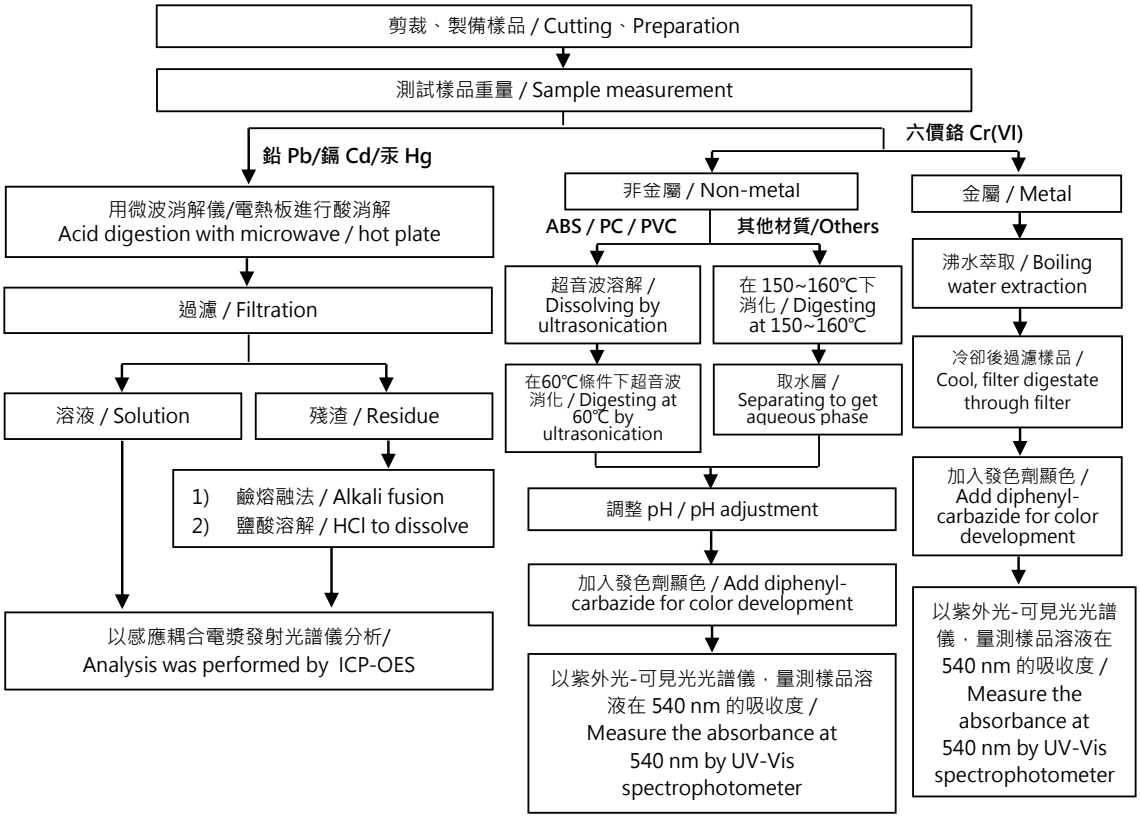
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

重金屬流程圖 / Analytical flow chart of heavy metal

根據以下的流程圖之條件，樣品已完全溶解。（六價鉻測試方法除外）

These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr^{6+} test method excluded）



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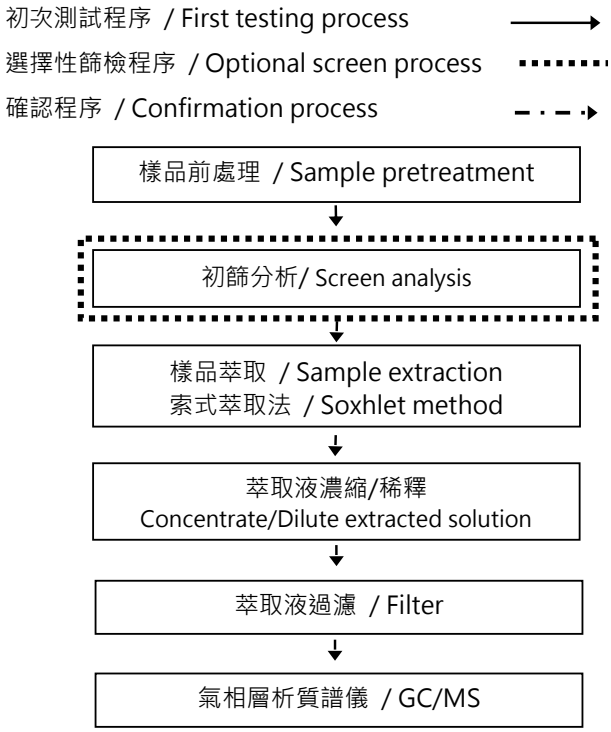
多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBBs/PBDEs



