

住工股份有限公司

1. 設立時間：民國77年4月11日

2. 經營項目

主要：半導體封裝用環氧樹脂成型材料及其相關產品之買賣。

其他：一般進出口貿易、代理國內外廠有關產品之投標、報價、經銷業務。前列有關事務之經營及投資等一切業務。

3. 投資公司

長春人造樹脂廠股份有限公司(50%)

住友ベークライト株式會社(50%)

4. 簡介

住工係由台灣長春人造樹脂廠股份有限公司與日本住友ベークライト株式會社共同投資，以銷售半導體封裝用環氧樹脂成型材料為主要目的而設立。

長春人造樹脂廠股份有限公司，從事熱硬化性樹脂生產與銷售已超過55年，此次引進住友ベークライト株式會社之環氧樹脂成型材料生產技術(包括製造設備、製造技術、品質保證體系等整體KNOW-HOW)。

除沿用”SUMIKON”為商標外，並在客戶對住友ベークライト株式會社之成型材料上之既有評價及認定基礎上，以更好的服務品質提供予客戶，敬請愛顧並祈指教。

5. 主要產品

(1) 半導體封裝用環氧樹脂成型材料

規格：EME-1100 / EME-2100、EME-1200 /
EME-2500、EME-5961、EME-E110、
EME-E120、EME-E190

特性：獲美國UL通過認證 ISO-9001、ISO-14001、
ISO/TS16949

(2) 洗模劑

規格：MC-261、MC-701、MC-201T、MM-3271

製造廠：長春人造樹脂廠股份有限公司

地址：台北市松江路301號7樓

電話：(02) 2500-1800

傳真：(02) 2500-1797

銷售：住工股份有限公司

地址：台北市松江路301號8樓之4

電話：(02) 2500-1800

傳真：(02) 2500-1797

TSU KONG CO., LTD.

1. Establishment : April 11, 1988

2. Business operation

Sales of Epoxy Molding Compound for semiconductor encapsulation.

General import-export trading. Acting as agent for bidding, quotation, and sales of related products in both domestic and international markets.

3. Joint Venture partners

Chang Chun Plastics Co., Ltd. (CCP): 50%

Sumitomo Bakelite Co., Ltd. (SB): 50%

4. Introduction

Tsu Kong, a joint venture company of Chang Chun Plastics Co., Ltd. (Taiwan) and Sumitomo Bakelite Co., Ltd. (Japan), is organized for the sale of Epoxy Molding Compound for encapsulating semiconductor devices.

Chang Chun Plastics Co., Ltd. has been devoted to the sales and manufacturing of thermosetting plastic resins for the past 55 years, for this reason, Sumitomo Bakelite Co., Ltd. elects to cooperate with CCP to produce EME under the license of Sumitomo Bakelite and to market EME under the tradename of SUMIKON.

SUMIKON represents Sumitomo Bakelite's trustful quality and service, Tsu Kong, the joint ventured company, will follow Sumitomo's well-known tradition and provide best possible products and service.

5. Main Products

(1) Epoxy Molding Compound for semiconductor encapsulation

Grades: EME-1100 / EME-2100, EME-1200 / EME-2500,
EME-5961, EME-E110, EME-E120, EME-E190

Approval: UL, ISO-9001, ISO-14001, ISO/TS16949

(2) Mold Cleaner for semiconductor

Grades: MC-261、MC-701、MC-201T、MM-3271

Manufacturer: Chang Chun Plastics Co., Ltd.

Address: 7th Fl, No.301 Song-Kiang Rd., Taipei, Taiwan

Tel : (02) 2500-1800

Fax: (02)-2500-1797

Sale: Tsu Kong Co., Ltd.

Address: 8th Fl, -4 No.301 Song-Kiang Rd., Taipei, Taiwan

Tel : (02) 2500-1800

Fax: (02)-2500-1797



長春封塑料(常熟)有限公司

1. 設立時間：2003年5月19日

2. 經營範圍

從事電子用高科技化學品的生產、加工，銷售本公司生產產品。

3. 投資公司

長春人造樹脂廠股份有限公司(CCP)：70%

住友ベークライト株式会社(SB)：30%

4. 簡介

長春封塑料(常熟)有限公司係由台灣長春人造樹脂廠股份有限公司與日本住友ベークライト株式會社共同投資，以生產及銷售半導體封裝用環氧樹脂成型材料為主要目的而設立。

長春人造樹脂廠股份有限公司，從事熱硬化性樹脂生產與銷售已超過55年，此次引進住友ベークライト株式會社之環氧樹脂成型材料生產技術(包括製造設備、製造技術、品質保證體系等整體KNOW-HOW)，除沿用“SUMIKON”為商標外，並在客戶對住友ベークライト株式會社之成型材料上之既有評價及認定基礎上，以更好的服務品質提供予客戶，敬請愛顧並祈指教。

5. 主要產品

半導體封裝用環氧樹脂成型材料

規格: EME-1100/EME-2100, EME-1200/EME-2500, EME-5961

認證: UL-94, ISO-9001, ISO-14001, ISO/TS-16949

地址: 中國江蘇省常熟經濟開發區沿江工業區長春路

電話: (0512) 5264-8000 傳真: (0512)-5264-5900

CHANG CHUN SB(CHANG SHU) CO., LTD.

1. **Establishment:** May 19, 2003

2. Business operation

Manufacturing and sales of Epoxy Molding Compound for semiconductor encapsulation.

3. Joint Venture partners

Chang Chun Plastics Co., Ltd. (CCP): 70%

Sumitomo Bakelite Co., Ltd. (SB): 30%

4. Introduction

Chang Chun SB(Chang Shu) Co., Ltd., a joint venture company of Chang Chun Plastics Co., Ltd. (Taiwan) and Sumitomo Bakelite Co., Ltd. (Japan), is organized for the manufacturing and sales of Epoxy Molding Compound for encapsulating semiconductor devices.

Chang Chun Plastics Co., Ltd. has been devoted to the sales and manufacturing of thermosetting plastic resins for the past 55 years, for this reason, Sumitomo Bakelite Co., Ltd. elects to cooperate with CCP to produce EME under the licence of Sumitomo Bakelite and to market EME under the tradename of SUMIKON.

SUMIKON represents Sumitomo Bakelite's trustful quality follow Sumitomo's well-known tradition and provide best possible products and service.

