

Nichem[®] HP 1170

High-phosphorus electroless nickel



General Metal Finishing

Electroless nickel

atotech.com



Lead- and
Cadmium-
free

Exceptional resistance against corrosive environments

>10% P

Incorporation into the deposit

Enhancing corrosion prevention with superior nickel plating

As part of its commitment to finding solutions for improving the corrosion protection of parts in highly corrosive environments, Atotech has created the next generation of electroless nickel processes. Atotech's new high-phosphorus electroless nickel process, Nichem[®] HP 1170, is able to fulfill current, rigorous demands and specifications and is prepared for future applications. Nichem[®] HP 1170 offers the highest level of corrosion protection available in the market today.

Nichem[®] HP 1170 provides exceptional corrosion protection and wear resistance to a multitude of substrates in all types of environments. The process is suitable for a wide range of applications in the automotive, oil, gas, and chemical industries, as well as off-shore construction, agriculture, and heavy machinery industries. Nichem[®] HP 1170 is a sustainable process: it is lead- and cadmium-free and meets the highest standards of environmental compliance, including ELV, RoHS, and WEEE.

Reliable and robust process for components exposed to challenging operating conditions



Image 1-3:
Diverse components plated
with Nichem® HP 1170
exhibiting a bright appearance

Process properties

Nichem® HP 1170 shows a remarkable bath stability and possesses a self-regulating pH. It has a longer bath life (up to 6.5 MTO) compared to existing processes by maintaining a compressively stressed deposit for longer operating periods. Nichem® HP 1170, with its wide working window, is tolerant to low and high bath-loading scenarios and offers a fast plating rate.

Deposit properties

Nichem® HP 1170 provides superior corrosion resistance in acidic environments, especially against nitrates, chlorides, and sulphides. Its deposits incorporate a phosphorus content exceeding 10 %. Nichem® HP 1170 plated deposits exhibit a bright appearance and excellent wear resistance with hardness as plated up to 620 HV_{0.1} which increases to 930 – 1080 HV_{0.1} after heat treatment. The deposit is completely Pb and Cd-free and is ELV, RoHS, and WEEE compliant.

Features and benefits

- Superior corrosion resistance
- Excellent wear resistance
- Bright and consistent appearance
- Fast deposition rate
- Tolerant to low and high bath loads
- Outstanding robustness and process stability
- Long bath life with long-lasting compressive stress
- Pb and Cd-free (ELV, RoHS, and WEEE compliant)