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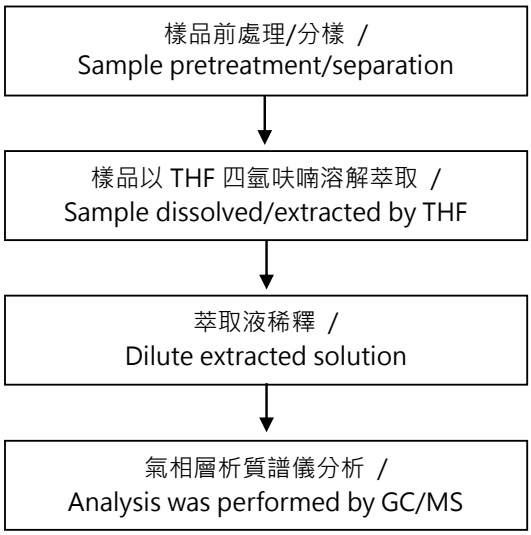
可塑劑分析流程圖 / Analytical flow chart - Phthalate

【測試方法/Test method: IEC 62321-8】



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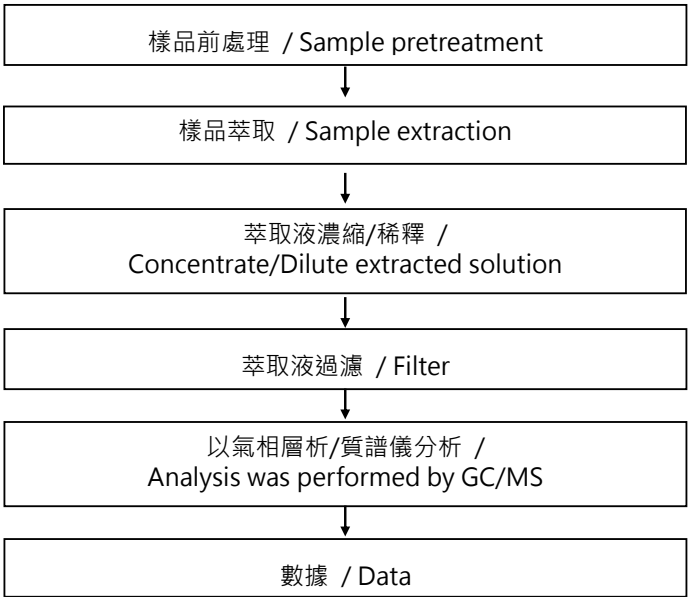
六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD



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測試報告
Test Report

明輝化工實業有限公司 (MIN HUEY CHEMICALS INDUSTRIES CO., LTD.)
新北市土城區大安路138巷32號 (NO. 32, LN 138, DA'AN RD., TUCHENG DIST., NEW TAIPEI CITY 23673, TAIWAN)

*** 照片中如有箭頭標示，則表示為實際檢測之樣品/部位. ***
(The tested sample / part is marked by an arrow if it's shown on the photo.)

ETR23A05501



** 報告結尾 (End of Report) **

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Test Report

No.: SHAEC23015747901 **Date:** Oct 07, 2023

Client Name: 3M CHINA LIMITED

Client Address: 222 TIANLIN ROAD, SHANGHAI

Sample Name: 3M 9448HK

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

SGS Job No.: SHP23-014530

Sample Receiving Date: Sep 27, 2023

Testing Period: Sep 27, 2023 ~ Oct 07, 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 (Shanghai) Co., Ltd.

Jenny Lan
Approved Signatory

scan to see the report
CD4ACF0A

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	SHA23-0157479-0001.C001	Colorless transparent adhesive film

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	ND
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

检验检测专用章 Inspection & Testing Services
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. Testing Center-Chemical Laboratory

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Member of the SGS Group (SGS SA)

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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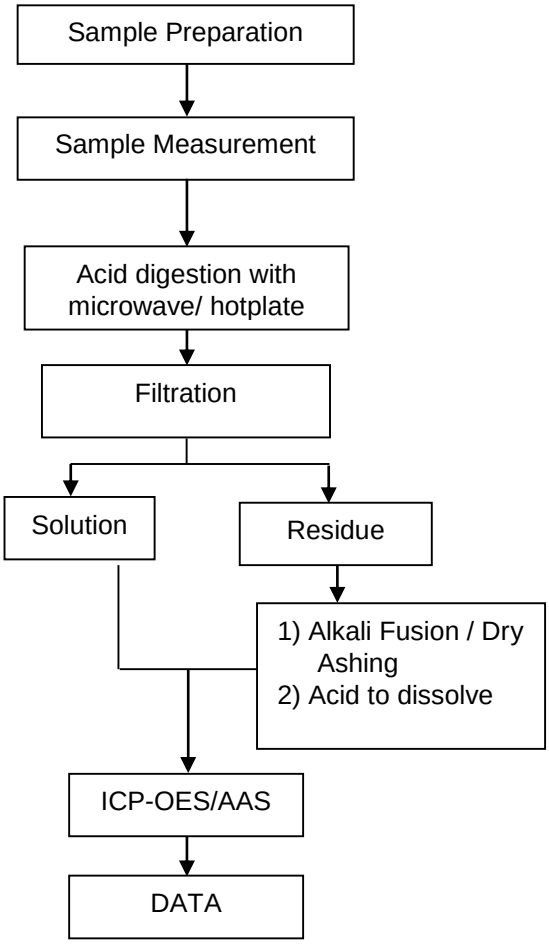
Elements Testing Flow Chart

