

ULTRAKOAT: The ultimate coating for Blow Molding. Nano-crystalline deposit of diamond-like particles co-deposited with hard Nickel Alloy. UltraKoat offers superior corrosion/erosion resistance while improving distribution of material with a permanently lubricious surface. It is normally applied from .0002 to .0005 thick. The uniform metallic surface is permanent.

USER BENEFITS

Distribution of Material: The smooth, slippery, diamond-like particles allow the material to flow better improving speed & part quality.

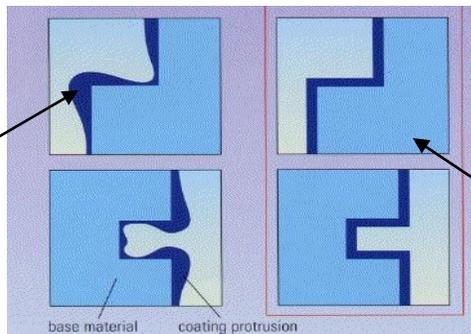
Corrosion Resistance: The uniform corrosion resistant material prevents corrosion. Water left running to cool molds can often form condensate. The water mixed with other materials may often pit the unprotected mold whether it's aluminum or steel.

Erosion Resistance: The sub-micron diamond-like particles help prevent the erosion of texturized or sand-blasted surfaces & adds life to the mold.

Non-Stick Permanent Surface: Less sticking of ligomers. This non-stick surface does not wear off like PTFE coated surfaces & does not require the heat treat & resulting distortion of Teflon coated surfaces. While it is permanent & wear resistant it can be easily removed chemically without harming the base material.

Uniformity of Deposit:

Standard Electrolytic or line of sight coating. Non-conforming layers do not retain shape or detail of substrate.



Conforming coating retains intricate details. (UltraKoat)

Hot Fill Molds: Molds running at 260 degrees F get dirty. Ligomers stick to the mold requiring an ice blast or other cleaning operations each shift. One customer reported that a machine running up to 40,000 pieces per hour would lose 30-minutes of production each shift for cleaning 20,000 parts per shift. Switching to UltraKoat, they were able to run for the entire week and clean once on the weekend. This increased production 300,000 pieces per week on the one machine.

HDPE: Often times a surface is sandblasted to allow air to vent. The erosion of the blasted surface by the plastic requires the mold surface to be re-sandblasted. With UltraKoat the nano-sized diamond-like particles prevent wear adding tool life and good venting.



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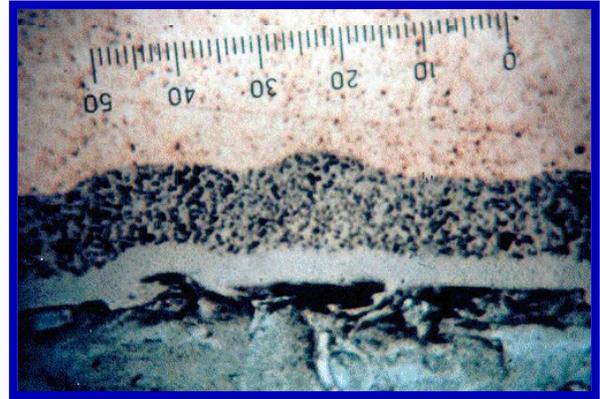
OTHER CONSIDERATIONS:

- Surface Finish: The coating generally matches that of the base material.
- Masking: The coating may be kept off of select surfaces by masking. It is often less expensive to allow for the plating during the design phase and coat the entire part.
- Even Distribution of Particles: The diamond-like particles are evenly distributed throughout the coating. Unlike topical coatings, UltraKoat gives excellent release & distribution of plastic through the life of the detail.

Copper Overlay for Cross-Sectioning

Diamond-Like Particles (Black Spots)
trapped in EN

Electroless Nickel



Base Material

- Appearance: Attractive matte grey. Shiny and metallic when polished.
- Environmentally Friendly: No Chrome or PTFE.
- Uniformity: Coating goes on perfectly uniform. We can hold tolerances of .0001. Unlike most coatings, this process is autocatalytic, not electrolytic. This allows for a perfectly uniform coating.
- Improved throughput: Improves material flow. Decreases process uptime. Less need to clean the mold.
- Removable: The uniform metallic surface is permanent. However, for repair or redesign purposes, the coating can be electro-chemically stripped without harming the mold.
- Capacity: Parts up to 10-feet long and 10,000 lbs.



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