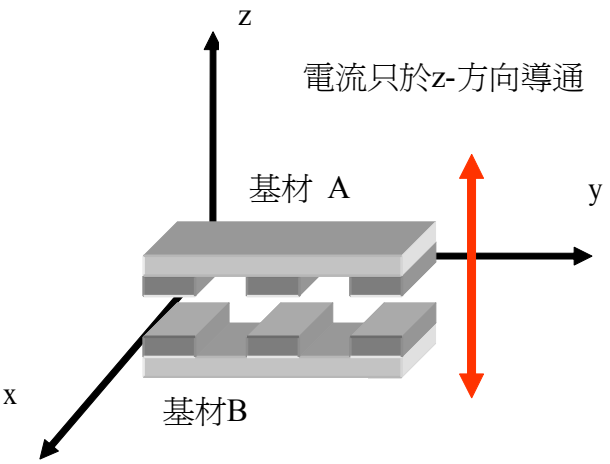
ACF (Anisotropic Conductive Film)

異方性導電膠膜 - ACF10 產品特色

ACF10 爲一異方性導電膠膜。 它與一般市售 ACF 產品之最大不同之處在於其**低溫**操作的特性。預貼及熱壓皆可以 60°C 完成。且接著後之電性阻抗低，



穩定性高，可耐高溫、高溼及回焊。

此產品於垂直塗膜方向 (z- direction) 具有導電性，但是在塗膜方向 (x & y direction) 卻具有電絕緣性，可使用於精密排線之聯接。

此產品實現了冷組裝的理想，使得電子產品的電性連結不需僅依靠高溫焊錫，由於高溫焊錫對所有的有機材質而言都會產生傷害，如果避免，則電子產品的精密度及生產良率都有機會大提升。無需高溫焊錫時，也會使得電子產品的材料選擇更爲多元化，可讓夢想中的可撓式電子產品成爲事實。

此產品的另外一大優點，就是它提供了一種軟質的電性連結。相較於硬質的焊錫連結而言，它是一種更爲可靠的電性連結模式。這是因爲電子產品在運作時，往往會生熱而造成溫升，於關閉時又會溫降，電子元件事實上是處於不斷重覆的溫度變化環境之中的。而電子元件也會因這樣的溫度變化，而產生一些脹縮現象，由於不同的元件對於溫度變化的脹縮反應不會一致，因此便會於焊接界面因兩焊接物的脹縮不一樣而產生應力，這個應力如果無法得以適度舒解，最初就只有靠扯斷焊錫點而終結了。這樣的問題在現今的電子產品發展趨勢之下，也就是組裝

日趨精密，焊點變得更密、更細的狀況下，尤其容易產生。軟質的導電膠著雖然不像焊錫那樣具有很高的機械強度，但它對於緩解界面應力卻極爲有效，也因此可以使得電子組裝具有更佳的使用信賴性。

此產品之操作極爲簡易，設備只需使用恆溫 hot-bar 機。操作時，先以 60℃ x 2 秒鐘進行預貼，之後再以 60℃ x 4 秒鐘或是 90℃ x 2 秒鐘進行熱壓即可。

熱壓後，可藉由室溫存放，使樹脂得以緩慢而持續的進行分子鍵結反應，其接著強度可隨之逐漸增加。亦可以 90°C x 30 分鐘作後熟化反應，使其接著強度可迅速加強。

此產品符合 RoHS & Halogen-free 規範，且不含 PFOS & PFOA。

Product Specifications

Color	Grayish
Film thickness	25 μm
Applications	Touch panel assembly
Conductive particles	Non-spherical filamentary nickel particles composed of primary and secondary particles. The size of secondary particles ranges from 2 to 10 μm.
Minimum line spacing	25 μm
Pre-lamination	60°C x 0.1 MPa x 2 seconds
Lamination	60°C x 0.1 MPa x 4-8 seconds; or 90°C x 0.1 MPa x 2-4 seconds
Post-curing (optional)	90°C x 30 minutes (for temperature resistance up to 150°C) ; or 90°C x 30 minutes⇨150°C x 30 minutes (for temperature resistance up to 300°C)
Expiration	3 months after manufacturing; stored @ < -15°C.

ACF10 物性

測試	結果	測試規範
Contact resistivity	< 1 $\mu\Omega\cdot m^2$	Hot-bar @ 60°C x 1 MPa x 8 seconds Using 2-mil / 2-mil PCB & FPCB test boards.
Peel strength	> 0.7 kg/cm	90°-peel Adhesive @ 25 μm; Cu to Cu
Thermal aging @ 90°C x 96 hours	Average contact resistivity < 1 $\mu\Omega\cdot m^2$	Pre-laminate @ 60°C x 1 MPa x 2 seconds Hot-bar @ 60°C x 1 MPa x 8 seconds
Solder reflow resistance @ 300°C x 5 minutes	Average contact resistivity < 1 $\mu\Omega\cdot m^2$	Post-cured @ 90°C x 30 minutes ⇨150°C x 30 minutes
Thermal shock	Average contact resistivity < 1 $\mu\Omega\cdot m^2$	[90°C-1hr⇨-20°C x 1hr] for 10 cycles
Water resistance	Average contact resistivity < 1 $\mu\Omega\cdot m^2$	In water @ 80°C x 8 hours
Moisture absorption	< 0.3%	IPC-TM-650 2.6.2.1

Material Safety Data Sheet

Teamchem Company

Date of issue: October 20, 2009

Product Identity

Trade name: ACF10

1. Identification of the product and of the company.

Product name:	ACF10
Company name:	Teamchem Company
Address:	No.14, Lane 276, Yongfeng Rd.,
	Barder City, Taoyuan County, Taiwan
Emergency phone:	+886-3375-8654
Preparer:	Todd Yeh

2. Composition/information on ingredients

Ingredient Name	CAS Number	Percent
Modified epoxy resin & Hardener	Trade secret	<85
Nickel Powder	7440-02-0	<15
Silica	112945-52-5	<4
Miscellaneous additives	Trade secret	<2

All ingredients comply with applicable rules or orders under TSCA.

Weight percents listed above are within 5% of the actual value.

3. Hazards identification

Not hazardous.

4. First aid measures

No special measures.

5. Fire fighting measures

Extinguishing media:

Dry chemical, CO_2, foam, water spray

Special advice in case of fire:

Firefighters should wear self-contained breathing apparatus and eye protection in fighting significant fires in which this material is involved.

6. Accidental release measures

No special measures.

7. Handling and storage

Handling:

No special measures

Storage:

It should be stored in a refrigerated environment (< -10°C).

8. Exposure controls and personal protection

No special measures.

9. Physical and chemical properties

*Flash point: >100℃(Seta flash Closed Cup)

*Solubility in water: insoluble

10. Stability and reactivity

Stability:

This product is stable under ambient condition.

Conditions to avoid:

Heat, sunlight.

Materials to avoid:

Acids, alkalines, amines, peroxides, oxidizing agents.

11. Toxicological information

Species	Route	Exposure and Dose
Modified epoxy resin & Hardener	oral-rat	LD50>4,000 mg/kg

12. Ecological information

No data.

13. Disposal considerations

*Local regulations should be adhered to.

*Disposal of empty containers.

14. Transport information

General information: It should be stored in a refrigerated environment.

UN harmful class: None

UN package category: None

15. Regulatory information

None

16. Other information

This product should be stored, handled and used in accordance with good industrial hygiene practices and in conformity with legal regulation.

The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should therefore not be construed as guaranteeing specific properties.