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



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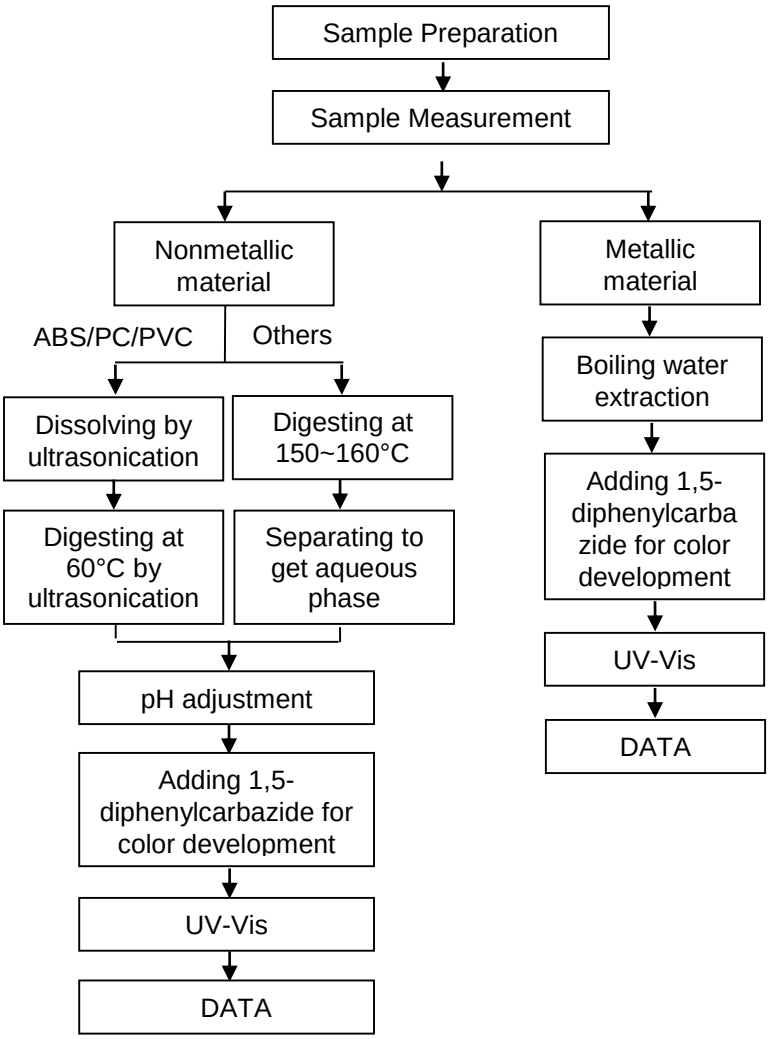
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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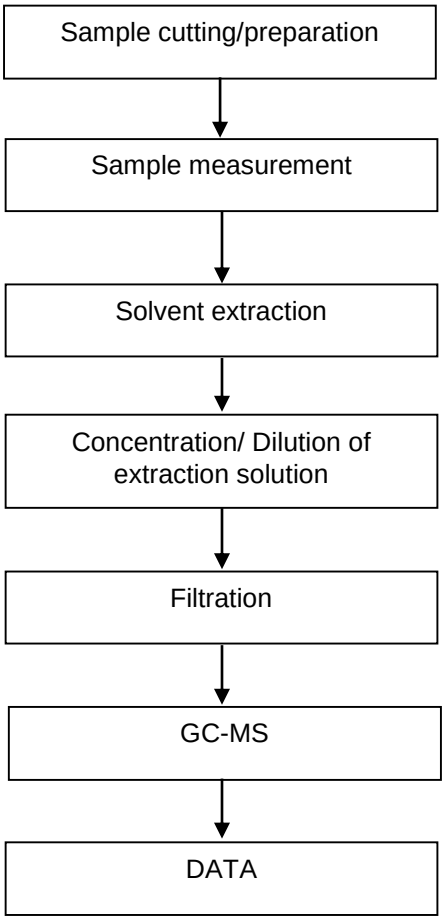
PBBs/PBDEs Testing Flow Chart



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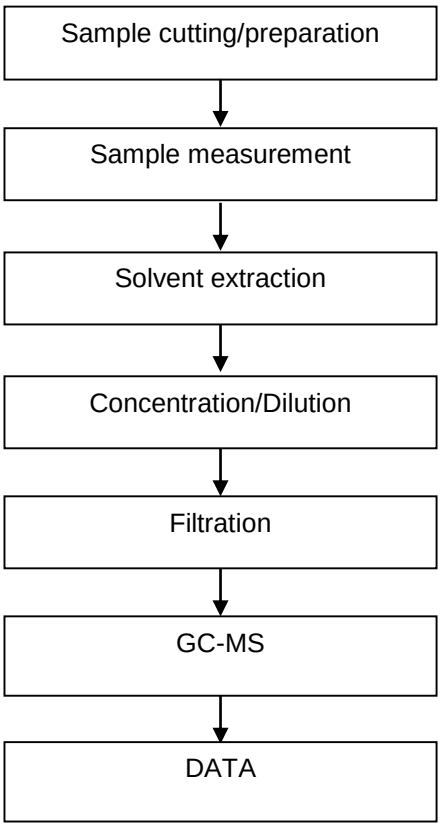
Phthalates Testing Flow Chart



