

# ESC 784

## Surface preparation products (SPP)

ESC 784 is a cost-effective cleaning product specially developed for cleaning hydrophobic surfaces in copper integration processing. This cleaning solution utilizes a high-pH formulation that removes contaminants generated by CMP processing, while preventing corrosion of copper substrates. ESC 784 excels at organic residue removal and also prevents watermark defects.

Because ESC 784 is formulated as an aqueous solution, it is easily diluted for use, which contributes to an overall low cost of ownership and offers versatility. While ESC 784 has demonstrated excellent capability for CMP cleans, it is also effective for a variety of other cleans applications for copper integration processing.

ESC 784 is available in 5-gallon and 55-gallon HDPE drums. Smaller sizes may be available upon request.

### ESC 784 Cleaning Mechanisms

- Produces a unique detergency-like action that results in exceptional cleaning of organic residue
- Incorporates metal complexing capability for effective removal of copper contamination and trace metals
- High-pH chemistry creates zeta potential characteristics that enhance cleaning action and prevent brush loading
- Removes and prevents watermarks

ESC 784 is also effective at removing copper and copper oxide contamination from CMP pads. Use of ESC 784 extends the lifetime of CMP pads by removing the residue built up during volume manufacturing. ESC 784 helps to ensure consistent pad performance over the life of the pad.

### Primary Application: ESC 784

- Post-Cu CMP cleans



### Other Applications: ESC 700 Series

- Dielectric CMP cleans
- Pre-deposition cleans
- Polysilicon CMP cleans
- Backside metal and particle removal
- Cu and barrier CMP pad cleaning and conditioning

### FEATURES & BENEFITS

- Removes copper contamination from dielectric surfaces
- Excellent Cu corrosion prevention
- Very low Cu surface roughness
- Compatible with TEOS and low- $\kappa$  films
- Very cost-effective, used diluted  $\geq 50:1$
- Effective at ambient temperature
- Easily rinsed with DI water
- Demonstrated improvements in TDDB and electromigration
- Global technical applications support

## MATERIAL COMPATIBILITY

High-density polyethylene (HDPE), PFA, polypropylene, 316L stainless steel, quartz, and Teflon® (PTFE), are normally suitable materials of construction. Diluted ESC 784 is compatible with PVA brushes.

## HANDLING AND STORAGE

Before using this product, read the MSDS, as well as the ESC 784 Instructions for Use and Evaluation document.

For ESC 784 applications, customized recipes may be needed to meet application-specific requirements. Contact Entegris' technical personnel for assistance in adjusting process variables (time, pressure, rpm, dilution, etc.). Adjusting these variables can optimize performance and cost of ownership.

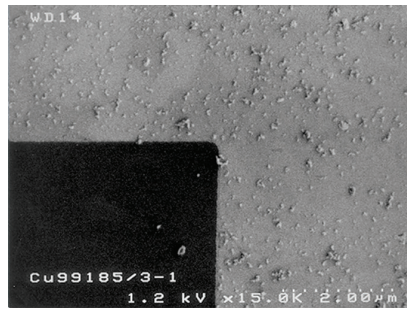
## SPECIFICATIONS

ESC 784 is typically used at ambient temperature, with on-wafer dilution of  $\geq 50:1$  as follows:

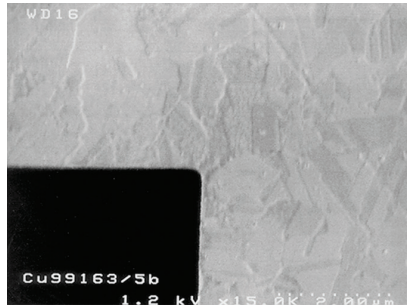
Equipment*	ESC 784	DI water rinse
Single-wafer, no contact	30–60 sec**	30–60 sec**
Single-wafer contact (scrubber)	30–40 sec	30–40 sec
Batch immersion	2–5 min	3–5 min

\*Chemical delivery system requires pressurized inert gas (N<sub>2</sub>) blanketing.

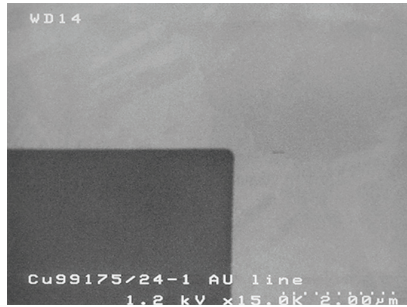
\*\*Megasonics recommended.



Untreated with contamination on Cu and dielectric.



Treated with formulation showing Cu roughening.



Treated with ESC Clean showing no contamination and no roughening.

## FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](http://entegris.com) and select the Contact Us link to find the customer service center nearest you.

## TERMS AND CONDITIONS OF SALE

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, visit [entegris.com](http://entegris.com) and select the Terms & Conditions link in the footer.



Corporate Headquarters  
129 Concord Road  
Billerica, MA 01821  
USA

Customer Service  
Tel +1 952 556 4181  
Fax +1 952 556 8022  
Toll Free 800 394 4083

Entegris®, the Entegris Rings Design™ and Pure Advantage™ are trademarks of Entegris, Inc. Teflon® is a registered trademark of The Chemours Company.

©2004-2017 Entegris, Inc. | All rights reserved. | Printed in the USA | 7223-7843ENT-0717