

## MIBK Developer Process

The CEPSR Clean Room stores and supplies 1 gallon bottles of (Methyl Isobutyl Ketone) MIBK and MIBK: IPA (1:3). These bottles are located in the large and small yellow rooms under the fume hoods with the other solvents. MIBK itself is colorless and has a characteristic slight camphor type odor. One of the most useful among the acetone derivative solvents, it has a medium evaporation rate. MIBK is stable and does not polymerize. MIBK is highly compatible with a variety of organic reagents and is a good solvent for a wide range of industrial materials. This and its diluted solutions are used for high resolution PMMA and copolymer developments - when mixed with water or isopropyl alcohol MIBK serves as a developer. MIBK itself provides the ingredient necessary for solubility control and swelling of the resist while the IPA is the alcohol to delay development, solutions containing a higher amount of IPA alcohol are best for high resolution fabrications.

### Process

**Note:** variables such as developing/rinsing time as well as ratio of MIBK and choice of resist should be optimized.

- 1) After exposure, fully immerse substrate or sample into MIBK developer solution for 30seconds. (Manual agitation or sonication may assist in development in some cases - this again should be chosen to best fit the purpose of the device).
- 2) Remove sample and immerse or rinse it in a new solution of MIBK. (rinse solution of MIBK 1:3 helps to prevent scumming during developments).
- 3) Remove sample and blow dry with nitrogen gun.
- 4) Place bottle of MIBK back under the hood with other solvents.
- 5) Any used MIBK solution during your process should be poured into its proper MIBK waste container. Place the waster container under the hood along with the other waste bottles.

### Alternate Process (with development spinner which is located inside the fume hood next to the bases fume hood)

**Note:** variable such as developing/rinsing and spin time as well as ratio of MIBK and choice of resist should be optimized.

- 1) After exposure, place your sample or wafer upon the spinner chuck and apply vacuum to hold your substrate in place.
- 2) Input your spin step parameters (500rpm) and deposit a puddle of MIBK developer onto sample. (insert a 0rpm/4 second step between both spins to fully stop before second spin commences)
- 3) Run spin for 30-45 seconds.
- 4) After the first spin and 4 second pause, the second 500rpm spin will then start. While spinning, use the squirt bottle with MIBK rinsing solution to spray your sample for 30 seconds.

5) Turn vacuum off and remove your sample. Blow dry with nitrogen gun.