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Sample Photo:



SHA23-0157479-0001.C001

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Regulatory Data Sheet

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Document Group:	22-3261-9	**Version Number:**	3.00
Issue Date:	01/26/18	**Supercedes Date:**	07/14/17

9448HK & 9448HKB Double Coated Tissue Tape, Black

3M
Corporate Toxicology and Regulatory Services
3M Center, St. Paul, MN 55144-1000, USA
1-888-3M HELPS (1-888-364-3577)

RDSs are available at www.3M.com

Regulations and Industry Standards

SDS (US OSHA)
This product is an article and therefore is not subject to the requirements of the US Occupational Safety and Health Administration's (OSHA) Hazardous Communications Standard 29 CFR 1910.1200(b)(6)(v) to provide a Safety Data Sheet (SDS).
CPSIA 2008
A Certificate of General Conformity per the US Consumer Product Safety Act, 15 U.S.C. § 2063 (a)(1), as revised by section 102 of the 2008 US Consumer Product Safety Improvement Act, is not required for the requested product.
US FALCPA
This product complies with the United States Food Allergy Labeling and Consumer Protection Act of 2004, as there is no intentionally added milk, egg, fish, crustacean shellfish, tree nuts, wheat, peanuts, soybeans, and/or proteins thereof.
US FDA Indirect Food Additive
This product does not meet the requirements in United States Food and Drug Administration (Code of Federal Regulations) 21 CFR 174-186 Regulations.
CONEG
This product complies with the US CONEG (Coalition of Northeastern Governors) Model Toxics in Packaging Legislation as there is no intentionally added lead, cadmium, hexavalent chromium or mercury, and the sum total concentration of these substances in the product does not exceed 100 ppm by weight.
EU REACH
This product is an article, without intended release of a chemical substance, under the Regulation No 1907/2006 of the European Parliament and the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (refer to REACH, Article 3(3)). It is not a chemical preparation. Therefore, it is not subject to the (pre)-registration or the registration process. It does not require a safety data sheet.
EU REACH
This product, including any article that the product is composed of, does not contain at greater than 0.1% by weight a Substance of Very High Concern (SVHC) substance identified according to Article 59 of REACH. This declaration reflects the substances on the candidate SVHC list, effective January 2018.

EU Food Allergens
This product complies with Regulation (EU) 1169/2011 on the provision of food information to consumers, as there is no intentionally added component identified in Annex II of this regulation. Specifically, none of the following are intentionally added: cereals containing gluten, crustaceans, eggs, fish, peanuts, soybeans, milk, nuts, celery, mustard, sesame seeds, sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/L expressed as sulphur dioxide, lupin, mollusks, and/or derivatives thereof.
EU RoHS
This product does not exceed the maximum concentration values (MCVs) set under EU Directive 2011/65/EU (RoHS recast/RoHS 2), as stated in Annex II to that directive. This means that each of the homogenous materials within this product does not exceed the following MCVs: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; and (b) 0.01% (by weight) for cadmium.
EU RoHS Phthalates
This product does not exceed the maximum concentration values (MCVs) for phthalates set under EU Directive 2011/65/EU (RoHS recast/RoHS 2), as amended by EU 2015/863, which applies to finished EEE after July 22, 2019 for Category 1-7, 10-11 products and after July 22, 2021 for Category 8 and 9 products. This means that each of the homogeneous materials within this product does not exceed the MCV of 0.1% (by weight) for each of the following phthalates: DEHP, BBP, DBP, and DIBP.
Persistent Organic Pollutants (POPs)
This product does not intentionally contain a substance(s) present on the Stockholm Convention on Persistent Organic Pollutants (POPs), Annex A, B, or C ratified 8 May 2009.
Halal
This product has not been certified Halal.
Kosher
This product has not been certified Kosher.
China RoHS
This product or part does not exceed the maximum concentration values (MCVs) in China RoHS GB/T 26572-2011 Requirements of Concentration limits for certain restricted substances in electrical and electronic products, which means that each of the homogeneous materials within this product is below the following MCVs: (a) 0.1% (by weight) for lead and its compounds, mercury and its compounds, hexavalent chromium and its compounds, polybrominated biphenyls or polybrominated diphenyl ethers; and (b) 0.01% (by weight) for cadmium and its compounds.
Conflict Minerals
Conflict Minerals, which the U.S. Securities and Exchange Commission ("SEC") has defined as gold, columbite-tantalite (coltan), cassiterite, wolframite, or their derivatives (tin, tantalum, or tungsten), are not contained in or are not "necessary to the functionality or necessary to the production" of the above-listed product, as the term "necessary to the functionality or the production" is defined under the SEC's Conflict Minerals Rule. 77 Fed. Reg. 56274 (Sept. 12, 2012).
Fluorinated Greenhouse Gas
A Fluorinated Greenhouse Gas (or F-Gas) listed under Annex I and II of Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 is not intentionally added to the product, nor is it intentionally used in the manufacture of this 3M product.
Sustainability Advantage: Recycled content
This product does not contain recycled content.

