

測試報告

Test Report

號碼(No.) : CE/2019/45988

日期(Date) : 2019/05/02

頁數(Page): 1 of 13

光頡科技股份有限公司
VIKING TECH CORPORATION

新竹縣湖口鄉新竹工業區光復北路70號

NO. 70, KUANFU N. ROAD, HSIN CHU INDUSTRIAL PARK, HUKOU, HSIN CHU HSIEN 303, 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/on behalf of the applicant as):

送樣廠商(Sample Submitted By) : 光頡科技股份有限公司 (VIKING TECH CORPORATION)
樣品名稱(Sample Description) : MULTILAYER CERAMIC CHIP CAPACITOR
樣品型號(Style/Item No.) : MC-Y5V SERIES
收件日期(Sample Receiving Date) : 2019/04/24
測試期間(Testing Period) : 2019/04/24 to 2019/05/02

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


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



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NO. 70, KUANFU N. ROAD, HSIN CHU INDUSTRIAL PARK, HUKOU, HSIN CHU HSIEN 303, TAIWAN

測試結果(Test Results)

測試部位(PART NAME)No. 1 : 整體混測 (MIXED ALL PARTS)

| 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 |
| 鎘 / Cadmium (Cd) | mg/kg | 參考IEC 62321-5 (2013), 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5 (2013) and performed by ICP-AES. | 2 | n. d. |
| 鉛 / Lead (Pb) | mg/kg | | 2 | n. d. |
| 汞 / Mercury (Hg) | mg/kg | 參考IEC 62321-4:2013+ AMD1:2017, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4:2013+ AMD1:2017 and performed by ICP-AES. | 2 | n. d. |
| 六價鉻 / Hexavalent Chromium Cr(VI) | mg/kg | 參考IEC 62321-7-2 (2017), 以UV-VIS檢測. / With reference to IEC 62321-7-2 (2017) and performed by UV-VIS. | 8 | n. d. |
| 多溴聯苯總和 / Sum of PBBs | mg/kg | 參考IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS. | - | n. d. |
| 一溴聯苯 / Monobromobiphenyl | 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. | |

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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 |
| 多溴聯苯醚總和 / Sum of PBDEs | mg/kg | 參考IEC 62321-6 (2015), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-6 (2015) and performed by GC/MS. | - | n. d. |
| 一溴聯苯醚 / Monobromodiphenyl ether | 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. |
| 鄰苯二甲酸丁苯甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7) | mg/kg | 參考IEC 62321-8 (2017), 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321-8 (2017). Analysis was performed by GC/MS. | 50 | n. d. |
| 鄰苯二甲酸二丁酯 / DBP (Di-butyl phthalate) (CAS No.: 84-74-2) | mg/kg | | 50 | n. d. |
| 鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di-(2-ethylhexyl) phthalate) (CAS No.: 117-81-7) | mg/kg | | 50 | n. d. |
| 鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5) | mg/kg | | 50 | n. d. |
| 鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0; 68515-49-1) | mg/kg | | 50 | n. d. |
| 鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (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) (CAS No.: 117-84-0) | mg/kg | | 50 | 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 |
| 六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α -HBCDD, β -HBCDD, γ -HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)) | mg/kg | 參考IEC 62321 (2008), 以氣相層析儀/質譜儀檢測。 / With reference to IEC 62321 (2008). Analysis was performed by GC/MS. | 5 | n. d. |
| 鹵素 / Halogen | | | | |
| 鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8) | mg/kg | 參考BS EN 14582 (2016), 以離子層析儀分析。 / With reference to BS EN 14582 (2016). Analysis was performed by IC. | 50 | n. d. |
| 鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1) | mg/kg | | 50 | n. d. |
| 鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2) | mg/kg | | 50 | n. d. |
| 鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8) | mg/kg | | 50 | n. d. |
| 全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide) | mg/kg | 參考US EPA 3550C (2007), 以液相層析儀/質譜儀檢測。 / With reference to US EPA 3550C (2007). Analysis was performed by LC/MS. | 10 | n. d. |
| 全氟辛酸 / PFOA (CAS No.: 335-67-1) | mg/kg | | 10 | n. d. |
| 銻 / Antimony (Sb) | mg/kg | 參考US EPA 3052 (1996), 以感應耦合電漿原子發射光譜儀檢測。 / With reference to US EPA 3052 (1996). Analysis was performed by ICP-AES. | 2 | n. d. |

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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)
5. 樣品的測試是基於申請人要求混合測試，報告中的混合測試結果不代表其中個別單一材質的含量。(The samples was/were analyzed on behalf of the applicant as mixing sample in one testing. The above results was/were only given as the informality value.)

