



測試報告 Test Report

號碼(No.) : CE/2010/35858 日期(Date) : 2010/03/29 頁數(Page) : 1 of 10

DONG YANG INK CO., LTD.

338-6, KAGOK-RI, JINWI-MYUN, PYUNGTAEK-CITY, KYUNGKI-DO, KOREA.

SGS TAIWAN LTD. CHEMICAL LABORATORY - TAIPEI

以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下 (The following samples was/were submitted and identified by/on behalf of the client as) :

樣品名稱(Sample Description)	:	COMAX (YELLOW, MAGENTA, CYAN, BLACK)
收件日期(Sample Receiving Date)	:	2010/03/22
測試期間(Testing Period)	:	2010/03/22 TO 2010/03/29

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

結論(Conclusion) : 根據客戶所提供的樣品，其多苯環芳香族化合物的測試結果符合德國ZLS的ZEK 01.2-08及其相關修訂文件中的第3類PAHs要求 (Base upon the performed tests by submitted samples, the test results of PAHs comply with the PAHs requirement according to (Category 3) of ZEK 01.2-08 of German ZLS and its amendments.)

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory - Taipei

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測試結果(Test Results)

測試部位(PARTNAME)NO.1 : 黃色油墨 (YELLOW INK)
 測試部位(PARTNAME)NO.2 : 紅色油墨 (MAGENTA INK)
 測試部位(PARTNAME)NO.3 : 藍色油墨 (CYAN INK)
 測試部位(PARTNAME)NO.4 : 黑色油墨 (BLACK INK)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)		
				NO.1	NO.2	NO.3
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS) PFOS - Acid PFOS - Metal Salt PFOS - Amide	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷 磺酸含量. / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.	n.d.	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 000335- 67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸 (銨)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.	n.d.	n.d.

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)		
				NO.1	NO.2	NO.3
多苯環芳香族化合物 / Polynuclear Aromatic Hydrocarbons (PAHs)						
Acenaphthene (CAS No.: 000083-32-9)	mg/kg	參考ZLS standard ZEK 01.2-08 方法, 以氣相層析質譜儀 (GC/MS)檢測. / With reference to ZLS standard ZEK 01.2-08 method. Analysis was performed by GC/MS.	0.2	n.d.	n.d.	n.d.
Acenaphthylene (CAS No.: 000208-96-8)			0.2	n.d.	n.d.	n.d.
Anthracene (CAS No.: 000120-12-7)			0.2	n.d.	n.d.	n.d.
Benzo[a]anthracene (CAS No.: 000056- 55-3)			0.2	n.d.	n.d.	n.d.
Benzo[a]pyrene (CAS No.: 000050-32-8)			0.2	n.d.	n.d.	n.d.
Benzo[b]fluoranthene (CAS No.: 000205- 99-2)			0.2	n.d.	n.d.	n.d.
Benzo[g,h,i]perylene (CAS No.: 000191- 24-2)			0.2	n.d.	n.d.	n.d.
Benzo[k]fluoranthene (CAS No.: 000207- 08-9)			0.2	n.d.	n.d.	n.d.
Chrysene (CAS No.: 000218-01-9)			0.2	n.d.	n.d.	n.d.
Dibenzo[a,h]anthracene (CAS No.: 000053-70-3)			0.2	n.d.	n.d.	n.d.
Fluoranthene (CAS No.: 000206-44-0)			0.2	n.d.	n.d.	n.d.
Fluorene (CAS No.: 000086-73-7)			0.2	n.d.	n.d.	n.d.
Indeno[1,2,3-c,d] pyrene (CAS No.: 000193-39-5)			0.2	n.d.	n.d.	n.d.
Naphthalene (CAS No.: 000091-20-3)			0.2	n.d.	n.d.	1.16
Phenanthrene (CAS No.: 000085-01-8)			0.2	n.d.	n.d.	n.d.
Pyrene (CAS No.: 000129-00-0)			0.2	n.d.	n.d.	n.d.
多苯環芳香族化合物16項總和 / Sum of 16 PAHs			-	n.d.	n.d.	1.16

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO. 4
多苯環芳香族化合物 / Polynuclear Aromatic Hydrocarbons (PAHs)				
Acenaphthene (CAS No.: 000083-32-9)	mg/kg	參考ZLS standard ZEK 01.2-08 方法, 以氣相層析質譜儀 (GC/MS)檢測。 / With reference to ZLS standard ZEK 01.2-08 method. Analysis was performed by GC/MS.	0.2	n.d.
Acenaphthylene (CAS No.: 000208-96-8)			0.2	3.1
Anthracene (CAS No.: 000120-12-7)			0.2	n.d.
Benzo[a]anthracene (CAS No.: 000056- 55-3)			0.2	n.d.
Benzo[a]pyrene (CAS No.: 000050-32-8)			0.2	n.d.
Benzo[b]fluoranthene (CAS No.: 000205- 99-2)			0.2	n.d.
Benzo[g,h,i]perylene (CAS No.: 000191- 24-2)			0.2	4.79
Benzo[k]fluoranthene (CAS No.: 000207- 08-9)			0.2	n.d.
Chrysene (CAS No.: 000218-01-9)			0.2	n.d.
Dibenzo[a,h]anthracene (CAS No.: 000053-70-3)			0.2	n.d.
Fluoranthene (CAS No.: 000206-44-0)			0.2	11.2
Fluorene (CAS No.: 000086-73-7)			0.2	n.d.
Indeno[1,2,3-c,d] pyrene (CAS No.: 000193-39-5)			0.2	1.24
Naphthalene (CAS No.: 000091-20-3)			0.2	3.13
Phenanthrene (CAS No.: 000085-01-8)			0.2	n.d.
Pyrene (CAS No.: 000129-00-0)			0.2	26.4
多苯環芳香族化合物16項總和 / Sum of 16 PAHs			-	49.86

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.4
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS) PFOS - Acid PFOS - Metal Salt PFOS - Amide	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量. / With reference to US EPA 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛酸(銨) / PFOA (CAS No.: 000335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(銨)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.