Chemicals and/or Compounds of Interest

Acrylamide : This chemical or chemical compound is not intentionally added.
Alkylphenol (AP) : This chemical or chemical compound is not intentionally added.
Alkylphenolethoxylates (APE) : This chemical or chemical compound is not intentionally added.
Antimony and (Sb) Compounds : This chemical or chemical compound is not intentionally added.
Aromatic Amines : This chemical or chemical compound is not intentionally added.
Arsenic and (As) Compounds : This chemical or chemical compound is not intentionally added.
Asbestos : This chemical or chemical compound is not intentionally added.
Azo Colorants : This chemical or chemical compound is not intentionally added.
Beryllium and (Be) Compounds : This chemical or chemical compound is not intentionally added.
Bismuth and (Bi) Compounds : This chemical or chemical compound is not intentionally added.
Bisphenol A (BPA) : This chemical or chemical compound is not intentionally added.
Butylated Hydroxytoluene (BHT) : This chemical or chemical compound is not intentionally added.

Butyl Benzyl Phthalate (BBP) : This chemical or chemical compound is not intentionally added.
Cadmium and (Cd) Compounds : This chemical or chemical compound is not intentionally added.
Chlorinated Paraffins, Short Chain : This chemical or chemical compound is not intentionally added.
Chromium and (Cr) Compounds : This chemical or chemical compound is not intentionally added.
Colophony (Rosin) : This chemical or chemical compound is not intentionally added.
Crystalline Silica : This chemical or chemical compound is not intentionally added.
Decabromodiphenyl Ether (Deca-BDE) : This chemical or chemical compound is not intentionally added.
Dibutyl Phthalate (DBP) : This chemical or chemical compound is not intentionally added.
Di(2-Ethylhexyl) Phthalate (DEHP) : This chemical or chemical compound is not intentionally added.
Diisodecyl Phthalate (DIDP) : This chemical or chemical compound is not intentionally added.
Diisononyl Phthalate (DINP) : This chemical or chemical compound is not intentionally added.
Dimethyl Fumarate (DMF) : This chemical or chemical compound is not intentionally added.
Dimethylacetamide : This chemical or chemical compound is not intentionally added.
Di-n-Octyl Phthalate (DNOP) : This chemical or chemical compound is not intentionally added.
Dioxins and Furans : This chemical or chemical compound is not intentionally added.
Flame Retardants (not PBB or PBDE) : This chemical or chemical compound is not intentionally added.
Flavorings : This chemical or chemical compound is not intentionally added.
Formaldehyde : This chemical or chemical compound is not intentionally added.
Genetically Modified Organisims (GMOs) : This chemical or chemical compound is not intentionally added.
Gluten : This chemical or chemical compound is not intentionally added.
Hexavalent Chromium and (Cr+6) Compounds : This chemical or chemical compound is not intentionally added.
Lead and (Pb) Compounds : This chemical or chemical compound is not intentionally added.
Materials of Human or Animal Origin : This chemical or chemical compound is not intentionally added.
Melamine : This chemical or chemical compound is not intentionally added.
Mercury and (Hg) Compounds : This chemical or chemical compound is not intentionally added.
4,4'-Methylenebis(2,6-Diethylaniline) : This chemical or chemical compound is not intentionally added.
Musk Xylene : This chemical or chemical compound is not intentionally added.
Natural Rubber Latex : This chemical or chemical compound is not intentionally added.
Nickel and (Ni) Compounds : This chemical or chemical compound is not intentionally added.
Nonylphenol (NP) : This chemical or chemical compound is not intentionally added.
Nonylphenol Ethoxylates (NPE) : This chemical or chemical compound is not intentionally added.
Nuts : This chemical or chemical compound is not intentionally added.
Organochlorine Pesticides : This chemical or chemical compound is not intentionally added.
Organophosphate Pesticides : This chemical or chemical compound is not intentionally added.
Organotin Compounds : This chemical or chemical compound is not intentionally added.
Ozone Depleting Chemicals (ODCs) : This chemical or chemical compound is not intentionally added.
Perfluorooctane Sulfonate (PFOS) : This chemical or chemical compound is not intentionally added.
Perfluorooctanoic Acid (PFOA) : This chemical or chemical compound is not intentionally added.
Phosphorus and (P) Compounds : This chemical or chemical compound is not intentionally added.
Phthalates : This chemical or chemical compound is not intentionally added.
Polycyclic Aromatic Hydrocarbons (PAHs) : This chemical or chemical compound is not intentionally added.
Polybrominated Biphenyls (PBB) : This chemical or chemical compound is not intentionally added.
Polybrominated Diphenylethers (PBDE) : This chemical or chemical compound is not intentionally added.
Polychlorinated Biphenyls (PCBs) : This chemical or chemical compound is not intentionally added.
Polychlorinated Naphthalenes (>3 Chlorine Atoms) : This chemical or chemical compound is not intentionally added.
PVC (Polyvinyl Chloride) : This chemical or chemical compound is not intentionally added.
Radioactive Substance : This chemical or chemical compound is not intentionally added.
Selenium and (Se) Compounds : This chemical or chemical compound is not intentionally added.
Tetrabromobisphenol A (TBBA) : This chemical or chemical compound is not intentionally added.
Tributyl Tin Compounds : This chemical or chemical compound is not intentionally added.
Triphenyl Tin Compounds : This chemical or chemical compound is not intentionally added.
Zinc and (Zn) Compounds : This chemical or chemical compound is not intentionally added.

