



# SHIPLEY

## MICROPOSIT<sup>®</sup> REMOVER 1165

MICROPOSIT REMOVER 1165 is a mixture of pure organic solvents specifically formulated to remove all Shibley MICROPOSIT and MEGAPOSIT<sup>®</sup> PHOTORESISTS. It is particularly recommended for use in applications where the photoresist has seen high temperatures, strong etchants, or other harsh processing conditions.

### MICROPOSIT REMOVER 1165 FEATURES:

#### Extended Bath Life

- High bath capacity
- Low bath evaporation rate
- High solvent boiling point

#### Substrate Compatibility

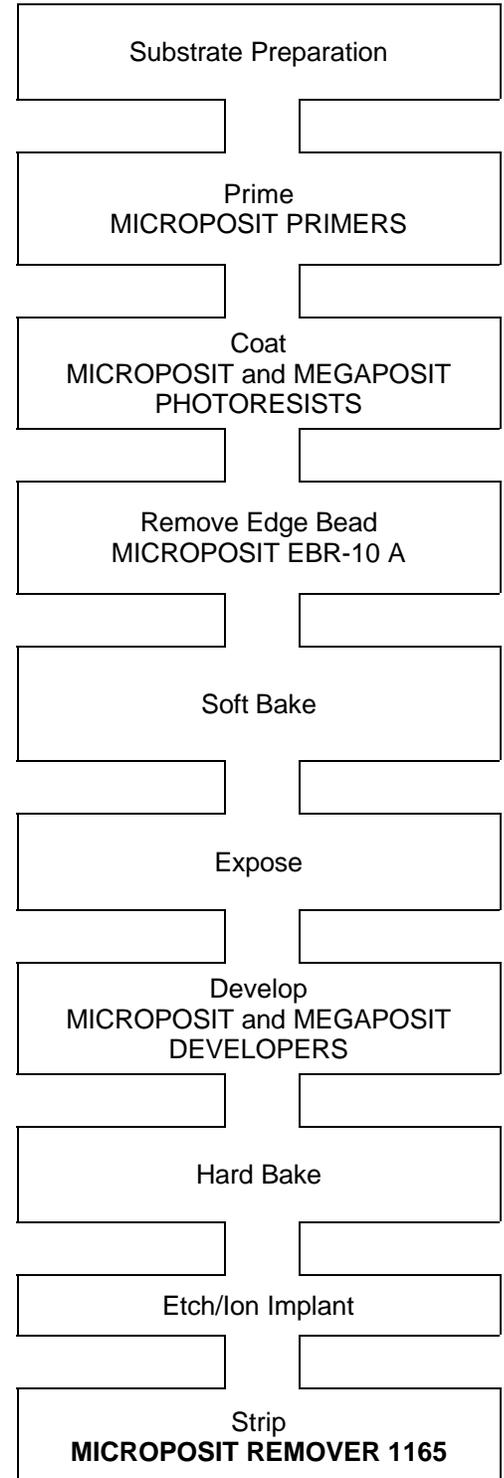
- No attack on most common substrate materials
- Improved end product reliability
- Metal-Ion-Free
- Neutral pH

#### Ease of Operation

- Rinses completely in water
- Room temperature bath operation for photoresist mask rework

#### Environmental and Health Advantages

- Compatible with current waste treatment principles
- Cellosolve<sup>1</sup> acetate, xylene and acetone free
- No phenols, phosphates, fluorides, chromates, or chlorinated hydrocarbons



<sup>1</sup>Registered Trademark of Union Carbide Corporation

# Instructions For Use

## I. Bath Make-up

MICROPOSIT REMOVER 1165 is supplied as a ready to use solution. Do not dilute. A two-bath system is recommended: the first bath to remove the bulk of the photoresist, the second bath to remove any remaining traces of photoresist.

## II. Temperature

The recommended operating temperature depends on the thermal processing history of the photoresist. For resist hard bake processing which does not exceed 130°C, room-temperature bath operation has been found adequate in most cases. With hard bakes up to 160°C, 80°C bath operation will remove one micron of MICROPOSIT S1400® PHOTO RESIST in less than five minutes in most instances. Refer to **Figure 1**.

For hard bakes up to, but not exceeding 180°C, the same photoresist film is usually stripped in less than ten minutes.

MICROPOSIT REMOVER 1165 may be used at higher operating temperatures with caution.

Any stripping operation at temperatures above 80°C should be permitted only in suitable protected equipment and work areas. Sparks and flames must be avoided in the work area. A well-ventilated hood, designed and operated according to National Fire Prevention Association (NFPA) standards for flammable vapors, is essential.

All electrical controls which are potential spark sources should be remote or nonsparking, (i.e. hermetically sealed switches) or adequately purged with an inert gas, such as nitrogen.

To avoid undetected excessive operating temperatures, visual temperature read-outs and upper-limit temperature switches can be employed on the stripping tank heating system.

NOTE: Users should consult equipment suppliers and their own Safety Department as to the safest method of heating.

## III. Time

Immerse substrates for five to ten minutes in each bath of a two-bath system (actual removal time and rate determined by thermal processing history).

## IV. Agitation

Good mechanical agitation of substrates is recommended to allow physical transport of dissolved photoresist away from the substrate. If agitation is impractical, an isopropyl alcohol rinse may be necessary to avoid potential scumming.

## V. Rinse

Cascade rinse with deionized water, followed by drying in a rinser/dryer is recommended for best processing results.

