

ST-44

Positive resist stripper

ST-44 positive resist stripper is the first positive photoresist stripper specifically formulated from organic solvent blends to be effective in removing hard-to-strip positive photoresists from metal and metal alloy surfaces — surfaces that are sensitive to corrosion from electrolytic or galvanic effects. In use, ST-44 is effective in stripping positive photoresists from 100% copper layers without corrosion effects.

ST-44 positive resist stripper is effective in stripping:

- Plasma-hardened positive photoresist
- Positive photoresist cured using high temperature baking, up to 180°C (356°F)
- Deep UV-treated positive photoresist
- Ion implanted positive photoresist

ST-44 is completely water soluble; contains no phenols, no chlorinated hydrocarbons, or other toxic materials. In addition, ST-44 is formulated for ease of disposal.

BENEFITS

- Contains no phenols or chlorinated hydrocarbons
- Strips hard-to-remove positive photoresist
- Non-corrosive to copper films and most copper alloys
- Water soluble
- Low in metal ions
- Low in particles

BATH MAKE-UP

ST-44 positive resist stripper is supplied as a ready-to-use solution. A two-bath system is recommended; the first bath to remove the bulk of the photoresist, and the second to remove any remaining traces of the resist.

PROCESS

ST-44 process times and temperature may vary depending upon the photoresist processing history. The steps below outline a typical process for its use. Customers should, however, consult with Entegris technical personnel for process requirements specific to their application.

Set-up for a One Bath System

1. Heat one bath of ST-44 according to the following recommendations:

Resist bake temperature	ST-44 bath temperature
Up to 135°C (275°F)	Ambient to 100°C (212°F)
135° – 150°C (275° – 302°F)	60° – 100°C (140° – 212°F)
150° – 180°C (302° – 356°F)	85° – 100°C (185° – 212°F)
Above 180°C (356°F)	100° – 125°C (212° – 257°F)

2. Immerse dry wafers into the ST-44 and mildly agitate for 10 – 15 minutes.

NOTE: Always load dry wafers into the ST-44 as moisture may decrease its effectiveness or cause metal corrosion.

3. Transfer wafers to a DI water rinser for 15 minutes.
4. Spin rinse dry the wafers.

Set-up for a Two Bath System

1. Heat two baths of ST-44 according to the temperature recommendations given above.
2. Immerse dry wafers into the first bath and mildly agitate for 5 – 10 minutes.
3. Transfer the wafers to second bath of ST-44 and mildly agitate for 5 – 10 minutes.
4. Transfer wafers to a DI water rinser for 15 minutes.
5. Spin rinse dry the wafers.

ST-44 is also effective in automatic strip equipment. In these systems, ST-44 should not be heated above the equipment manufacturer's maximum recommendation. Typically, in automatic spray equipment, ST-44 is used at a temperature 10° – 15°C (50° – 59°F) lower than the recommended temperature for a bath system.

BATH LIFE

ST-44 positive resist stripper will clean a minimum of 1,500 5-inch wafers with 1.5 microns of resist when using a two-bath system. This number may vary depending upon resist thickness, thermal history, pre-treatment (Deep UV, ion implant, etc.), and bath temperature. ST-44 should be changed every eight hours or when the stripping effectiveness begins to degrade.

ST-44 should always be kept free of water to avoid a decrease in stripping effectiveness and attack of metal layers.

QUALITY CONTROL

ST-44 is manufactured utilizing strict quality controls to maintain Entegris' high standards and to ensure batch-to-batch consistency.

STORAGE AND HANDLING

ST-44 has a shelf life of one year from date of manufacture if stored in its original, unopened container at 10° – 32°C (50° – 90°F), out of direct sunlight. Refer to Entegris' material safety data sheet for additional precautions on storage and handling.

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit 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 and select the Terms & Conditions link in the footer.

EQUIPMENT COMPATIBILITY

CAUTION: ST-44 will attack many plastic materials used in piping and other process equipment. The chart below should serve as a guide for selecting materials compatible with its use. For information on materials not listed, contact Entegris' technical staff.

Incompatible Materials

BUNA-N rubber	Neoprene	Polyacrylate
PVDC	Hypalon®	CPVC
PVC	Tygon® (some types)	Acrylics
Viton®-A	Polyurethane	

Compatible Materials

Teflon® (PTFE)	Pyrex®	Quartz	PVDF
316 Stainless steel	Kalrez®	PFA	

DISPOSAL

All waste materials must be disposed of in accordance with local, state, and federal regulations. Refer to Entegris' material safety data sheet for additional data.



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