5. Main Products

Epoxy Molding Compound for semiconductor encapsulation
Grades: EME-1100/EME-2100, EME-1200/EME-2500, EME-5961

Approval: UL, ISO-9001, ISO-14001, ISO/TS-16949

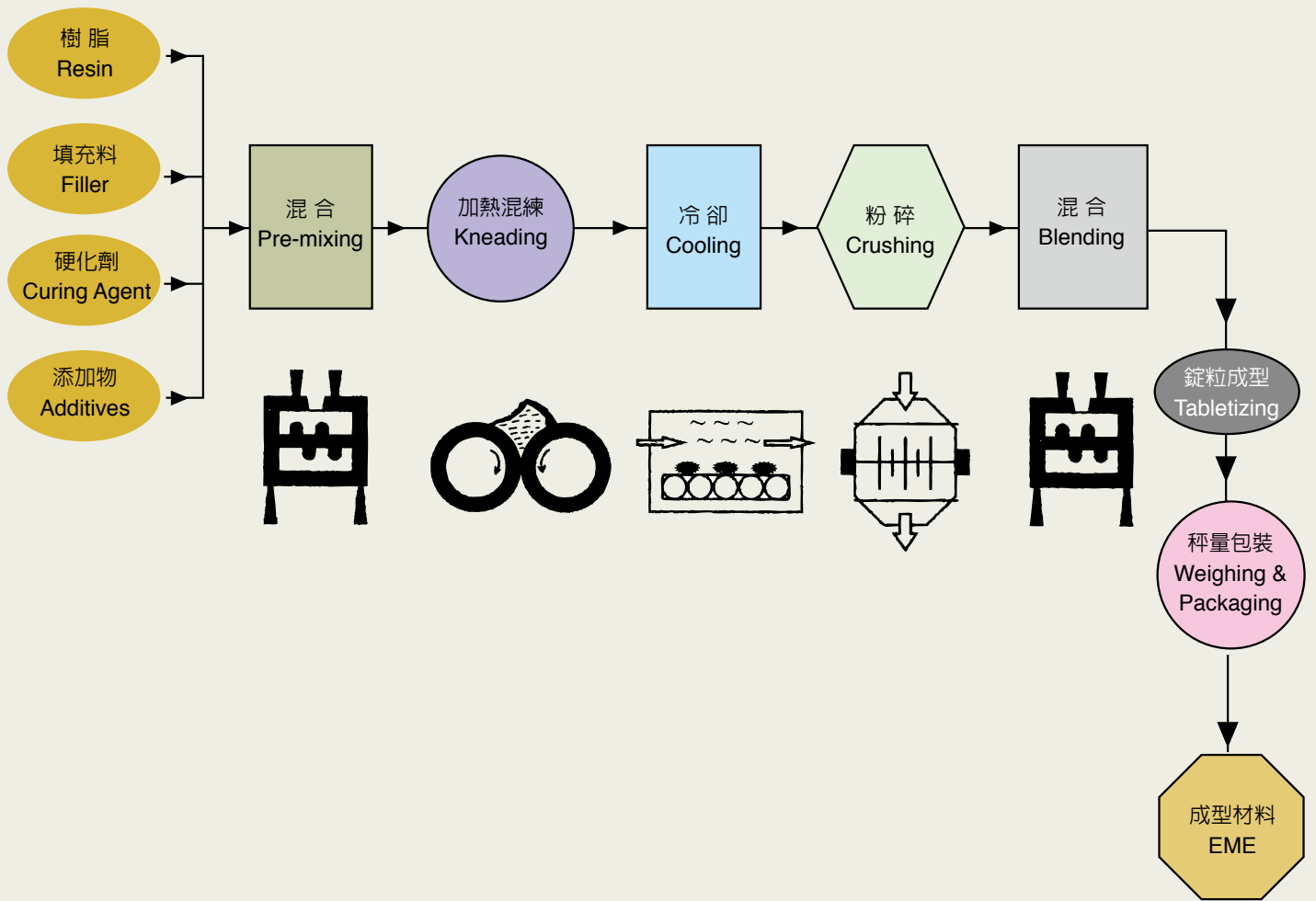
Address: Changchun Rd., Reverside Industrial Park,
Changshu Economic Development Zone,
Jiangsu, P.R.C.

Tel : (0512) 5264-8000

Fax: (0512)-5264-5900

製造流程

Manufacturing Flow Chart



一般特性

Typical Properties

| 試驗項目 Items | 單位 Unit | EME-1100/2100 (Fused Silica) | | | | | | | |
|--|---------------------|------------------------------|----------------------|------------------------------|-----------------------------|---|---------------------------|--|----------------------|
| | | D | D6 | D7 | H | HL | K | KM | KL |
| 外觀顏色 Color | - | Black | Black | Black | Black | Black | Black | Black | Black |
| 流動性 Spiral Flow | cm | 88 | 85 | 74 | 78 | 90 | 78 | 90 | 95 |
| 膠化時間 Gel Time | sec | 24 | 28 | 32 | 32 | 33 | 34 | 36 | 36 |
| 熱膨脹係數 Thermal Expansion (α 1) | 1/°C | 2.0×10^{-5} | 2.3×10^{-5} | 1.8×10^{-5} | 1.9×10^{-5} | 1.9×10^{-5} | 1.9×10^{-5} | 1.9×10^{-5} | 1.7×10^{-5} |
| 玻璃轉移溫度 Tg | °C | 170 | 152 | 159 | 153 | 156 | 154 | 155 | 150 |
| 比重 Specific Gravity | - | 1.81 | 1.90 | 1.83 | 1.86 | 1.81 | 1.82 | 1.82 | 1.82 |
| 吸水率 (24小時煮沸後) Water Absorption (after 24 hrs boiling) | % | 0.28 | 0.28 | 0.28 | 0.25 | 0.28 | 0.30 | 0.30 | 0.30 |
| 曲折強度 Flexural Strength | Kgf/cm ² | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| 曲折彈性率 Flexural Modulus | Kgf/cm ² | 1400 | 1450 | 1450 | 1450 | 1400 | 1400 | 1400 | 1300 |
| 熱傳導率 Thermal Conductivity | cal/sec.cm.°C | 16×10^{-4} | 18×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} |
| 體積抵抗率 Volume Resistivity 24小時煮沸後 (after 24 hrs boiling) | Ω -cm | 10×10^{14} | 10×10^{14} | 20×10^{14} | 50×10^{14} | 40×10^{14} | 20×10^{14} | 40×10^{14} | 40×10^{14} |
| 體積抵抗率 Volume Resistivity (at 150°C) | Ω -cm | 5×10^{13} | 5×10^{13} | 5×10^{13} | 25×10^{13} | 20×10^{13} | 25×10^{13} | 20×10^{13} | 20×10^{13} |
| 誘電率 Dielectric Constant (1MHz) | - | 4.4 | 4.4 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| 誘電正接 Dissipation Factor (1MHz) | - | 0.013 | 0.013 | 0.012 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 |
| 耐燃性(UL-94) Flammability (UL-94) | - | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| 游離鈉 Extracted Na ⁺ | ppm | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 游離鹵素 Extracted Halogen | ppm | 40 | 40 | 40 | 25 | 25 | 25 | 25 | 25 |
| 可水解氯 Hydrolyzable Cl ⁻ | ppm | 100 | 100 | 100 | 80 | 80 | 80 | 80 | 80 |
| 備考 Features | | fast cure 速硬性 | fast cure 速硬性 | good moldability 成型性良好 | high reliability 高信賴性 | high reliability 高信賴性 (long flow) | semi-low stress 低應力 | semi-low stress 低應力 (long flow) | low stress 低應力 |
| 用途 Uses | | Diode, Tr | Diode, Tr | Diode, Tr | IC, Tr | IC, Tr | IC, Tr | IC, Tr | IC, Tr |