備註(Note) :

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)

PFOS參考資訊(Reference Information) : 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%。
(May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005% by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件; 假若零件上明顯地具有PFOS並參照結構上及微細構造上計算PFOS重量濃度等於或大於0.1%, 而紡織品或其他覆蓋物質, 如果PFOS在覆蓋物質中含量等於或大於1µg/m²。
(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1% by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1µg/m² of the coated material.)

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PAHs參考資料(Reference information):

依據ZEK 01.2-08之要求: 產品中最大值為

(Requirement of ZEK 01.2-08: Restraining maximum values for products)

項目 (Parameter)	第1類 (Category 1)	第2類 (Category 2)	第3類 (Category 3)
	與食品接觸或放入嘴內的材料, 以及給三歲以下的幼兒使用的玩具。 (Materials in contact with foodstuff or materials which are meant to put in the mouth as well as toys for children <36 months.)	持續地(長時間)與皮膚接觸逾30秒, 以及不屬第1類的玩具。 (Materials with foreseeable skin contact >30 s (prolonged skin contact) and toys not covered by category 1.)	暫時地(短時間)與皮膚接觸但不逾30秒或不會與皮膚接觸。 (Materials with foreseeable skin contact <30 s (short time skin contact) or without skin contact.)
苯駢(a)芘 Benzo(a)pyrene (mg/kg)	<MDL (<0.2)**	1	20
環保署規範16項PAH 總濃度 (Sum of 16 EPA-PAH) (mg/kg)*	<MDL (<0.2)**	10	200

注意(Remark):

* = PAH濃度大於0.2mg/kg時, 則須計算PAH總濃度值。

(Only PAH substances >0.2 mg/kg are taken into account while calculating the sum of PAHs.)

** = 最大濃度值超出等級一的限制, 但在等級二的濃度限制值內時, 可能需要確認測試材質是否合適於食品容器或是依照DIN EN1186ff/ § 64 LFGB 80.30-1方法, 針對特定PAH的遷移測試進行測試。遷移測試的結論需依照食品法規規範。

(In case that the maximum values exceed the limits of category 1, but are within the limits of category 2, one may confirm the suitability of the tested material for contact with foodstuff or oral mucosa by additional specific migration tests of PAH components based on DIN EN 1186ff and § 64 LFGB 80.30-1. The conclusion of the migration test results must be made based on food law criteria.)

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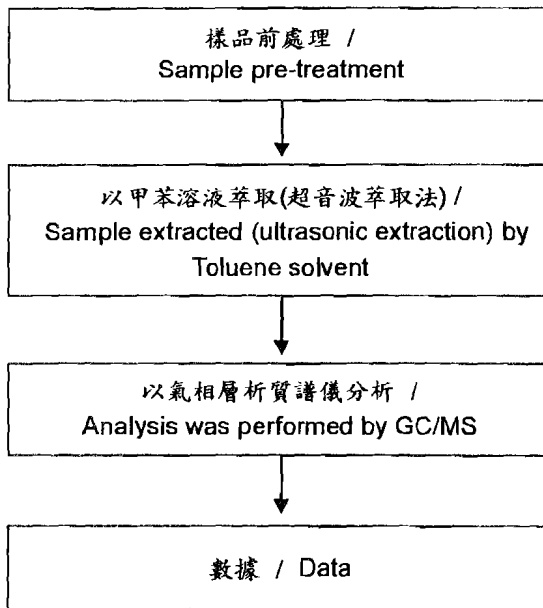
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多苯環芳香族化合物分析流程圖 /

PAHs (Polynuclear Aromatic Hydrocarbons) analytical flow chart

- 1) 測試人員：徐毓明 / Name of the person who made measurement: Andy Shu
- 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen



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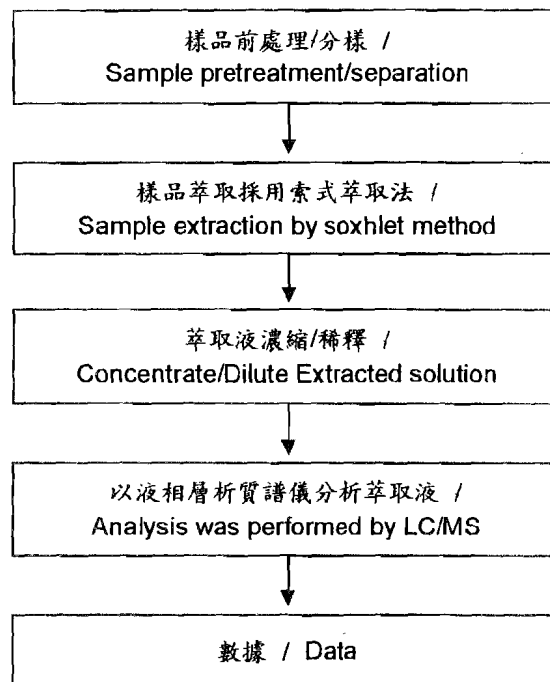
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索式萃取(LC/MS)分析流程圖 /

Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 1) 測試人員：傅莉雅 / Name of the person who made measurement: Lydia Fu
 - 2) 測試負責人：陳新智 / Name of the person in charge of measurement: Shinjyh Chen
- 測試項目(Test Items): 全氟辛烷磺酸/全氟辛酸(銨)、苯並三唑類化合物 /
PFOS/PFOA、Benzotriazole



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** 報告結尾 (End of Report) **

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