



Frequently asked questions about Nano Mold Coating

What is Nano MatrixCoating®?

NanoMoldCoating® is a self-applied (in-house), non-migrating mold coating (not an aerosol), which allows part release up to 300,000 cycles per coating, and is only 100 nanometers thick.

What makes Nano MatrixCoating® different from other release agents or coatings?

NMC is a semi-permanent hard coating. It does not migrate to the surface of the part like aerosol products, therefore it does not require frequent reapplication. It is only 100-200 nanometers thick and therefore does not affect the dimensional integrity of molded parts. NMC offers the flexibility of internal application so that mold components do not have to be sent to external suppliers, which can be time consuming and expensive.

What is the temperature range it can withstand? Up to 1000F

Did it build or affect tolerances? No, the coating is only between 100-200 nm thick, basically immeasurable.

What is the shelf life once the product has been opened and resealed?

The shelf life of HC after opening is 6-12 months. The shelf life of the HCF is closer to 6 months after opening.

How does it help filling or packaging parts?

It minimizes friction in the material flow path, affecting the filling and packaging of parts.

Durability (how many cycles can I expect)

There are several factors that determine the life of the coating including: mold design, mold parameters, plastic and fillers being molded. In general, parts made with olefin-based and/or unfilled resin materials will undergo a greater number of cycles (100K-500K) before needing reapplication than engineering-grade glass-filled or abrasive materials (10K-100K+). The investment in both cases pays for itself immediately through reductions in cycle times, reduction in machine starts/stops due to stuck parts, reduction or elimination of release agents.

What is the coefficient of friction?

The coefficient of friction ranges from 0.50 to 0.130 kinetically according to ASTM 1894 under laboratory test conditions. What's important is how it actually works per specific application. Our customers therefore switching from other types of coatings based on release characteristics and flexibility of use.

Temperature compared to PTFE coatings.

PTFE coatings begin to break down at 450-500F. The HC and HCF products can withstand up to 1000F.

Will it crack or peel?

No, the coating is temperature resistant up to 1000F. It forms a nano-mesh designed to expand and contract with the thermal expansion of the steel. It wears off in miniscule amounts over time.

Does it penetrate into the substrate to which it is applied?

It covalently bonds to atoms on the surface of the substrate. In more porous materials such as aluminum it can absorb into the casting during bonding.

Can the plastic parts be painted or chromed after molding?

Absolute. The coating does not migrate to the surface of the part and therefore does not inhibit post-forming applications.

Can Nano Matrix Coating® be used in cleanroom applications?

Yes. The cured coating does not exude any of the properties of silicone and does not migrate to its surface of the part.

Can Nano MatrixCoating® be used in spray booths?

Yes. The cured coating does not exude any of the properties of silicone and does not migrate to its surface of the part.

On which materials can I apply Nano Matrix Coating®?

NMC bonds to virtually any metal substrate. It is currently used in a wide variety of tooling applications, including all tool steels, stainless steels and aluminum. Aluminum may require more product because it is more porous than the other materials. It has even proven successful in epoxy molds.

Does it work with chrome surfaces? What about other existing coatings?

Although the coating was originally designed to bond directly to tool steel, we have had success coating chrome surfaces, as well as other ptfe and nickel coatings.

Can you apply it to moving parts such as slides, locks - leader pins?

Products better suited to these applications include our nano-ceramic grease and lubricant. These products offer extreme friction reduction (7 times greater than PTFE) and wear resistance combined with exceptional bonding properties, especially under high pressure. These products offer super high temperature resistance and are NSF certified for food-grade applications.

What effect does Nano have on a textured surface?

The coating is so thin that it does not "fill" textured surfaces.

What effect does Nano have on sandblasted or matte finishes?

The coating seals the surface with a microscopic hard coating. Therefore, the finish of the part may be improved or may cause a slight change in gloss.

Which plastic resins does Nano Matrix Coating® help with?

NMC can be successfully applied to all thermoplastic and flexible thermosetting materials (such as urethanes, silicones, etc...). Since each application is unique, the degree of success will be a function of the following: mold design, mold cavity/core material, plastic resin and mold parameters.

Is Nano Matrix Coating® effective in rubber applications?

Although the coating was originally designed for plastic injection molding, it has been successfully used in black rubber, silicone, TPE, TPU and other rubber applications.

In which other processes can Nano Matrix Coating® be used?

NMC has proven to be successful in a wide variety of applications including: Injection Molding Blow Molding Thermoforming Extrusion Fiberglass Build Epoxy Molding.

Which applications are not suitable for Nano Matrix Coating®?

Threaded Cores coupled with glass-filled material. That tends to abrade the coating. Thread cores in olefins and unfilled materials are ok.

How does Nano Matrix Coating® affect bright parts?

When applied correctly, NMC has no negative effect on bright parts and can actually improve the increase clarity.

Is Nano Matrix Coating® FDA Approved?

De uitgeharte coating is een vernet amorf materiaal dat is getest door meerdere internationale onafhankelijke laboratoria en niet giftig is bevonden. Deze documenten zijn op aanvraag verkrijgbaar. De HCF-kwaliteit is FDA-conform.

Why is cleaning the surface so important?

The most obvious answer is that we want to seal imperfections. The purpose is to remove any oil, grease or dirt that may be in the pores on and below the surface of the substrate. This dirt will disrupt the covalent bonding of the coating to the steel surface.

Why do we need to clean the surface with a 100% solvent (not water based or alkaline)?

The HC coating cross-links and forms a nano-mesh by using moisture from the atmosphere as a catalyst. Any premature introduction of moisture or oil can cause a malfunction in the curing process.

Can I apply it on its own without removing the first layer?

It is possible for the HC, HCF and QC coatings

How critical is the curing time?

The coating must be able to crosslink completely in order to work affectively. Therefore, following the curing time instructions is very important.

Can I clean and reuse my brushes?

The best way is to throw away the brushes once used to avoid contamination.

How do I clean the atomizers?

It is best to remove the atomizer from the bottle and pump the mouthpiece into a cloth until the straw is completely empty.

What is the best way to access deep ribs and holes?

Each kit comes with small hobby brushes. Other items that can be used are cotton swabs and microfiber brushes.

Can I use compressed air to move the product in tight spaces?

It is not recommended, as most plants' compressed air is not completely dry by the time it comes out of the nozzle. A drop of water destroys the entire coating.

Can I clean the surface after it has been coated with Nanomoldcoating®?

There are certain cleaners and degreasers that have removed the coating. The Nano Clean is specially designed not to affect our coatings and is recommended for use with all of our coatings.

How do I remove the coating?

Each set comes with a bottle of remover. Simply spray the remover on the coating and let it soak in for 10 minutes. This breaks the bonds of the coating. Then aggressively rub the surface. Compressed air can be used in tight spaces. Commercial paint removers are also effective at removing the coating.

Can I use rust inhibitors over the coating?

Some rust inhibitors may contain ingredients that can negatively affect the coating. Our anti-rust product is designed not to attack any of our coatings. Because the coating seals the surface, many customers will only clean and coat the mold with NanoMoldCoating®. Especially for short-term storage.

Can I weld over the nano-coated surface?

Welding damages the surface where it has penetrated and the immediate environment around it. Repainting may be required.

Can I work through it?

Machining or otherwise physically penetrating the substrate damages the surface where it has penetrated and its immediate surroundings. Repainting may be required.

Can you use mold remover after it is coated?

Not suggested as it at least masks the properties of the coating. Some petroleum based products can cause it to gel the surface of the coating, making it unusable. If silicone spray has been applied over the coating, simply wipe off what you can and knead the rest as normal.