註：Diode: 二極體 (二極管) Tr: 電晶體 (三極管) Transistor IC: 積體電路 (Integrated Circuit) Photo Coupler: 光耦合器

| EME-1100/2100 (Fused Silica) | | | | | EME-5961 | | | |
|------------------------------|---------------------------|----------------------|---------------------------|-----------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| KS | RG | S | SA | ST | C | D | M | W |
| Black | Black | Black | Black | Black | Black | Black | Black | Black |
| 110 | 68 | 80 | 70 | 73 | 67 | 67 | 40 | 60 |
| 32 | 27 | 32 | 28 | 32 | 40 | 40 | 30 | 40 |
| 1.8×10^{-5} | 1.8×10^{-5} | 2.0×10^{-5} | 2.0×10^{-5} | 1.8×10^{-5} | 2.3×10^{-5} | 2.4×10^{-5} | 2.3×10^{-5} | 2.4×10^{-5} |
| 150 | 167 | 154 | 156 | 155 | 155 | 155 | 155 | 155 |
| 1.80 | 1.83 | 1.83 | 1.82 | 1.82 | 2.20 | 2.19 | 2.20 | 2.19 |
| 0.30 | 0.28 | 0.29 | 0.29 | 0.29 | 0.20 | 0.20 | 0.20 | 0.20 |
| 15 | 15 | 15 | 15 | 15 | 17 | 17 | 17 | 17 |
| 1300 | 1450 | 1450 | 1450 | 1400 | 2000 | 1900 | 2000 | 1900 |
| 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 16×10^{-4} | 58×10^{-4} | 53×10^{-4} | 58×10^{-4} | 53×10^{-4} |
| 40×10^{14} | 15×10^{14} | 50×10^{14} | 40×10^{14} | 40×10^{14} | 10×10^{14} | 10×10^{14} | 10×10^{14} | 10×10^{14} |
| 20×10^{13} | 15×10^{13} | 10×10^{13} | 10×10^{13} | 20×10^{13} | 5×10^{13} | 5×10^{13} | 5×10^{13} | 5×10^{13} |
| 4.2 | 4.3 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.2 |
| 0.011 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 |
| V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| 3 | 3 | 3 | 3 | 3 | 14 | 14 | 14 | 14 |
| 25 | 40 | 40 | 40 | 40 | 55 | 55 | 55 | 55 |
| 80 | 100 | 100 | 100 | 80 | 150 | 150 | 150 | 150 |
| low stress 低應力 | good moldability 成型性良好 | | good moldability 成型性良好 | mini package 充填性良好 | high thermal conductivity 高熱傳導性 | high thermal conductivity 高熱傳導性 | high thermal conductivity 高熱傳導性 | high thermal conductivity 高熱傳導性 |
| Tr, Diode | Tr, Diode | Tr, Diode | Tr, Diode | IC, Tr | full package Tr | full package Tr | full package Tr(mini tab.) | full package Tr |

※ 本表所列數據係代表值，僅供參考。above properties are typical, but not guaranteed.

一般特性

Typical Properties

| 試驗項目 Items | Grade 單位 Unit | EME-1200/2500 (Crystal Silica) | | | | |
|--|---------------------|--------------------------------|---------------------------|--------------------------|--------------------------|----------------------|
| | | D | D3 | D6 | D7 | JA |
| 外觀顏色 Color | - | Black | Black | Black | Black | Black |
| 流動性 Spiral Flow | cm | 65 | 70 | 70 | 70 | 80 |
| 膠化時間 Gel Time | sec | 25 | 25 | 25 | 26 | 30 |
| 熱膨脹係數 Thermal Expansion ($\alpha 1$) | 1/°C | 2.7×10^{-5} | 2.7×10^{-5} | 2.6×10^{-5} | 2.7×10^{-5} | 2.7×10^{-5} |
| 玻璃轉移溫度 Tg | °C | 167 | 167 | 167 | 167 | 160 |
| 比重 Specific Gravity | - | 2.04 | 2.06 | 2.09 | 2.09 | 2.04 |
| 吸水率(24小時煮沸後) Water Absorption (after 24 hrs boiling) | % | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| 曲折強度 Flexural Strength | Kgf/cm ² | 16 | 16 | 16 | 16 | 16 |
| 曲折彈性率 Flexural Modulus | Kgf/cm ² | 1500 | 1550 | 1500 | 1500 | 1500 |
| 熱傳導率 Thermal Conductivity | cal/sec.cm.°C | 35×10^{-4} | 35×10^{-4} | 38×10^{-4} | 38×10^{-4} | 38×10^{-4} |
| 體積抵抗率 Volume Resistivity 24小時煮沸後 (after 24 hrs boiling) | Ω -cm | 20×10^{14} | 20×10^{14} | 20×10^{14} | 20×10^{14} | 20×10^{14} |
| 體積抵抗率 Volume Resistivity (at 150°C) | Ω -cm | 5×10^{13} | 5×10^{13} | 5×10^{13} | 5×10^{13} | 5×10^{13} |
| 誘電率 Dielectric Constant (1MHz) | - | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 |
| 誘電正接 Dissipation Factor (1MHz) | - | 0.011 | 0.011 | 0.011 | 0.011 | 0.011 |
| 耐燃性(UL-94) Flammability (UL-94) | - | V-0 | V-0 | V-0 | V-0 | V-0 |
| 游離鈉 Extracted Na ⁺ | ppm | 12 | 12 | 12 | 12 | 12 |
| 游離鹵素 Extracted Halogen | ppm | 45 | 45 | 45 | 45 | 45 |
| 可水解氯 Hydrolyzable Cl ⁻ | ppm | 150 | 150 | 140 | 140 | 140 |
| 備考 Features | | high reliability 高信賴性 | good moldability 成型性良好 | high reliability 高信賴性 | high reliability 高信賴性 | good marking 高印字性 |
| 用途 Uses | | Diode, Tr | Diode, Tr | Bridge, 3-10A Diode | Diode, Tr | Diode, Tr, Coil |

