

BELMACADIA

ALLOYED CHROMIUM NITRIDE



NEW BELMONT

★ SUPERIOR QUALITY ★

PRODUCT DATA SHEET

Marine & Protective Coatings

Issued on May 9th 2026

PRODUCT DATA

Coating material: Alloyed Chromium Nitride (CrN)
Color: Grey
Microhardness: 2700 - 3200 HV
Thickness: 3 to 8 μm
Coefficient of Friction (COF): 0.3 - 0.5 (Dry vs. Steel)
Max. Working Temperature: 1100°C (2012°F)

THINNER

NBC Thinner is not applicable

MIX RATIO

Single pack product

STORAGE

This is a chemically inert, non-reactive ceramic layer with an indefinite shelf life. The coating will not degrade, dry out, or peel while sitting in inventory. Store coated components in a dry, climate-controlled warehouse. Relative humidity should be kept below 50% to prevent moisture condensation and subsequent galvanic corrosion on the underlying steel.

PRODUCT DESCRIPTION

BELMACADIA is a highly modified, ultra-durable chromium nitride (CrN) surface treatment engineered for extreme environments. This specialized formulation surpasses traditional nitrides by drastically increasing thermal stability, allowing it to withstand much higher operating temperatures. An advanced alloying technique minimizes internal stress within the layer, which prevents delamination and ensures a powerful bond to the base metal under severe stress. By providing exceptional defense against friction-induced damage like galling, scraping, and oxidative wear, this premium coating significantly prolongs component life in the harshest manufacturing setups.

INTENDED USE

This product is engineered for extreme applications, providing superior wear and thermal defense for high-temperature forming and stamping dies, as well as precision machining tools subjected to severe thermal loads. It is equally optimized for plastic injection molding components that handle highly abrasive or corrosive resins. Additionally, the coating serves as a reliable shield for critical automotive and aerospace components continuously exposed to severe friction and heat.

PERFORMANCE PROFILE & TECHNICAL ADVANTAGES

Extended Thermal Stability: Engineered specifically for high-heat applications where standard nitride coatings oxidize or degrade.

Low Intrinsic Stress: Minimizes micro-cracking and peeling, ensuring structural integrity under cyclic mechanical loading.

Excellent Substrate Adhesion: Delivers maximum bond strength to withstand severe shear and interfacial stress.

Wear Mitigation: Provides a robust barrier against adhesive wear, galling, fretting, and surface fatigue.

Corrosion & Oxidation Resistance: Prevents chemical degradation and material loss in hostile processing environments.

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WARRANTY

New Belmont Coatings LLC warrants our products to be free of manufacturing defects in accordance with applicable NBC quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by NBC.



SUBSTRATE COMPATIBILITY & PREPARATION GUIDELINES

BELMACADIA can be applied to a wide range of industrial substrates. To achieve the stated adhesion properties, substrates must conform to the following engineering criteria:

Compatible Materials: High-speed steels (HSS), hot-work tool steels (e.g., H13), stainless steel alloys, tungsten carbide (WC/Co), titanium alloys, and high-temperature nickel alloys.

Thermal Tolerance: Substrates must be capable of withstanding the PVD process temperature without losing core hardness, experiencing dimensional distortion, or undergoing phase transformation.

Surface Finish Requirements: Surfaces should be precision ground or polished to their final required tolerance prior to coating. Lower surface roughness optimizes the final coefficient of friction.

Contamination Control: Substrates must arrive at the coating stage completely free of foreign matter. This includes lubricants, rust inhibitors, cutting fluids, silicone-based polishes, and deep surface oxidation.

ADDITIONAL NOTES

The product is for professional use only. Personnel shall be trained, experienced, and use the equipment to mix/stir well and apply the product properly. Applicators shall use appropriate personal protection equipment when using this product. Always comply with New Belmont Coatings LLC technical data.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of New Belmont Coatings LLC. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Published technical data and instructions are subject to change without notice. Contact New Belmont Coatings LLC for additional technical data and instructions.