Thinner for AR resist

For adjusting the film thickness of photoresists and e-beam resists

Thinner Product Brief 產品說明

稀釋劑是由高純度有機溶劑混合組成，主要用於調整阻劑膜厚。各類型阻劑經由旋轉參數控制所需厚度；如果調薄參數已達設備極限，可經由稀釋阻劑完成調整目的。
除了調整厚度，產品亦可當洗邊劑及相關設備清潔用途。
目前系列產品編號有:
AR 300-12
AR 600-02 / AR 600-07 / AR 600-09
X AR 300-74/1
稀釋劑產品各有其對應的阻劑應用，細節請參考下一頁。

Characterization 產品特性

- ultra-filtered, colourless, high-purity organic solvent mixtures
  無色,高純度,過濾過的混合有機溶劑
- adjustment of resist film thickness by defined dilution
  依計算稀釋以調整適當的膜厚
- edge bead removal of coated substrates as well as cleaning of equipment
  可當作洗邊劑及相關設備清潔使用
- AR 300-12 as removal of photoresist films tempered at up to 150 °C and of non-tempered e-beam resist films
- AR 300-12 可當作光阻加溫低於150°C的去除劑,或是未加溫EBL阻劑的去除劑

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AR Thinner family – properties and application

✏ 價格詢問 ✏ 其它諮詢	AR thinner				
Properties	AR 300-12	AR 600-02	AR 600-07	AR 600-09	X AR 300-74/1
Main components 主要成分	PGMEA	anisole	methoxypropanol	ethyl lactate	Ethylbenzene
Density at 20°C (g/cm^3) 密度	0.970	0.990	0.960	1.036	
Refractive index at 20°C折射率	1.402	1.517	1.403	1.413	
Water content max.最大含水量	0.1 %				
Non-volatiles max. 非揮發成份	20 ppm				
Flash point (°C) 閃火點	42	44	38	46	15
Filtration 過濾規格(um)	0.2				
Production status生產排程	routine				
Lead time 交期 （週)	2 – 4				
Product packing 產品包裝	2.5 L/瓶	1 L/瓶	1 L/瓶	1 L/瓶	1 L/瓶
Storage 6 months 儲存溫度(°C)	10 - 22				
GHS label GHS標識	📎 GHS標識	📎 GHS標識	📎 GHS標識	📎 GHS標識	📎 GHS標識
Suitable for AR photoresist 適用的光阻	AR-P 3000 series AR-N 4000 series AR-P 5000 series	- -	- -	- -	
Suitable for AR EBL resist 適用的電子束微影阻劑	AR-P 6510 AR-P 7000	AR-P 632/642/662 672/6200	AR-P 617	AR-P 639/649 669/679	SX AR-PC 5000/41

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Dilution application 稀釋程序:

Dilution is performed as follows:依下列程序進行稀釋:

1. placing of defined amount of resist,置入需要的阻劑數量
2. addition of defined amount of thinner,加入需要的稀釋劑數量
3. homogenisation by stirring (both liquids should be mixed quickly), and快速的將兩種液體攪拌均勻
4. fine filtration (0.2 µm).過濾 (規格: 0.2 um)

Information on dilution 稀釋相關資訊:

Higher dilutions of resists may cause gel formation of the polymers which leads to particle deposition in the resist film during the coating step. Diluted resists should therefore be subjected to ultra-filtration (0.2 µm) prior to use. In most cases it is more advantageous to adjust the desired film thickness by varying the spin speed or to utilize a pre- adjusted resist. Special adjustments of thickness values are possible on request for an additional charge.

稀釋阻劑可能形成高分子的膠狀物, 導致塗布時型成顆粒沈積. 建議使用前以0.2um規格過濾.
一般而言,建議以塗布轉速調整膜厚, 或者由原廠事先調好需要的濃度/黏度.
原廠可依需求調整給使用者.

Formula for dilutions 稀釋計算式:

Example: Starting with a resist with 35 % solids content (AR-P 3510), a solids content of 31 % is desired. Requested is the amount of thinner AR 300-12 in g which has to be added to 100 g resist with 35 % solids content (mass m in g, solids content c /100).

$$m\ thinner = \frac{m\ resist(c\ resist - c\ desired)}{c\ desired} = \frac{100.0\ g \times (0.35\ \ - 0.31)}{0.31} = 12.9\ g\ thinner$$

If 100.0 g resist (35 % solids content = AR-P 3510) are diluted with 12.9 g thinner in defined manner, 112.9 g diluted resist (31 % solids content = AR-P 3540) will be obtained.
With this dilution, the film thickness is reduced from 2.0 to 1.4 µm at a spin speed of 4000 rpm.
範例: 以AR 300-12稀釋劑將固型份35%的光阻AR-P 3510稀釋至固型份31%. 加入的AR 300-12 thinner以g表示, 加入100g的AR-P 3510中. 計算式如上.
100g的AR-P 3510以12.9g的稀釋液加入, 可得固型份31%的稀釋光阻. 約當產品AR-P 3540, 固型份31%