註：Diode：二極體（二極管）

Tr：電晶體（三極管） Transistor

IC：積體電路（Integrated Circuit）

Photo Coupler：光耦合器

| EC-Series | | | | Green Compound | | |
|----------------------|----------------------|----------------------|----------------------|--------------------------|--------------------------|------------------------------------|
| Fused | | | crystal | EME-E110G | EME-E120G | EME-E190 |
| 15 | 15L | 15D | 20 | | | |
| White | White | White | White | Black | Black | Black |
| 80 | 85 | 70 | 100 | 75 | 65 | 56 |
| 27 | 32 | 35 | 33 | 27 | 25 | 43 |
| 1.9×10^{-5} | 1.9×10^{-5} | 1.9×10^{-5} | 2.7×10^{-5} | 1.9×10^{-5} | 2.7×10^{-5} | 2.4×10^{-5} |
| 154 | 154 | 154 | 156 | 150 | 150 | 150 |
| 1.78 | 1.77 | 1.78 | 2.26 | 1.88 | 1.98 | 2.08 |
| 0.29 | 0.29 | 0.29 | 0.36 | 0.30 | 0.30 | 0.20 |
| 14 | 14 | 14 | 13 | 15 | 15 | 17 |
| 1450 | 1350 | 1450 | 1250 | 1450 | 1500 | 1900 |
| 15×10^{-4} | 15×10^{-4} | 14×10^{-4} | 20×10^{-4} | 20×10^{-4} | 29×10^{-4} | 53×10^{-4} |
| 50×10^{14} | 50×10^{14} | 50×10^{14} | 50×10^{14} | 10×10^{14} | 10×10^{14} | 10×10^{14} |
| 10×10^{13} | 10×10^{13} | 10×10^{13} | 10×10^{13} | 5×10^{13} | 5×10^{13} | 5×10^{13} |
| 4.2 | 4.2 | 4.2 | 4.2 | 4.2 | 4.5 | 4.2 |
| 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.011 | 0.010 |
| V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| 3 | 3 | 3 | 80 | 9 | 25 | 14 |
| 40 | 40 | 40 | 100 | 55 | 60 | 55 |
| 100 | 100 | 100 | 100 | 100 | 150 | 150 |
| | | | | high reliability 高信賴性 | high reliability 高信賴性 | high thermal conductivity 高熱傳導性 |
| Photo Coupler | Photo Coupler | Photo Coupler | Photo Coupler | Diode, Tr | Diode, Tr | Diode, Tr, full package Tr |

※ 本表所列數據係代表值，僅供參考。above properties are typical, but not guaranteed.

包裝儲存

Package & Storage



1. 包裝

“SUMIKON” 環氧樹脂成型材料內層用聚乙烯塑膠袋裝，外層為瓦楞紙箱。

粉狀料：20公斤裝 錠粒料：15公斤和17公斤裝

2. 儲存

一般材應保持於10°C以下，Green材0°C以下，並避免放置於潮濕環境或陽光直射地方，儲存時請將塑膠袋封緊。

3. 保存期限

一般材：溫度低於10°C以下，材料保存期限壹年。

Green材：溫度低於0°C以下，材料保存期限壹年。

1. Package

"SUMIKON" epoxy molding compound is packed in carton box with the polyethylene package inside.

Net weight: Power 20Kg; Tablet 15Kg and 17Kg

2. Storage

Conventional EME shall be kept at 10°C; Green EME should be kept at 0°C. The polyethylene bag shall be kept closed. Avoid storing in the places of high humidity and do not expose to the sun.

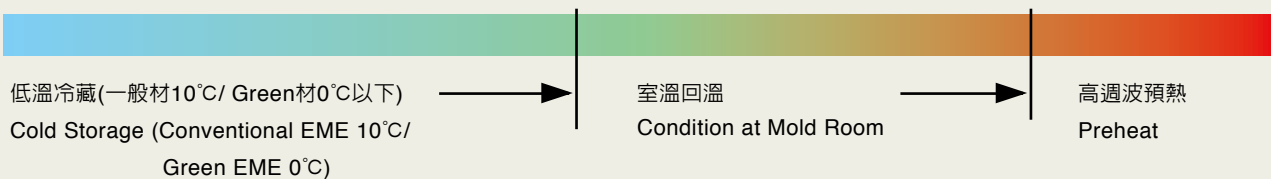
3. Shelf Life

Conventional EME can be stored for one year from the date of production if well kept at 10°C.

Green EME can be stored for one year from the date of production if well kept at 0°C.

回溫

From Storage to Molding



回溫說明：

- (1) 室溫(25°C)16小時以上。
- (2) 維持塑膠袋於密封狀態。
- (3) 回溫後請在24小時內使用完。
- (4) 未用完材料(Green材除外)再儲存時，請將塑膠袋封緊；當材料再次使用時，重複1-3步驟後24小時以內須全部使用完畢。

Temperature Balance

- (1) More than 16 hrs. at around 25°C.
- (2) Keep the polyethylene package closed.
- (3) Use up within 24 hrs.
- (4) Use up re-storage material within 24 hrs. after the said 1 to 3 steps were followed (Conventional EME only).

成型條件

Molding Condition

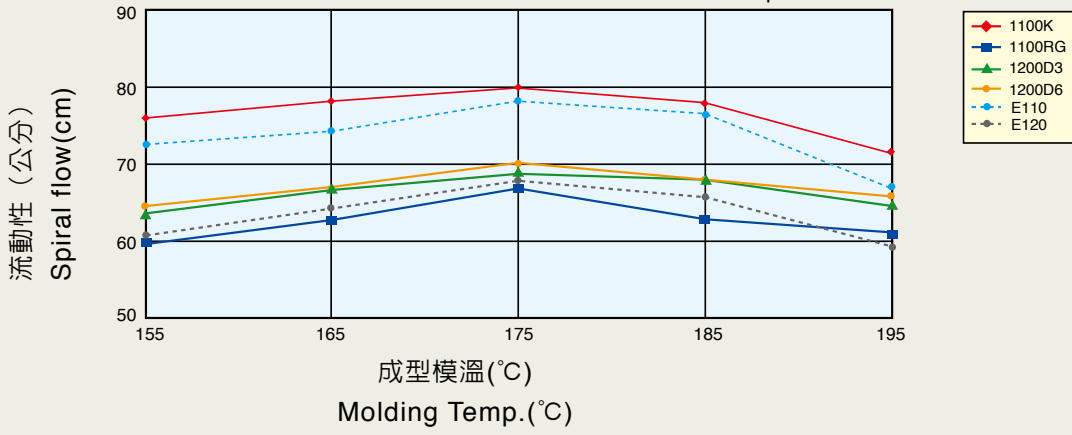
一般尺寸/Conventional Size

| 高週波預熱 Preheat Temperature | 轉進壓力 Transfer Pressure | 硬化時間 Cure Time |
|------------------------------|---------------------------|-----------------------------------|
| 80°C~110°C | 30~100kgf/cm ² | 20~180 sec |
| 模具溫度 Mold Temperature | 轉進時間 Transfer Time | 後硬化(175°C) Post Cure(at 175°C) |
| 160°C~200°C | 20~40 sec | 4~8 hrs |