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm)，在半成品、成品或零部件中不得超過0.1%(1000ppm)，在紡織品或塗層材料中不得超過 $1\mu\text{g}/\text{m}^2$ 。

(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above $1\mu\text{g}/\text{m}^2$.)

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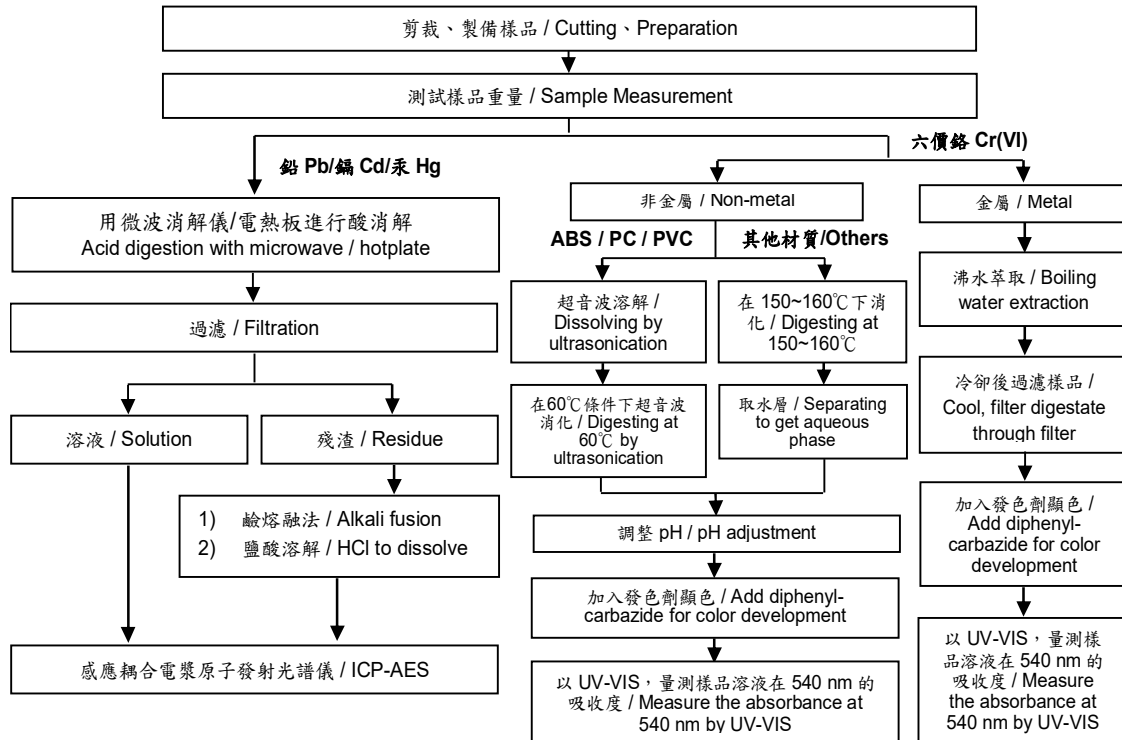
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重金屬流程圖 / Analytical flow chart of Heavy Metal

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. (Cr⁶⁺ test method excluded)

- 測試人員：陳思臻 / Technician : Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



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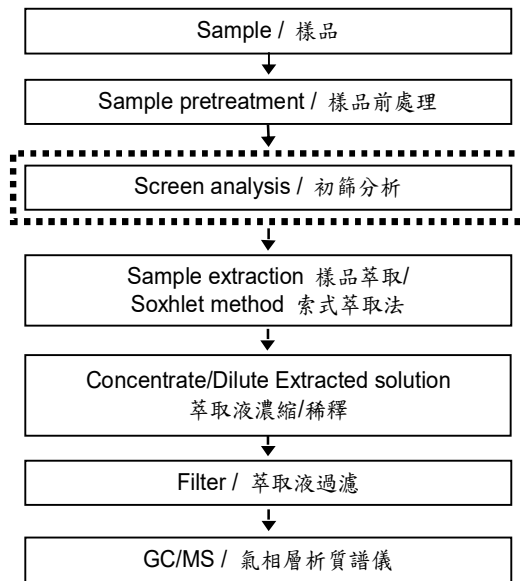
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多溴聯苯/多溴聯苯醚分析流程圖 / Analytical flow chart - PBB/PBDE

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang

初次測試程序 / First testing process —————>
 選擇性篩檢程序 / Optional screen process>
 確認程序 / Confirmation process - - ->



