
DATA SHEET

META-BLACK MIDNITE

“AN ADVANCED MATTE BLACK ELECTROLESS NICKEL DESIGNED FOR MILITARY, OPTICAL AND AEROSPACE APPLICATIONS”

META-BLACK MIDNITE is an easy to use liquid material designed to yield low reflectivity, matte black deposits. **META-BLACK MIDNITE** is a robust room temperature post dip that provides industry leading light absorbance when used with Meta-Plate 1200 electroless nickel system. The EN deposit must be clean and active prior to blackening to achieve the best results. **META-BLACK MIDNITE** creates a thin black nickel oxide film that is free of loose smut which will maintain integrity for over 50 hours Neutral Salt Spray Exposure (ASTM B117).

FEATURES

- **Effective Blackening Agent**
- **Low Concentrations of Oxidizers**
 - **One Step Process**
 - **Easily Waste Treated**
- **Long Blackening Life (200-300 ft²/gal of concentrate)**
 - **Lowest Reflectivity Black Nickel Deposit**
 - **Smut Free Coating**
 - **Optional Seals for 1000 Hour Salt Spray**

EQUIPMENT

- Tank:** Tank and associated equipment should be made of lined mild steel, polypro or similar acid resistant material.
- Agitation:** Mild mechanical or stagnant.

MAKE UP AND OPERATING PARAMETERS

Meta-Black MidNite:

MidNite Part 1	50% by volume
MidNite Part 2	2% by volume
Remainder	Deionized water

Specific Gravity: Range: 1.210-1.235 Optimum: 1.223

Nickel Metal: Range: 0-30 g/l Optimum: <20 g/l

Temperature: 70-80° F

Immersion Time: 30 sec - 2 minutes

Water: Deionized or good quality tap water

SOLUTION ANALYSIS

The **META-BLACK MIDNITE** operating solution is controlled by specific gravity measurement.

1. Check the specific gravity of the solution. If the bath is within range the operating bath is ready for production. Periodic test panels are recommended.
2. If the specific gravity of the operating solution is below the target range, add back concentrate until the desired specific gravity is reached.
3. If the specific gravity of the operating solution is high one of two actions can be taken. Specific gravity can be high due to loss of water through evaporation: add back water until the solution re-enters the desired specific gravity range.

Specific gravity can be high due to build-up of nickel metal. Metal Chem, Inc. has an atomic absorption analytical procedure available upon request for measuring nickel metal concentration. If the nickel metal concentration is above the target range the bath needs maintenance. Depending on preference the bath can be cut and rebuilt or dumped and made new.

META-BLACK MIDNITE PROCESS CYCLE

Below is a general cycle for creating black finishes on Metal Chem electroless nickel. The black coating is affected by substrate metal and surface conditions. Different parts may require testing and specific process cycles to achieve desired finish. Parts may be sent to Metal Chem, Inc. for individual lab work and testing.

Typical Process Cycle

1. Electroless Nickel Plating: Meta-Plate 2500, 0.2-1.0 mil
2. Electroless Nickel Plating: Meta-Plate 1200, 0.3-0.6 mil
3. Meta-Black MidNite, 80°F, 30-120sec
4. 2x Clean Rinse (DI preferred)
5. Seal: Meta-Seal EN 75 Cr, 1-5 min
6. 2x Clean Rinse (DI preferred)
7. Clean Air Dry
8. Bake 2 Hours 375° F

BATH OPERATION

Simply dilute **META-BLACK MIDNITE** Part 1 and Part 2 with water and maintain operating temperature between 70-80°F. Make sure parts are thoroughly rinsed prior to blackening so that EN is not dragged into the bath and thoroughly rinsed and dried after blackening so that the finish is not stained or distorted. Do not rinse over blackening solution.

Agitation is important to the blackening process. Make sure the 1200 electroless nickel bath has even, mechanical agitation throughout the bath to maintain deposit consistency.

Make small more frequent additions to the electroless nickel bath to maintain key components to the blackening process and yield more consistent work.

Depending on immersion times, **META-BLACK MIDNITE** can blacken a surface area of 200-300ft² per gallon of concentrate. It is important to remove rinse water from parts prior to baking in order to prevent discoloration. It is not critical to bake parts immediately after blackening. Baking parts at a later time will still cure the oxide coating.

WARNING

Metal Chem recommends that the company/operator read and review the Safety Data Sheet prior to use for the appropriate health and safety warnings.

STORAGE

META-BLACK MIDNITE should be stored in closed containers in a cool, dry location, away from flammable liquids and strong oxidizers. Keep container tightly closed when not in use.

The foregoing recommendations, accurate to the best of our knowledge, are made without guarantee since the conditions of use are beyond our control.

WARRANTY

This product is guaranteed as to quality upon shipment from our plant. If the use recommendations are followed, desired results will be obtained. Since the use of our product is beyond our control, no guarantee expressed or implied is made as to the effects of such use or the results to be obtained.