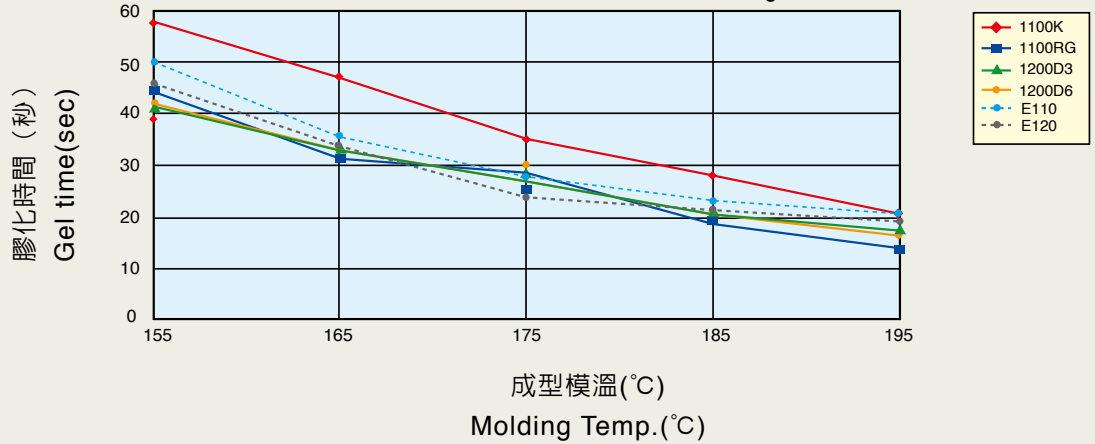
迷你尺寸/Mini Size

| 高週波預熱 Preheat Temperature | 轉進壓力 Transfer Pressure | 硬化時間 Cure Time |
|------------------------------|---------------------------|-----------------------------------|
| — | 30~100kgf/cm ² | 20~80 sec |
| 模具溫度 Mold Temperature | 轉進時間 Transfer Time | 後硬化(175°C) Post Cure(at 175°C) |
| 160°C~200°C | 5~20 sec | 4~8 hrs |

EME-1100/ EME-1200/ EME-E110/ EME-E120系列流動性曲線
EME-1100/ EME-1200/ EME-E110/ EME-E120 Series spiral flow



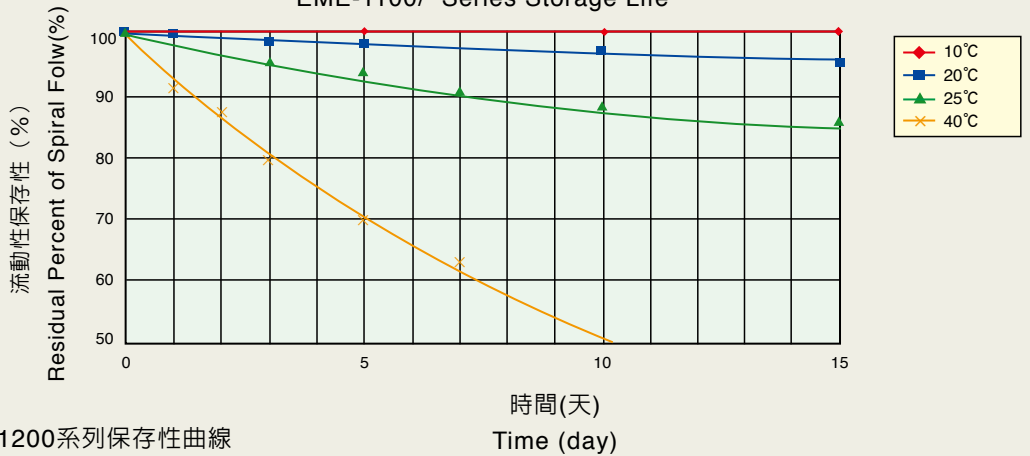
EME-1100/ EME-1200/ EME-E110/ EME-E120系列膠化時間曲線
EME-1100/ EME-1200/ EME-E110/ EME-E120 Series gel time



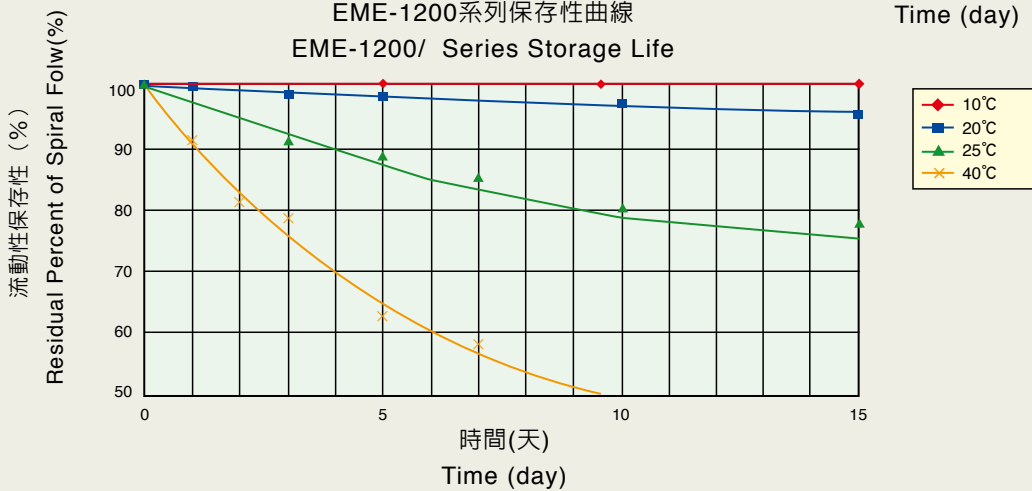
保存曲線

Storage Life

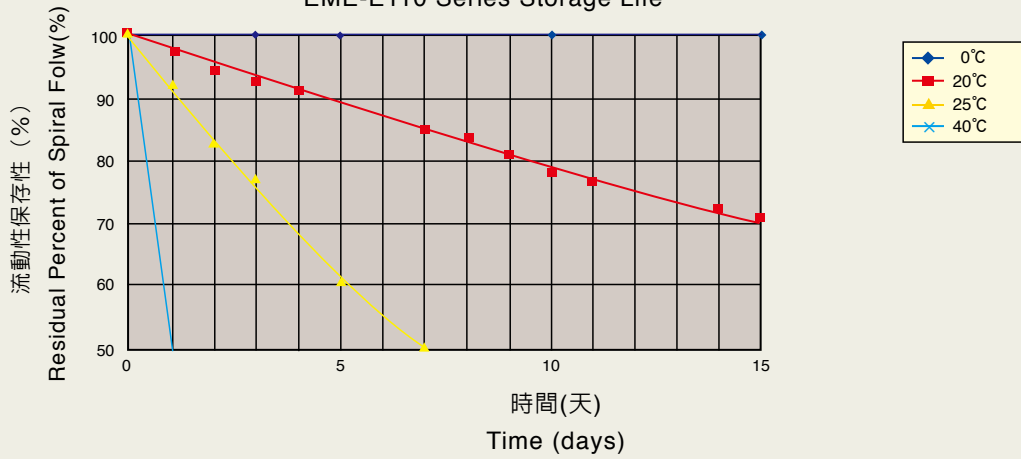
EME-1100系列保存性曲線
EME-1100/ Series Storage Life