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Material Safety Data Sheet

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(tm) Double Coated Tissue Tape Y-9448HK
MANUFACTURER: Vigteqnos Co.Ltd.
DIVISION: Technical Department
ADDRESS: No.166-17,OAZA-SIROYAMADAI
GOSE,NARA,639-2281 JAPAN

EMERGENCY PHONE: (81)745-66-2300 FAX:（81）745-66-2300

Issue Date: 01/10/2007
Supercedes Date: Initial Issue
Document Group:
Product Use:
Specific Use: Adhesive Tape

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt(Typical)
Acrylic ester copolymer	66251-44-3	38.8
Hydrogenated rosin	65997-13-9	9.5
Silicone resin	NONE	0.5
Polyethylene	9002-88-4	7.3
Cellulose	9004-34-6	43.9

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Roll of Tape
Odor, Color, Grade: Tan,Acrylate oder when unrolled
General Physical Form: Solid
Immediate health, physical, and environmental hazards: The environmental properties of this product present a low environmental hazard. This product, when used under reasonable conditions and in accordance with the Vigteqnos directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Vapors from heated material may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:

Delayed Dermal Irritation: Signs/symptoms may include localized redness, swelling, itching, and pain. These effects may not appear immediately following exposure.
Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.
No health effects are expected.

Inhalation:

Vapors from heated material may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:

Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

This substance does not leach metals or other RCRA (Resource Conservation and Recovery Act) listed TCLP (Toxic Characteristic Leaching Procedure) hazardous substances at concentrations that would make the product a hazardous waste.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature *Not Applicable*
Flash Point *Not Applicable*
Flammable Limits - LEL *Not Applicable*
Flammable Limits - UEL *Not Applicable*

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Not applicable.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid prolonged or repeated skin contact. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

7.2 STORAGE

Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust when product is heated.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

Not applicable.

8.3 EXPOSURE GUIDELINES

None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade: Roll of Tape
General Physical Form: Solid
Autoignition temperature *Not Applicable*
Flash Point *Not Applicable*
Flammable Limits - LEL *Not Applicable*
Flammable Limits - UEL *Not Applicable*
Boiling point *Not Applicable*
Density *Not Applicable*
Vapor Density *Not Applicable*
Vapor Pressure *Not Applicable*
Specific Gravity *Not Applicable*
pH *Not Applicable*
Melting point *Not Applicable*
Solubility in Water Nil
Evaporation rate *Not Applicable*
Percent volatile *Not Applicable*
Viscosity *Not Applicable*

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.
Materials and Conditions to Avoid: None known
Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not Applicable

CHEMICAL FATE INFORMATION

Not Applicable

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Reclaim if feasible. If product can't be reclaimed, dispose of waste product in a sanitary landfill.Alternatively, incinerate the waste product in an industrial, commercial, or municipal incinerator. Dispose of waste product in a sanitary landfill. Incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative,incinerate in an industrial or commercial facility. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact Vigteqnos for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - No

STATE REGULATIONS

Contact Vigteqnos for more information.

CHEMICAL INVENTORIES

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact Vigteqnos for more information.

INTERNATIONAL REGULATIONS

Contact Vigteqnos for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 1 **Flammability:** 1 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Reason for Reissue: Section 3.2, Health Hazards has changed. These products are no longer considered to be articles.

Revision Changes:
Section 1: Initial issue message was modified.

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In addition, information obtained from a database may not be as current as the information in the MSDS available directly from Vigteqnos.

PGGU2.MH15896

Marking and Labeling System Materials Component

SUMITOMO 3M LTD MH15896

INDUSTRIAL SPECIALTIES DIV

33-1 TAMAGAWA-DAI 2-CHOME

SETAGAYA-KU

TOKYO 158-0096, JAPAN

"Y9448H", "Y9448HK", "Y9448S", "Y9448SK". For bonding aluminum (0.008-0.020 in.) to aluminum and galvanized steel, maximum temperature 150 C (302 F), minimum temperature -40 C (-40 F); ABS plastic and polypropylene, maximum temperature 80 C (176 F), minimum temperature -40 C (-40 F); and polystyrene, maximum temperature 60 C (140 F), minimum temperature -40 (-40 F). Suitable where exposed indoors and outdoors to high humidity or occasional exposure to water.

"Y9448H", "Y9448HK", "Y9448S". For bonding polycarbonate (0.020-0.078 in.) to aluminum and galvanized steel, maximum temperature 100 C (212 F), minimum temperature -40 C (-40 F); ABS plastic and polypropylene, maximum temperature 80 C (176 F), minimum temperature -40 C (-40 F); and polystyrene, maximum temperature 60 C (140 F), minimum temperature -40 C (-40 F). Suitable where exposed indoors and outdoors to high humidity or occasional exposure to water.

