

# APTICOTE®

Improved  
**450**

## Slippery Nickel

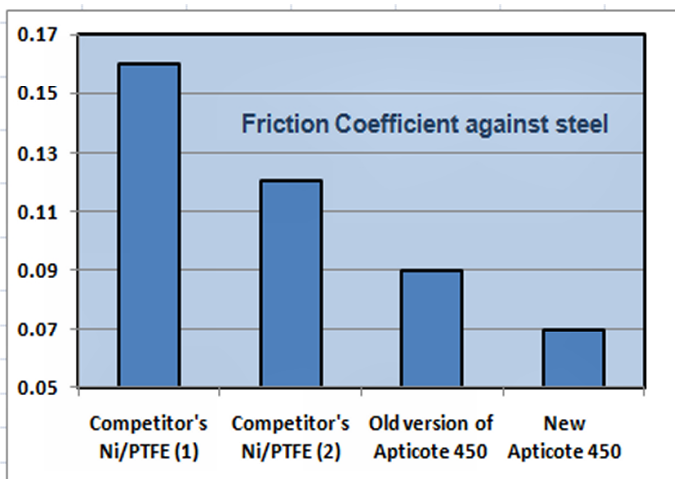
Too good to be true? A nickel coating that is slicker than the best self-lubricating materials? Not with the new, improved version of the Poeton **APTICOTE 450** coating! Our latest development, the fruits of extensive research and testing in our tribological laboratory, has produced the holy grail – a composite **Nickel/PTFE coating** that outperforms its rivals by a wide margin – a **super slippery nickel** – a name given to it by our customers.

- Lower friction
- Lower wear
- Smoother
- Better anti-galling and anti-seizure
- More even coverage
- Better thickness control
- Superior aesthetics
- Harder
- More load-carrying capacity

Other nickel/PTFE coatings are not in the same league!

## How slippery?

In our laboratory friction tests, using a pin-on-disc configuration, our latest **APTICOTE 450** gives much lower friction than our competitor's Ni/PTFE coatings.



## How do we do it?

- 1 Process chemistry** - the most advanced formulation available, unique to Poeton
- 2 Polymer content** - more of it, and more finely dispersed
- 3 Coverage** – excellent replication of the surface geometry, with negligible increase in thickness on corners, and no fade on flat areas
- 4 Operator skills** - experienced and well-trained; that is our advantage
- 5 Jigging** - optimised in our dedicated jig-shop
- 6 Process control** – in our R&D laboratory, analysis and make-up procedures ensure the highest quality

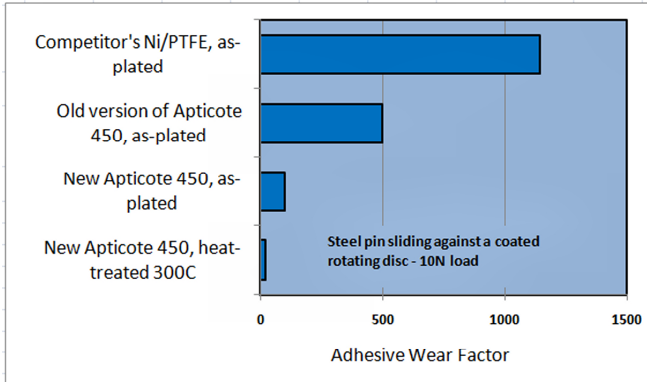
## What's new?

We have reduced the particle size of the PTFE to sub-micron spheres, achieving the optimum % content and even distribution, giving the lowest friction coefficient without undermining the cohesion and hardness of the coating, factors that are crucial to its superior wear resistance and load carrying capacity.



## Sliding wear

**APTICOTE 450** is not only slippery; it exhibits low sliding wear. In our laboratory wear tests, at 10N load, **APTICOTE 450** shows one tenth the wear of a standard Ni/PTFE coating. After heat-treatment, the wear rate drops by another factor of 5. And with 30N load, with its higher load capacity, **APTICOTE 450** is 40 times better than standard Ni/PTFE



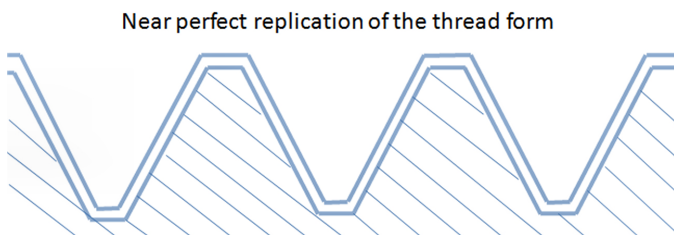
**APTICOTE 450** also provides some non-stick properties, particularly at temperatures around 300°C where conventional polymer coatings begin to soften and char.

## Hardness

As plated, **APTICOTE 450** has a hardness of 170-200Hv, increasing to 290-320Hv after heat treatment at 300°C. The benefit is a load-carrying capacity superior to rival Ni/PTFE coatings, crucial to its success on threads and splines.

## Anti-galling

**APTICOTE 450** excels in preventing galling and seizure when stainless steel or titanium parts are fastened together or slide. On screw threads, internal or external, coverage is precise and even.



## Thickness

**APTICOTE 450** is available in thicknesses from 5 to 10 microns. If corrosion protection is required, we can apply an undercoat of **APTICOTE 400**, making the overall thickness 15 to 20 microns

## Uniformity and surface finish

**APTICOTE 450** provides uniform coverage, including corners, thread forms and bores. There is no requirement to post-finish, but if a specific (smoother) surface finish is required, Poeton will advise on its feasibility.

## Substrates

**APTICOTE 450** can be applied to copper alloys, titanium and aluminium, as well as the more usual range of mild steel and stainless steels. It brings desirable tribological properties to lightweight materials - a vital property for aerospace and automotive applications.



APTICOTE 450 on Titanium

## Applications

Just some of the **APTICOTE 450** successes:

- Mould tools
- Connectors and fasteners
- Circuit breakers
- Valve seats and pump bearings
- Machine tools
- Medical moulds
- Cylinder liners
- Clutches and splines
- Spindles

Customers in aerospace, oil & gas, automotive and many other industrial sectors agree - '**Slippery Nickel**' from the Poeton **APTICOTE** range is the coating of choice for durable dry lubrication and anti-galling requirements.

### Disclaimer

The information contained in this leaflet is intended for guidance only. Whilst every effort is made to understand the environment in which the coating is designed to work, success can only be determined by trials and in-service testing.



Poeton Industries Ltd,  
Eastern Avenue,  
Gloucester, GL4 3DN

**NADCAP Accreditation** is held by Poeton Industries Ltd with Poeton (Gloucester) Ltd Accredited for Plasma Spray (coatings) and Chemical processing, and Poeton (Cardiff) Ltd Accredited for Chemical Processing and NDT

For more information, please contact our Sales  
or Technical Department, (44) 1452 300 500,  
info@poeton.co.uk