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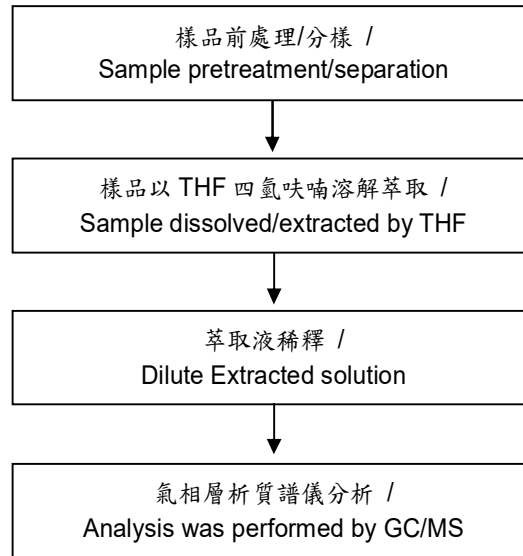
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可塑劑分析流程圖 / Analytical flow chart - Phthalate

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor : Troy Chang

【測試方法/Test method: IEC 62321-8】



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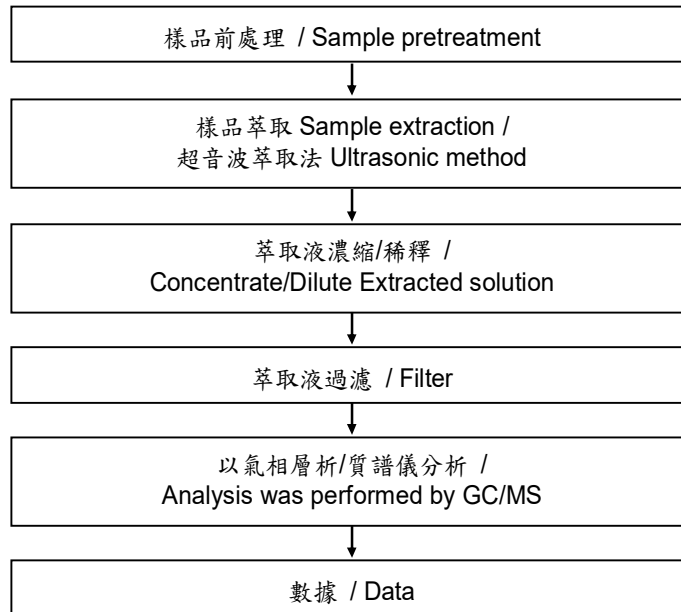
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六溴環十二烷分析流程圖 / Analytical flow chart - HBCDD

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang



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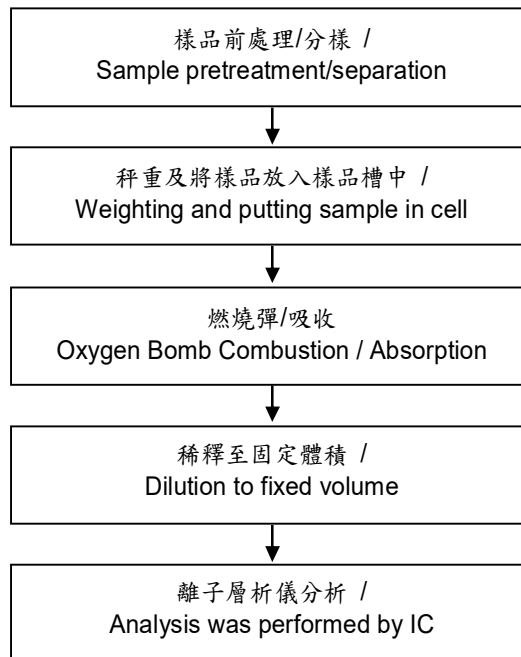
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鹵素分析流程圖 / Analytical flow chart - Halogen

- 測試人員：陳恩臻 / Technician: Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



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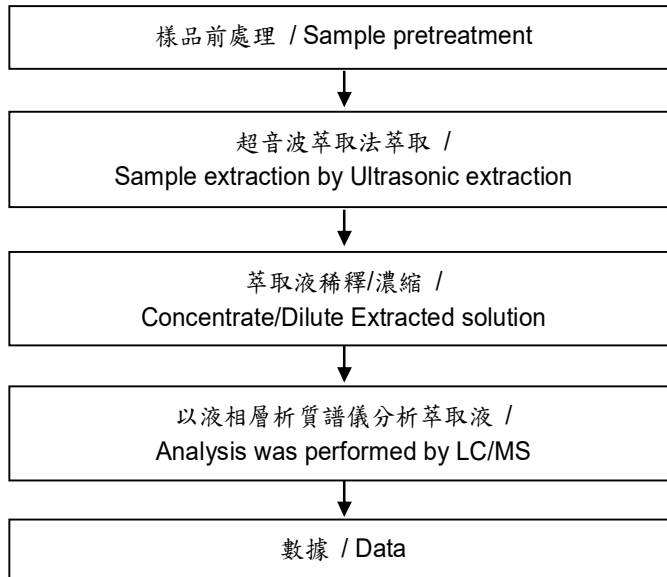
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全氟辛酸/全氟辛烷磺酸分析流程圖 / Analytical flow chart - PFOA/PFOS

