

## Tips for Plating E-Brite 50/50 Non-Cyanide Alkaline Silver

1. Charge a new rack line at 50% by volume of **E-Brite 50/50** and 5% by volume **E-Brite 50/51** — 2.0 oz/gal of silver metal.  
**Add 45% KOH aqueous solution to adjust pH to 9.0-9.6.**
2. Charge a new barrel line at 60% by volume of **E-Brite 50/50** and 10% by volume of **E-Brite 50/51** — 2.4 oz/gal of silver metal.  
**Add 45% KOH aqueous solution to adjust pH to 9.0-9.6.**
3. Operation temperature for **E-Brite 50/50** silver is at room temperature. (e.g. 60 °F to 75 °F)  
**DO NOT** let the temperature of the bath exceed 120 °F.
4. Adjust pH of new bath to 9.0-9.6 with 45% KOH (potassium hydroxide). Maintain between 9.0 and 9.6. A brass Hull Cell panel can be dipped into **E-Brite 50/50** silver solution for testing. If the pH is too low, you will get the immersion deposition of silver, and it will be necessary to add 45% KOH to raise the pH to 9.0-9.6. **Do not** let the pH of the bath exceed 9.8 or drop lower than 8.0;
5. If the silver concentration in the bath decreases, add **E-Brite 50/50** concentrate.
6. Additions of **E-Brite 50/51** are made based on ampere hours, Hull Cell tests or as recommended by **EPI**. Additions are usually required every 500 ampere hours and the required addition will be based on the silver concentration. Typically, 1% of **E-Brite 50/51** is added each day silver is plated; and the pH is adjusted to 9.2. Add an extra 1.5% **E-Brite 50/51** on Monday each week if parts will be plated that week. If silver is not plated on a particular day, **E-Brite 50/50** or **E-Brite 50/51** is not added. If the bath will be idle for a period of time, add 1% **E-Brite 50/51** every 7 days. Use a 1-micron filter to take out small particles in the bath. Continuous carbon filtration of the bath is recommended even when the bath is idle.
7. Control the bath by **titration for silver**, measuring the **pH** and **addition of E-Brite 50/51** on a regular basis (See tip #5 and #6). **EPI** would like our customers to send their **E-Brite 50/50** bath samples once **every two weeks** for full analysis.
8. **Air agitation** of silver anode and **continuous carbon filtration** of **E-Brite 50/50** silver bath are necessary for successful operation of **E-Brite 50/50** non-cyanide silver process.
9. **Good cleaning** of the pre-plated parts, **good final rinsing** before **E-Brite 50/50** plating, and **good final rinsing** before 10-20% sulfuric acid passivation of silver-plated part are essential for superior white silver color plated by **E-Brite 50/50** silver. Counter-flow rinses are recommended for these two rinses;
10. **Final hot-water rinse** and the application of **anti-tarnishing protection** of silver deposit by **E-Tec 529** or **B.P.A.** are necessary to protect silver finish from tarnishing.