Marking: Company name or trademarks 3M or 住友スリーエム株式会社 and product designation on each carton.

Double Coated Tissue Tapes

6408 • 9448

棉紙基材雙面膠帶

Technical Data ***Jan. 2006***

產品描述:

6408與9448棉紙基材雙面膠帶 ，係以棉紙爲基材, 對於膠帶裁切加工之尺寸穩定性佳, 並於貼合及沖切加工具有優異之操作性.

產品結構:

產品編號	**膠系 [1]/ 顏色/ 膠帶厚度**	**基材**	**離型紙 顏色, 形式, 印刷**	**離型紙厚度**
6408	900A, 灰白, 0.0051” (0.130mm)	棉紙	白色, PE[2] 聚合物塗佈紙類, 淺灰色 3M 印刷	0.0043” (0.110mm)
9448HK	900A, 透明, 0.0059” (0.150mm)	棉紙 黑色/透明	白色, PE 聚合物塗佈紙類, 淺灰色 3M 印刷	0.0051” (0.130mm)
9448S	900A, 透明, 0.0059” (0.150mm)	棉紙 黑色/透明	白色, PE 聚合物塗佈紙類, 淺灰色 3M 印刷	0.0043” [3] (0.110mm)

Note 1: 900A 壓克力感壓膠 (已架橋, 加樹脂) 對各種不同表面，包括低表面能塑膠，提供了極佳的初期力及粘性.

Note 2: PE (Polyethylene):聚乙烯

Note 3: 提供較厚離型紙(0.150mm 厚)及雙層離型紙選擇: 第一層離型紙爲 0.150mm, 第二層 0.120mm 厚

產品特徵

1. 6408, 9448 爲軟質壓克力感壓膠系統. 此黏著劑結合了下列幾種主要特性, 包括對不同材質有高的初期黏性,好的剪切力及保持力,當然包括了許多種類的塑膠.
2. 6408, 9448 於開放式泡棉之貼合應用中, 能有效掌控膠滲流入泡棉之膠量

3. 於泡棉貼合應用中, 6408, 9448有助於提昇泡棉之尺寸固定性, 以降低泡棉之延伸特性, 使貼合位置更加精確.

典型之物性與貼合表現

Note: 以下之技術資料係屬典型之測試數據 ㄧ 非供特殊情形使用

Product Number	**6408**	**9448HK**	**9448S**
對鋼板之黏著力 ASTM D3330 –180 度剝離, 2 mil 鋁箔爲測試背材, 測試條件爲 22˚C, 50%相對溼度	g/25.4mm	g/25.4mm	g/25.4mm
20 分鐘 室溫	2040	2150	2250
72 小時 室溫	2110	2230	2350
對 ABS 之黏著力 ASTM D3330 –180 度剝離, 2 mil 鋁箔爲測試背材, 測試條件爲 22˚C, 50%相對溼度			
20 分鐘 室溫	1620	1840	1950
72 小時 室溫	2370	2540	2680
對 PC 之黏著力 ASTM D3330 –180 度剝離, 2 mil 鋁箔爲測試背材, 測試條件爲 22˚C, 50%相對溼度			
20 分鐘 室溫	2690	2800	2920
72 小時 室溫	3326	3340	3510
對 PP 之黏著力 ASTM D3330 –180 度剝離, 2 mil 鋁箔爲測試背材, 測試條件爲 22˚C, 50%相對溼度			
20 分鐘 室溫	1600	1710	1650
72 小時 室溫	2130	2140	2100

保持力 **(**靜態剪切力**)** ASTM D3654 修正, 0.5 平方英吋, 測試條件爲22°C			
負重 1000 grams	10000 mins	10000 mins	10000 mins

操作溫度	
長期耐溫 (天, 週) 短期耐溫 (分鐘, 小時)	80°C 120°C
架上保存期限 客戶收受日起計算12 個月, 但僅限以膠帶捲方式, 儲存於 22 ° C , 50% 相對溼度之環境	

可提供之尺寸: 捲長，寬度，分條公差, 內管尺寸

長度	50 M
寬度	1200 mm

膠帶使用操作程序

貼合表現與有效貼合面積息息相關, 堅實之感壓程序可明顯增加膠帶之貼合表現.
以下系3M 建議之標準膠帶使用操作程序:

(a) 欲達最佳黏著，黏著表面必需清潔與乾燥. 一般建議以布沾取1：1 比例之IPA (Isopropyl Alcohol, 異丙醇) 與水的混合溶液進行表面擦拭清潔後, 待表面完全乾燥. (注意：使用IPA前, 請先參照此溶劑之建議注意事項)。

(b) 在清潔溶劑乾燥後, 將膠帶貼合於黏著表面, 以滾筒或其他方式 (刮板) 平均施以約15psi (1.05公斤/cm^2) 之壓力, 使其有效貼合.

(c) 將膠帶離型紙撕除, 然後將欲貼著之材質貼上, 同樣施以15psi 之壓力, 使其有效貼合, 若欲去除氣泡, 建議加大壓力, 以物品所承受之限度爲上限.

(d) 建議理想的施工溫度介於21℃至38℃之間, 勿低於10℃.