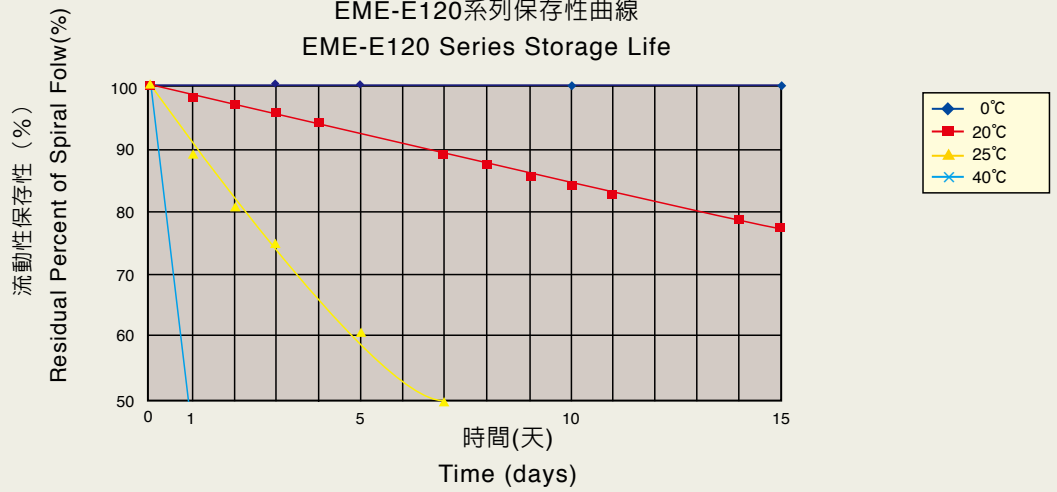
EME-1200系列保存性曲線
EME-1200/ Series Storage Life



EME-E110系列保存性曲線
EME-E110 Series Storage Life



EME-E120系列保存性曲線
EME-E120 Series Storage Life



EME錠粒大小及成型問題排除

EME Tablet size & Trouble-Shooting

1. EME錠粒大小 (EME Tablet Size)

| 種類 Type | 直徑 Diameter | 重量 Weight | |
|------------------------|-------------|--------------|--------------|
| | | 1100 Series | 1200 Series |
| 迷你尺寸 Mini Size | 11mm | 1.5 ~ 3.6 g | 1.7 ~ 4.0 g |
| | 13mm | 2.1 ~ 5.1 g | 2.4 ~ 5.6 g |
| | 14mm | 2.4 ~ 6.3 g | 2.8 ~ 7.1 g |
| | 15mm | 2.8 ~ 7.2 g | 3.2 ~ 8.1 g |
| | 16mm | 3.2 ~ 9.5 g | 3.6 ~ 10.5 g |
| | 18mm | 4.0 ~ 13.5 g | 4.5 ~ 15.0 g |
| 中型尺寸 Middle Size | 20mm | 4.9 ~ 16.7 g | 5.5 ~ 6.3 g |
| | 25mm | 15 ~ 30 g | 15 ~ 35 g |
| 一般尺寸 Conventional Size | 30mm | 20 ~ 40 g | 25 ~ 45 g |
| | 38mm | 30 ~ 70 g | 35 ~ 80 g |
| | 40mm | 35 ~ 80 g | 35 ~ 85 g |
| | 43mm | 40 ~ 90 g | 40 ~ 100 g |
| | 48mm | 45 ~ 115 g | 50 ~ 125 g |
| | 55mm | 60 ~ 150 g | 70 ~ 165 g |
| 58mm | 70 ~ 170 g | 75 ~ 185 g | |

2. 問題排除 Trouble-Shooting

| 成型條件 不良原因 Defects | 模具溫度 Mold Temp. | 轉進壓力 Transfer Press. | 轉進速度 Transfer Speed | 預熱溫度 Pre-heat Temp. | 硬化時間 Cure Time | 其他 Other |
|---------------------------|--------------------|-------------------------|------------------------|------------------------|-------------------|-------------|
| 充填不良 Incomplete Fill | ↘ | ↗ | ↗ | ↘ | — | |
| 氣孔 (口) Void (Gate) | ↘ | ↗ | ↘ | ↘ | — | |
| 氣孔 (末端) Void (End) | — | ↗ | ↗ | ↘ | — | |
| 氣孔 (成品內) Void (Inside) | ↘ | ↗ | ↘ | ↘ | — | |
| 氣膜 Blister | ↗ | — | — | ↗ | ↗ | |
| 沈陷 Dent of Sink | — | ↗ | — | ↗ | — | |
| 硬化不足 Un-cured | ↗ | — | — | ↗ | ↗ | |
| 離型不良 Stick | ↗ | — | — | — | ↗ | 洗模劑 |
| 金線偏移 Wire sweep | ↘ | ↘ | ↘ | ↘ | — | |
| 溢膠 Resin Bleed | ↘ | ↘ | ↘ | ↗ | — | |

Note: ↗ 增加 (Increase) ↘ 減少 (Decrease)

洗模劑 Mold Cleaner



1. MC-261、MC-701

洗模劑 MC-261、MC-701、係熱硬化樹脂，由三聚氰胺樹脂與有機、無機之填充劑配合而成，對於使用環氧樹脂成型材料做半導體，如二極體、電晶體、積體電路等封止成型時，殘留於模具上之污垢具有良好之清除效果，適合轉移成型，而且成型條件與環氧樹脂相同，作業方便，快速省力，效果良好。

一般性質

外觀：白色錠粒

錠粒密度：1.4-1.6 g/ml

流動性：70-140公分 (at 170°C, 70 kgf/cm²)

成型條件

高週波預熱：90-110°C 模具溫度：160-190°C

轉進壓力：30-100 kgf/cm² 轉進時間：20-30 秒

硬化時間：3-5 分鐘

使用方法

- (1) 洗模劑預熱後可改善流動性及清洗效果，預熱溫度 90-110°C。
- (2) 洗模劑係用模擬成型，操作程序與環氧樹脂成型材料完全相同。
- (3) 最適成型條件為模溫175°C，成型時間約3-5分鐘，轉進壓力：30-100 kgf/cm²，硬化時間隨成型品厚度而定，硬化時間適當延長，清洗效果愈佳。
- (4) 檢查成型品及流道是否有充填未滿情形，如有則增加進料量或轉進壓力，變更成型條件等調整之。
- (5) 洗模次數依模具狀況而定，一般每次洗模約5-8模，但當模具相當髒時，則增加到10-15模或更多，將模具沾污徹底清除。
- (6) 使用洗模劑後，最好用離型劑再處理模具，再用Air把殘留的髒東西吹乾淨，並用環氧樹脂成型材料作 2-3模之模擬成型，以免開始生產時發生離型困難。

包裝

洗模劑 MC-261、MC-701：內層用一層聚乙烯塑膠袋封裝，外層為瓦楞紙箱，每箱淨重10公斤。

儲存

- (1) 洗模劑是一種容易吸濕之物質，吸濕後影響作業性及清洗效果。故開封後，請儘快使用完畢，或重新包裝好，避免吸濕。
- (2) 洗模劑為熱硬化性樹脂，在高溫下影響流動性及清洗效果。
- (3) 最好將洗模劑存放在清涼乾燥、溫度不超過30°C之處，可保存六個月，10°C以下可保存一年。

1. MC-261, MC-701

Mold-Cleaner, a thermosetting resin consisting of melamine formaldehyde resin, organic and inorganic fillers, is designed to clean mold stains deposited during molding process for encapsulation of semiconductors, such as interated circuits, transistors, and diodes ect. Cleaning can be accomplished by transfer molding MC-261, MC-701 at the same condition as that of epoxy molding compound. Users may also adjust the molding condition to obtain better effect.

