

APTICOTE®

200

Apticote Polymer Coatings

The **Apticote 200** range of coatings comprises high technology polymer-based formulations offering outstanding non-stick, mould release, low friction and low wear. They also provide superior chemical corrosion protection, even in the most hostile environments. And with full FDA approval (more accurately, 'FDA compliance'), they are particularly suited for applications in the food and medical sectors.

Using various engineering processes, Poeton can build these benefits into ferrous and non-ferrous metals. The low friction polymer formulations are matched precisely to different industrial applications, guaranteeing optimum performance at minimum cost.



Features

Apticote 200 coatings exhibit a wide range of complementary properties:

- Low friction
- Non-stick
- Low wear
- Mould release
- Heat resistance
- Non-wetting
- FDA approval (compliance)
- Resistant to chemicals



Non Wetting Surface of **Apticote 200**

Applications

Apticote 200 coatings are used in a wide variety of industries, including:

- Pharmaceutical
- Packaging
- Food
- Chemical
- Moulding
- Automotive
- Plastics
- Tobacco

The Apticote 200 Polymer Coating Range

The six primary grades of **Apticote 200** coatings are shown below, together with their key properties.

PROPERTY	Apticote 200 Grade					
	200G	200N ^(a)	200B	200E	200L	200C ^(b)
Nominal dry film thickness (μ)	20	25 ^(c)	25	25	20	5-10
Colour	Green	Black	Black	Grey	Green ^(d)	Clear
Deposition Temperature °C	400	370	260-345 ^(e)	400	220-345 ^(f)	340
Max in-service temperature (continuous) °C	205	200	260	260	260	205
For non-stick/mould release (1 is best)	1	1	2	4	4	1
For low friction (1 is best)	3	3	2	1	1	1
Sliding wear resistance (vs. steel pin) (1 is best)	5	4	2	1	2	5
Abrasion resistance (by SiC wheel) (1 is best)	3	1	2	2	3	5
Chemical resistance (1 is best)	3	1	4	1	3	1
FDA Approval (Compliance)	Yes	Yes	No	Yes	No	Yes

(a) - Powder coating - electrostatic

(b) - 200C is generally reserved for stainless steel substrates

(c) - 200N can be built up to 50μ if the application demands additional thickness

(d) - Other colours, including black, are also possible

(e) - With 200B, the higher temperature cure gives maximum wear resistance

(f) - Optimum cure temperature for 200L is 240°C

Properties and Industrial Benefits

As shown in the table overleaf, the **Apticote 200** polymer coating systems can offer a wide range of performance characteristics, depending on the needs of the application.

Abrasion Resistance

If the primary requirement is that the coating should be able to withstand scratching or abrasion, as well as non-stick, (as might occur when moulds are being cleaned) the best coating to specify is **Apticote 200N**.

Non-Stick and wear Resistance

It is not usual to achieve the best mould release properties and high sliding wear resistance with the same coating. The chart to the right shows the performance of the various **Apticote 200** grades. Non-stick is measured by the force required to separate a product (burnt rice is the most severe test) from the surface, so that a low value is best. Likewise, wear is measured by a pin-on-disc rubbing machine, low values of wear rate being the objective.

For best mould release (non-stick), for example against sticky food or pharmaceutical products (needing USDA/FDA food approval, or 'compliance'), specify **Apticote 200G** or **Apticote 200N**. With stainless steel substrates (E.g. Stavax moulds), the clear **Apticote 200C** provides superb non-stick release properties in situations where FDA compliance is required.

If it's a high temperature application, **Apticote 200L** is the best option for working with plastics, packaging and adhesives.

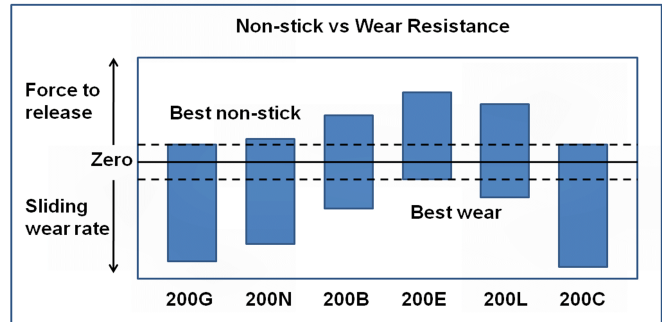
Low Sliding Friction

Again, low friction and good non-stick properties do not necessarily occur together. The table shows the friction performance of the various grades in a ball-on-disc sliding test (10N load), demonstrating that **Apticote 200E** and **Apticote 200L** coatings are the best choice for low friction sliding situations, particularly if a low wear rate is also important. **Apticote 200C** gives exceptional low friction and non-stick, but is relatively soft, so gives less wear protection. It should be reserved for non-abrasive situations.

Apticote 200B, **200N** and **200G** tend to give higher friction, but better non-stick. **Apticote 200N** provides the best all-round performance, but **Apticote 200B**, with its optional lower temperature cure may be needed for temper-sensitive substrates.

Chemical Resistance

If the primary requirement is that the coating should be able to withstand chemical attack (e.g. from process fluids), as well as non-stick or low friction, the best coating to specify is **Apticote 200N**.



If you require a degree of sliding wear resistance, then **Apticote 200E** (food compliant) should be specified, but the level of non-stick and low friction will be reduced.

In sliding situations requiring a high load bearing ability, the best coatings are **Apticote 200E** and **Apticote 200B**, with the latter being cured at the higher temperature, 345°C.

Apticote 200 Grade	Dynamic Friction Coefficient
200C	0.08
200L	0.10
200E	0.11
200B	0.14
200N	0.15
200G	0.15

Working Temperatures

The coatings can withstand operating temperatures in the range -200°C to +260°C. For the highest service temperatures, you should specify **Apticote 200L**, which can tolerate short periods at up to 285°C.

Also, for the most hard wearing and toughest non-stick coatings, please consult our **Apticote 810** thermal spray polymer range.

Choosing the right Apticote 200 coating

Selecting the right low friction or non-stick polymer coating is essential, but can be complicated. Please discuss your application needs with the Poeton technical team, so we can agree on the best **Apticote 200** product for you. Either ring us on the help-line number (44 1452 300 500) or fill in an enquiry form at www.poeton.co.uk.

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.



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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

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