(e) 欲使膠帶保存至使用時仍具有穩定的品質, 建議之儲存環境爲21℃和50%相對濕度.

(f) 黏貼膠帶時，宜以一端先貼合後，再緩壓至另一端，以減低氣泡產生之機率。

一般資訊

6408, 9448 爲一棉紙基材,可增加對泡棉及其它基材的尺寸安定性. 對於膠帶裁切及沖型亦可提供良好之操作性.

應用領域

- 6408, 9448 特別爲許多室內,戶外具高性能表現之貼合,鍵結應用而設計,包含貼合聚乙烯(Polyethylene), 聚丙烯(Polypropylene)及其它各式塑膠材料.
- 應用領域包括
    - 金屬線與電纜
    - 顯示器外殼及電子裝置飾條貼合
    - 車用配件之貼合
    - 接紙
    - 泡棉
    - 塑膠掛鉤及架子之貼合
    - 銘版, 標籤, 飾版之貼合
    - 裝飾物貼合
    - 手機及呼叫器之襯墊貼合.

Important Notice

3M MAKES NO WARRANTES, EXPRESS OR IMPLED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product. Given the variety of factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.

Limitation of Remedies and Liability

If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.

Material Safety Data Sheet

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This material safety data sheet (MSDS) is provided as a courtesy in response to a customer request. This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(tm) Double Coated Tissue Tape Y-9448HK
MANUFACTURER: Vigteqnos Co.Ltd.
DIVISION: Technical Department
ADDRESS: No.166-17,OAZA-SIROYAMADAI
GOSE,NARA,639-2281 JAPAN

EMERGENCY PHONE: (81)745-66-2300 FAX:（81）745-66-2300

Issue Date: 01/10/2007
Supercedes Date: Initial Issue
Document Group:
Product Use:
Specific Use: Adhesive Tape

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt(Typical)
Acrylic ester copolymer	66251-44-3	38.8
Hydrogenated rosin	65997-13-9	9.5
Silicone resin	NONE	0.5
Polyethylene	9002-88-4	7.3
Cellulose	9004-34-6	43.9

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Roll of Tape
Odor, Color, Grade: Tan,Acrylate oder when unrolled
General Physical Form: Solid
Immediate health, physical, and environmental hazards: The environmental properties of this product present a low environmental hazard. This product, when used under reasonable conditions and in accordance with the Vigteqnos directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

Vapors from heated material may cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Skin Contact:

Delayed Dermal Irritation: Signs/symptoms may include localized redness, swelling, itching, and pain. These effects may not appear immediately following exposure.
Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.
No health effects are expected.

Inhalation:

Vapors from heated material may cause irritation of the respiratory system. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

Ingestion:

Physical Blockage: Signs/symptoms may include cramping, abdominal pain, and constipation.

3.3 POTENTIAL ENVIRONMENTAL EFFECTS

This substance does not leach metals or other RCRA (Resource Conservation and Recovery Act) listed TCLP (Toxic Characteristic Leaching Procedure) hazardous substances at concentrations that would make the product a hazardous waste.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: If signs/symptoms develop, remove person to fresh air. If signs/symptoms persist, get medical attention.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature *Not Applicable*
Flash Point *Not Applicable*
Flammable Limits - LEL *Not Applicable*
Flammable Limits - UEL *Not Applicable*

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Not applicable.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid prolonged or repeated skin contact. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below Occupational Exposure Limits. If ventilation is not adequate, use respiratory protection equipment.

7.2 STORAGE

Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Provide appropriate local exhaust when product is heated.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing

Do not eat, drink or smoke when using this product. Wash exposed areas thoroughly with soap and water.

Not applicable.

8.3 EXPOSURE GUIDELINES

None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Odor, Color, Grade: Roll of Tape
General Physical Form: Solid
Autoignition temperature *Not Applicable*
Flash Point *Not Applicable*
Flammable Limits - LEL *Not Applicable*
Flammable Limits - UEL *Not Applicable*
Boiling point *Not Applicable*
Density *Not Applicable*
Vapor Density *Not Applicable*
Vapor Pressure *Not Applicable*
Specific Gravity *Not Applicable*
pH *Not Applicable*
Melting point *Not Applicable*
Solubility in Water Nil
Evaporation rate *Not Applicable*
Percent volatile *Not Applicable*
Viscosity *Not Applicable*

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.
Materials and Conditions to Avoid: None known
Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not Applicable

CHEMICAL FATE INFORMATION

Not Applicable

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Reclaim if feasible. If product can't be reclaimed, dispose of waste product in a sanitary landfill.Alternatively, incinerate the waste product in an industrial, commercial, or municipal incinerator. Dispose of waste product in a sanitary landfill. Incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative,incinerate in an industrial or commercial facility. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact Vigteqnos for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - No

STATE REGULATIONS

Contact Vigteqnos for more information.

CHEMICAL INVENTORIES

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact Vigteqnos for more information.

INTERNATIONAL REGULATIONS

Contact Vigteqnos for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 1 **Flammability:** 1 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Reason for Reissue: Section 3.2, Health Hazards has changed. These products are no longer considered to be articles.

Revision Changes:
Section 1: Initial issue message was modified.

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