- 測試人員：涂雅苓 / Technician: Yaling Tu
- 測試負責人：張啟興 / Supervisor: Troy Chang



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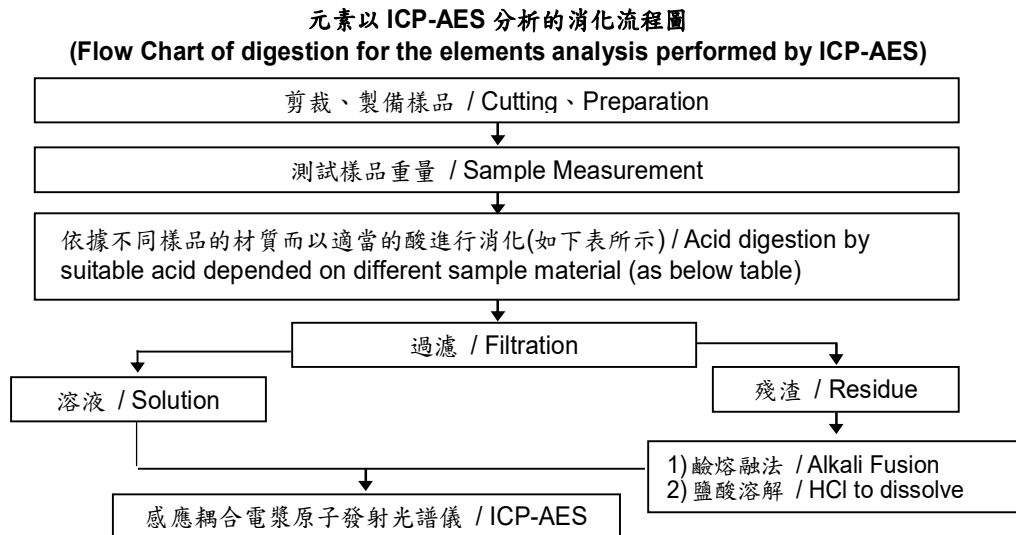
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根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.

- 測試人員：陳恩臻 / Technician: Rita Chen
- 測試負責人：張啟興 / Supervisor: Troy Chang



| | |
|---|--|
| 銅,銅,鋁,焊錫 / Steel, copper, aluminum, solder | 王水,硝酸,鹽酸,氫氟酸,雙氧水 / Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂ |
| 玻璃 / Glass | 硝酸,氫氟酸 / HNO ₃ /HF |
| 金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic | 王水 / Aqua regia |
| 銀 / Silver | 硝酸 / HNO ₃ |
| 塑膠 / Plastic | 硫酸,雙氧水,硝酸,鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl |
| 其他 / Others | 加入適當的試劑至完全溶解 / Added appropriate reagent to total digestion |

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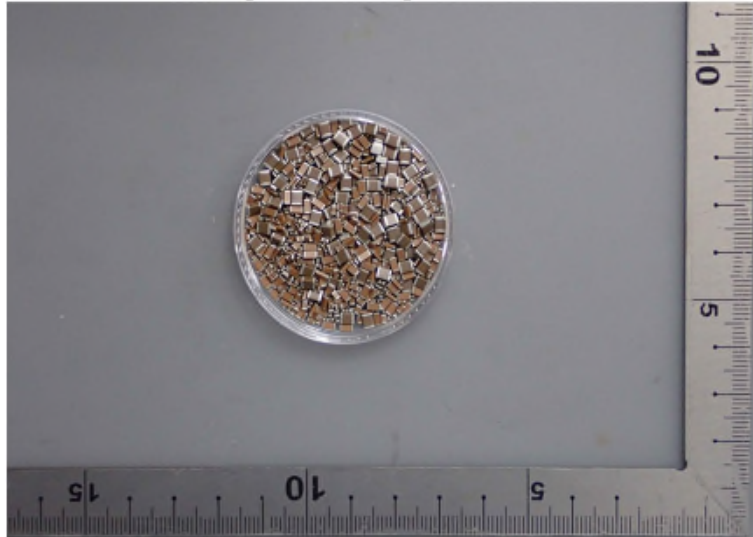
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*

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

CE/2019/45988



** 報告結尾 (End of Report) **