Properties

- Appearance: White tablet
- Tablet density: 1.4-1.6 g/ml
- Sprial Flow: 70-140 cm (at 170°C, 70kgf/cm²)

Molding Condition

- Preheat Temperature: 90-110°C
- Mold Temperature: 160-190°C
- Transfer Pressure: 30-100 kgf/cm²
- Transfer Time: 20-30 sec
- Cure Time: 3-5 min

Procedure for Mold Cleaning

- (1) Preheat cleaner at 90-110°C. The tablet will become soften and give good flow properties.
- (2) Molding procedures are exactly the same as that of epoxy molding compound.
- (3) The optimum condition is set 175°C for 3-5 minutes. Curing time varies with the thickness of packaged items. Transfer pressure range from 30-100 kgf/cm² is suggested.
- (4) Inspect the shot to make sure that all cavities and runners were completely filled. In case of insufficient filling, use more material or increase transfer pressure up to the optimum.
- (5) The number of cleaning shots that required will vary depending upon the condition of the mold. The first 5 to 8 shots will usually suffice. If the mold surfaces are extremely dirty, as many as 10 to 15 shots may be needed to remove all the stains.
- (6) After cleaned with mold cleaner, lightly wax the cleaned mold surface with carnaba wax and blow off any excess with air blast then, 2 to 3 dummy shots of epoxy molding compound are recommended for better releasing property.

Package

MC-261, MC-701 is packed 10 kg net in a carton box with PE bag inside.

Storage

- (1) Mold Cleaner may absorb moisture when exposed to air, cleaning effect may subsequently be influenced. If the package is opened, seal tightly after purpose is over.
- (2) It is advisable to store cleaner in area where temperature is below 30°C.
- (3) If well kept at 30°C, cleaner can be stored for six months. If well kept at 10°C, cleaner can be stored for one year.

Tablet Weight

| Conventional Size (MC-261, MC-701) | | Mini Size (MC-701S) | |
|-------------------------------------|-----------|----------------------|------------|
| 直徑 Diameter | 重量 Weight | 直徑 Diameter | 重量 Weight |
| 40mm | 45g, 50g | 13mm | 2.0g-6.0g |
| 48mm | 66g, 75g | 14mm | 2.5g-7.0g |
| 55mm | 90g, 100g | 16mm | 3.0g-9.0g |
| | | 18mm | 3.5g-11.5g |

2. MC-201T (壓模成型)

MC-201T係由三聚氰胺樹脂(Melamine Resin)與一些有機填充劑所化而成之熱固性樹脂材(Thermosetting Resin)，由於其加壓可塑化的過程中，具有相當強的黏著效果。一般封裝廠常將之與MC-261/262/701搭配使用。對一些封止(Encapsulation)成型時，殘留於模具表面及排氣孔的污垢具有良好的清除效果。

一般特性

- 外觀：白色長方體方塊
- 規格：長73mm×寬38mm×高7mm
- 淨重：20±1g
- 含水量：5.5%以下（曝露於大氣中極易吸濕）
- 密度：0.98~1.08g/cm³
- 包裝：外包装為含浸熟蠟的防水箱，內包裝為PE袋，每5層MC-201T覆蓋一層PE氣泡布，以增強耐衝擊效果，防止運送途中MC-201T破損，每箱淨重10公斤。

操作條件

- 模溫：160-190°C
- 合模壓力：40-100kgf/cm²
- 硬化時間：200秒以下

由於一般電子廠模溫設定於175°C上下，模面大小及Cavity 深淺不一，以上成型條件僅供電子廠清模時使用MC-201T各批號間用量之參考依據。

使用方法及注意事項

- (1) 清模時將MC-201T排列於模面，合模加壓即可，亦可先覆蓋一層紗布於模面再排列MC-201T，由於MC-201T硬化時間較MC-261短且排列於模面後受熱即開始變化，因此廠商可嘗試將硬化時間縮短（約200sec甚至更短）。
- (2) MC-201T極易吸濕受潮，因此每次清模完畢，請將包裝袋立刻重新密封，以免產生變異。
- (3) 請將MC-201T儲存於清涼乾燥處，最好是具有空調設備的場所，溫度維持在30°C以下，並於六個月內使用完畢。

2. MC-201T(Compression Type)

"MC-201T," a thermosetting resin consisting of melamine formaldehyde resin, organic and inorganic fillers, can remove mold stains by directly placing it on the cavities and particle lines and be clamped by molding pressure without preheating. It will remove substances deposited on cavities, surface of mold, and particle lines out of the mold. If use with MC-261/262/701, it will have better mold cleaning efficiency.

Physical Properties

- Appearance: White rectangle
- Rectangular Size:
Length 73 mm × Width 38 mm × Height 7 mm
- Weight: 20g±1g
- Moisture: 5.5% max.
- Tablet Density: 0.98-1.08g/cm³
- Package: MC-201T is packed 10 kg in Waterproof paper box, because it is fragile, we use PE cloth to protect tablet in the box.

Molding Condition

- Mold Temperature: 160-190°C
- Mold pressure: 40-100kgf/cm²
- Cure Time: Below 200 sec.

Storage

MC-201T is very sensitivity to moisture, and has unfavourable effect once exposed to high temperature. MC-201T is stable for about 6 months at around 30°C under a aircondition room.