## VI. Bath Control

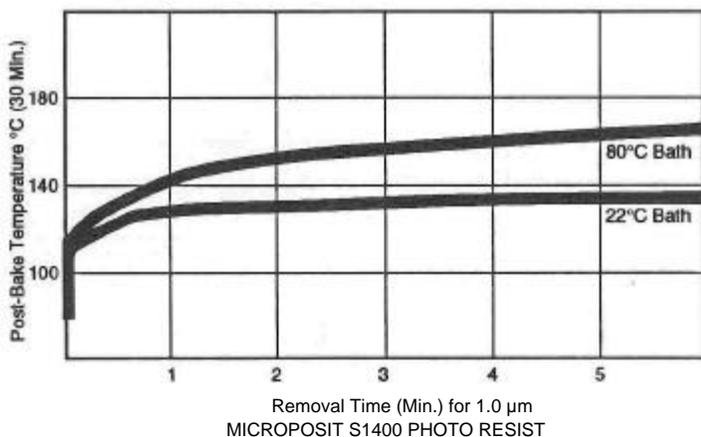
Replace baths with fresh solution if stripping time becomes excessive. Bath capacity is typically greater than 3,000 four-inch wafers coated with 2.1µm MICROPOSIT S1400 PHOTO RESIST per gallon of MICROPOSIT REMOVER 1165.

The REMOVER is compatible with the following materials:

Aluminum	Polysilicon
Chrome	Silicon
Copper	Silicon Oxide
Gallium Arsenide	Silicon Nitride
Gold	Silver
Indium Oxide	Stainless Steel
Titanium	Tantalum Nitride

**Figure 1**

EFFECT OF POST-BAKE TEMPERATURE ON RATE OF PHOTORESIST REMOVAL WITH REMOVER 1165



**CAUTION!** Since the flash point of MICROPOSIT REMOVER 1165 is 88°C, closed cup, it may be used at temperatures up to approximately 80°C using routine cautions pertaining to combustible liquids. If MICROPOSIT REMOVER 1165 is used at an operating temperature in excess of 80°C, a covered stripping tank equipped for use with combustible materials should be used. MICROPOSIT REMOVER 1165 should not be used at an operating temperature in excess of its boiling temperature of approximately 200°C.

## Equipment

MICROPOSIT REMOVER 1165 is considered compatible with the following plastic materials:

Buna-S Rubber	Butyl Rubber
EP	Polyethylene
Polypropylene	Silicone
Teflon <sup>2</sup>	Kalrez <sup>2</sup>

**CAUTION:** MICROPOSIT REMOVER 1165 attacks many plastic materials used in piping and equipment.

The following materials are incompatible:

Buna-N Rubber	Hypalon <sup>2</sup>
Neoprene	Polyacrylate
Polyurethane	PVC
PVDC	Viton-A <sup>2</sup>

## Properties as Delivered

MICROPOSIT REMOVER 1165 is manufactured to the highest quality standards and is subjected to state-of-the-art testing for physical, chemical, and functional properties, to assure the user of maximum lot-to-lot reproducibility.

Certificates of Analysis will be supplied with each shipment upon request. Quality Assurance Material Specifications and Analytical Testing Procedures may be obtained upon request from your Shipley Technical Sales Representative.

MICROPOSIT REMOVER 1165, as delivered, will conform to the following specifications:

Color	Water-white to pale-yellow
Turbidity	Nonturbid
Chloride content	5.0 ppm maximum
Sodium content	1.0 ppm maximum
Iron content	1.0 ppm maximum

## Handling Precautions

**CAUTION!** MICROPOSIT REMOVER 1165 is a combustible liquid containing N-methyl-2-pyrrolidine. Contact with eyes and skin causes irritation and may cause burns. Handle with care. Do not get in eyes, on skin or on clothing. Avoid breathing vapors or mists. Use with adequate ventilation. Wash thoroughly after handling.

Wear chemical goggles, chemical gloves and suitable protective clothing when handling MICROPOSIT REMOVER 1165.

In case of eye or skin contact, flush affected areas with plenty of water for at least 15 minutes. Then contact a physician at once.

Consult product Material Safety Data Sheet before using.

**CAUTION!** When using immersion heaters, failure to maintain proper volume level can expose tank and solution to excessive heat, resulting in a possible combustion hazard, particularly when plastic tanks are used.

## Storage

Store MICROPOSIT REMOVER 1165 only in upright, original containers in a dry area at 50°-90°F. Store away from strong acids and oxidants. Do not store in sunlight. Store away from heat and sources of ignition. Keep container sealed when not in use.

Fresh MICROPOSIT REMOVER 1165 freezes in the -26° to -30°C (-15° to -22°F) range. If freezing occurs, thaw by warming to room temperature and mix thoroughly before use. Freezing does not affect the usefulness of MICROPOSIT REMOVER 1165. MICROPOSIT REMOVER 1165 is slightly hygroscopic; with open containers over an extended period of time, absorption of atmospheric moisture may be sufficient to detectably reduce photoresist strip rates.

## Waste Treatment

A used bath may be treated according to Shipley Waste Treatment Procedure WT78-13. Contact your Shipley Technical Sales Representative for more information. It is your responsibility to verify that this procedure complies with federal, state and local laws and regulations for wastewater discharge.

Due to the nature of MICROPOSIT REMOVER 1165, disposal of it, or residues therefrom, should be made in compliance with federal, state and local environmental laws.

<sup>2</sup>Hypalon, Kalrez, Teflon and Viton are registered trademarks of E.I. DuPont de Nemours and Company, Inc.