離型劑 Releasing Agent

1. 一般特性/Typical Data

| 項目 Item | 單位 Unit | 種類 / Type | | | Green Material | |
|---------------------|------------|-----------|--------|--------|----------------|--------|
| | | ER-100 | ER-200 | ER-300 | ER-110 | ER-120 |
| 顏色 Color | | Gray | Gray | White | Gray | Gray |
| 流動性 Spiral Flow | cm | 116 | 105 | 75 | 110 | 110 |
| 膠化時間 Gel Time | sec | 33 | 26 | 35 | 30 | 28 |
| 比重 Specific Gravity | - | 1.87 | 2.04 | 1.78 | 1.81 | 2.0 |

2. 成型條件/Molding Condition

| | |
|---------------------------|----------------------------|
| 高週波預熱 Preheat Temperature | 80- 110°C |
| 模具溫度 Mold Temperature | 165-200°C |
| 轉進壓力 Transfer Pressure | 30-100 kgf/cm ² |
| 轉進時間 Transfer Time | 10-30sec |
| 硬化時間 Cure Time | 60-180 sec |



3. 儲存

- 離型劑為一種容易吸濕之物質，吸濕後影響作業性及離型效果，故開封前請經回溫過程，並於開封後儘快使用完畢，或重新包裝好，以避免吸濕。
- 最好將離型劑存放在10°C以下(一般材) 以及0°C以下 (Green材) 之處，並避免冷凝水滲入離型劑成品袋中。



3. Storage

- Releasing agent may absorb moisture when exposed to air, and releasing effect may subsequently be influenced. If the package is opened, seal tightly after purpose is over.
- It is advisable to store releasing agent in area where temperature is below 10°C (for conventional type) and 0°C (for green type), and avoid coagulating water penetrating into package.

CERTIFICAT



CERTIFICATE

N° TS/2006/27347

N° IATF : 0033735

CHANG CHUN PLASTICS CO., LTD.

DESIGN, MANUFACTURE AND SALE OF EPOXY MOLDING COMPOUNDS.

No. 8, Chung Hua Road, Hsin Chu Industrial District, Hsin-Chu Hsien TAIWAN R.O.C
7F, N°. 301, Songkiang Road, Taipei City TAIWAN R.O.C.

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AFAQ AFNOR Certification certifies that all the arrangements covering the above mentioned activities and locations are established to meet the requirements of technical specification:

ISO/TS 16949 : 2002

Chapitre de l'ISO/TS 16949 : 2002 non applicable :
The non applicable chapter of the ISO/TS 16949 : 2002:

7.3

(L'exclusion de la conception des processus de fabrication n'est pas autorisée)
(The exclusion of the manufacturing process design is not permitted)

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This certificate, delivered under AFAQ AFNOR Certification rules, is valid from:

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It is valid until*

2009-08-20

(year/month/day)

Le Directeur Général Délégué d'AFAQ AFNOR Certification
The Executive Managing Director of AFAQ AFNOR Certification

Le Représentant de l'Entreprise
On Behalf of the Firm

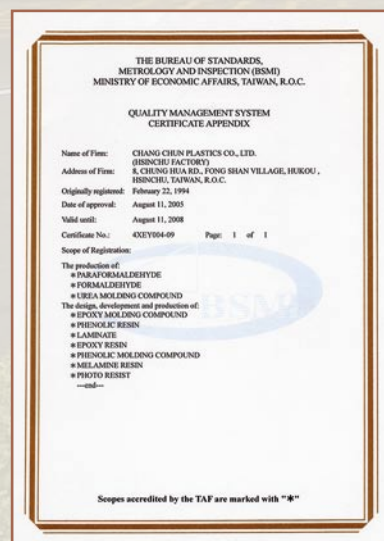
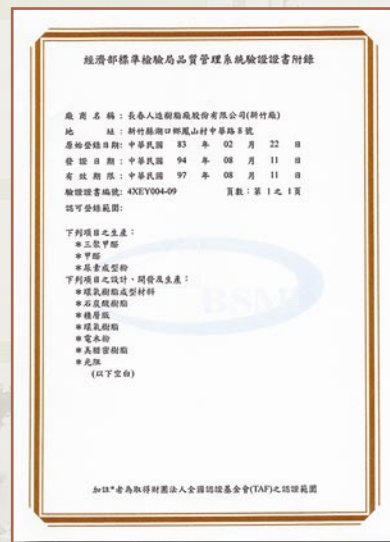
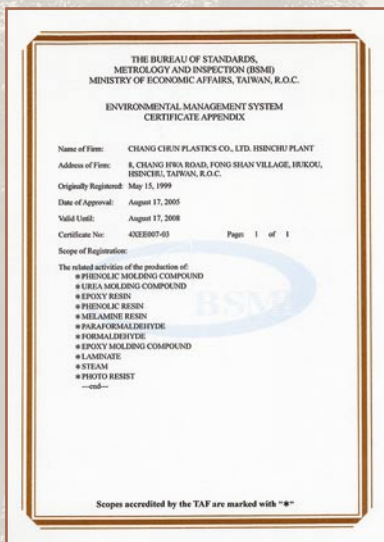
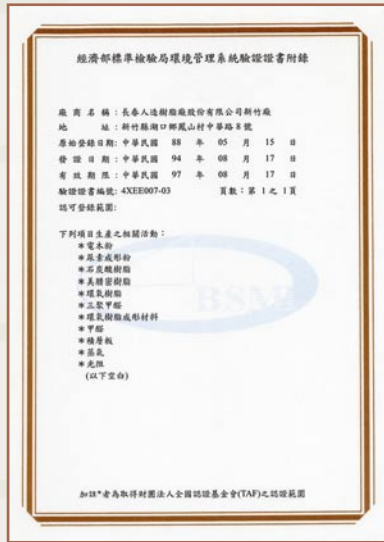


J. BESLIN

BING-LU PENG

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UL CERTIFICATION

QMFZ2.E59481-Plastics Component

CHANG AHUN PLASTICS CO LTD
7TH/FL 301 SONG-KIANG RD, TAIPEI TAIWAN

E59481

| Mtl Dsg | Color | Min. | | H W I | H A I | RTI | | H V T R | D 4 9 5 | C T I | |
|---|-------|-----------|-------|-------------|-------------|------|------|------------------|------------------|-------------|-----|
| | | Thk | Flame | | | Elec | Mech | | | | |
| | | mm | Class | | | | Imp | | | | Str |
| EPOxy Molding Compound (EP-Molding), "LONGLITE", furnished as granular pellets. | | | | | | | | | | | |
| EC-15 | ALL | 0.83/only | V-0 | - | - | 130 | 130 | 130 | | | |
| EC-20 | WT | 0.8 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 1.6 | V-0 | - | - | 130 | 130 | 130 | | | |
| EPOxy Molding Compound (EP-Molding), "SUMIKON", furnished as granular pellets. | | | | | | | | | | | |
| EME-1100 | BK | 0.36 | V-0 | - | - | 130 | 130 | 130 | | 2 | |
| | | 0.84 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 6.0 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-1200 | BK | 0.37 | V-0 | - | - | 130 | 130 | 130 | | 2 | |
| | | 0.84 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 6.0 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-2100 | BK | 0.36 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 0.82 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 6.0 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-2500 | BK | 0.37 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 0.81 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 6.0 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-E110 | BK | 0.82/only | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-E120 | BK | 0.83/only | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-220 | BK | 0.38/only | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-5000 | BK | 0.38/only | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-5961 | BK | 0.3 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-5051 | BK | 0.80 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 3.0 | V-0 | - | - | 130 | 130 | 130 | | | |
| EME-5500 | BK | 0.80 | V-0 | - | - | 130 | 130 | 130 | | | |
| | | 3.0 | V-0 | - | - | 130 | 130 | 130 | | | |