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Family of Boron Nitride Products

LUBRICOAT Series

These are our PREMIUM water-based, fully-loaded Boron Nitride coatings that give good adherence and provide maximum non-wetting and non-stick behavior with molten Aluminum and non-ferrous metals/alloys/drosses/slags/glasses. Choice of which type depends on the binder/suspension desired: the Acidic pH coatings work best on ceramics and Stainless whereas the Alkaline/Basic pH coatings work well on all metals and ceramics. The regular BN Lubricoat is our most used coating; the "ZS" version differs only by using Hydrochloric versus Nitric acid for its "peptizer" in the binder/ suspender. Sometimes Hydrochloric has a somewhat better bond-down. If unbaked Alkaline-bonded ceramics are coated, the Alkaline paints ("ZV" and "ALK") are best, and ZV contains Silica in its composition whereas the ALK version has no Silica and has less tendency to react with alloy compositions. However, the ZV version provides more toughness and erosion resistance.

Acidic (like lemon juice) pH

- **BN Lubricoat and BN Lubricoat Blue**
  BN Lubricoat is our "workhorse" water-based coating which yields the best non-wetting layer of Boron Nitride on all substrates that are OK with pH-Acidic (like lemon juice) systems, HNO_3 peptised. BN Lubricoat Blue is a permanent-blue-tinted version. Read more about BN Lubricoat and Lubricoat Blue.
- **BN Lubricoat Blue Spray**
  BN Lubricoat Blue Spray is our BN Lubricoat Blue coating that is packaged in a convenient trigger sprayer for applying thin, uniform, quick-drying layers of coating onto most any substrate. Read more about BN Lubricoat Blue Spray.
- **BN Lubricoat-ZS** and **BN Lubricoat-Blue-ZS**
  BN Lubricoat-ZS is our very-dilutable water-based coating which yields a very non-wetting layer of Boron Nitride on all substrates that are OK with pH-Acidic (like lemon juice), HCl-peptized systems. BN Lubricoat-Blue-ZS is a permanent-blue-tinted version. Read more about BN Lubricoat-ZS and BN Lubricoat-Blue-ZS.
- **BN Lubricoat PW-DIL**
  BN Lubricoat PW-DIL is a diluted version of our "workhorse" BN Lubricoat coating. Thus, it is a ready-to-use, without diluting, coating that provides thinner coatings with all the good properties of the best Boron Nitride coating. HNO_3 peptized. White version only. Read more about BN Lubricoat PW-DIL.
- **BN Lubricoat Gold**
  BN Lubricoat Gold is a golden yellow version of our best general use Boron Nitride Lubricoat.
- **BN Lubricoat Gray**
  BN Lubricoat Gray is a gray version of our best general use Boron Nitride Lubricoat.

Alkaline/Basic (like house paint) pH (Avoid Freezing)

- **BN Lubricoat- ZV** and **BN Lubricoat-Blue-ZV**
  BN Lubricoat-ZV is a very-dilutable water-based coating which yields a relatively tough and non-wetting layer of Boron Nitride on all substrates that are OK with pH-Basic (like housepaint) systems. BN Lubricoat-Blue-ZV is a permanent-blue-tinted version. Read more about BN Lubricoat ZV and BN Lubricoat-Blue-ZV
- **BN Lubricoat-ALK** and **BN Lubricoat-Blue-ALK**
  BN Lubricoat-ALK is a dilutable water-based coating which yields a non-wetting layer of Boron Nitride on all substrates that are compatible with pH-Alkaline/Basic (like housepaint) systems – contains NO Silica.

RELEASECOAT Series

These are water-based, pH-near-Neutral "washcoatings" providing lightly-bonded Boron Nitride layers that are used to give the best release from molds and giving "cosmetic" finishes to cast surfaces. The main differences in these are their BN loading levels, with PM being fully loaded, Type M as moderate-level loading, and our "workhorse" regular BN Releasecoat and TPC with relatively low loading.

- **BN Releasecoat and BN Releasecoat-Blue**
  BN Releasecoat is our water-based, near-neutral-pH Boron Nitride coating developed for top-coating thermal-insulating coatings for Permanent Mold Casting. BN Releasecoat-Blue is a permanent-blue-tinted version. Read more about BN Releasecoat and BN Releasecoat-Blue.
- **BN Releasecoat PM**
  BN Releasecoat-PM is a concentrated paint that is fully-loaded with Boron Nitride. PM provides a thick, dilutable paint in a paste-like consistency, which can be modified by simply adding water. A 2:1 water-to-coating is a typical dilution. Read more about BN Releasecoat PM.
- **BN Type M and BN Type M – White**
  BN Type M is a coating with moderate loading of Boron Nitride (BN) that exhibits good paintability onto any substrates. BN Type M is a permanent-blue-tinted version. A white version is also available. Read more about BN Type M.
- **BN Transition Plate Coating (BN TPC)**
  BN TPC is our water-based, pink-tinted (non-permanent) Boron Nitride coating developed for transition plates used with Wagstaff Billet Casters. Read more about
- **ZBN Release**
  ZBN Release contains Zirconium Oxide (ZrO_2) for thermal insulation along with Boron Nitride (BN) for best mold release with permanent mold or low-pressure casting. With ZBN Release, only one single coating provides all you need
- **BN ReadyRelease Sprayable**
  BN ReadyRelease Sprayable is an economical water-based, pre-diluted (ready-to-use) sprayable washcoating of Boron Nitride (BN). Usable to 1000 C (1832 F) in all atmospheres and with all substrates.

HARDCOAT Series

These are water-based, pH-Alkaline/Basic (like housepaint) [AVOID FREEZING] coatings with higher toughness and erosion-resistance but with somewhat less non-wetting/non-stick properties. All these have the same "fired" composition but differ in their paint formulation for reasons stated. Our regular-version BN Hardcoat contains acrylics and thus should not be applied at temperatures over 80 C, whereas the CM version contains no acrylics and has no application/drying restrictions and also has less volatiles/outgassing than the regular Hardcoat. The Cera Dip version is designed as a lower-viscosity, dippable coating with "environmentally green" polymer constituency that dries to water-insolubility at 80 C and has no worrisome outgassing volatiles.

- **BN Hardcoat**
  BN Hardcoat is water-based coating which yields a unique abrasion-resistant/nonwetting layer of Boron Nitride on all substrates that are OK with pH-Basic (like housepaint) systems; usable to 900 C in air. Read more about BN Hardcoat.
- **BN Hardcoat CM**
  Boron Nitride Hardcoat CM is the same "fired" constituency as our original tough, abrasion-resistant boron nitride coating. The CM formulation maintain the same performance as the original but contains NO acrylics making it safer to use. Can be applied to cold or hot substrates whereas the original BN Hardcoat should only be applied and dried at room temperature. Read more about BN Hardcoat CM.
- **BN Cera Dip**
  Boron Nitride Cera Dip has been designed for dipping application onto most any surface. A thin, uniform, erosion-resistant coating can be easily applied to yield nonwetting with nonferrous metals/alloys/drosses. Upon drying at 80 C, the coating is water-insoluble. BN Cera Dip uses an "environmentally green" polymer that gives optimum coating uniformity with no worrisome outgassing. It can be applied to ambient or heated surfaces. Read more about BN Cera Dip.

OTHER BN products

Specialty Coatings

- **JK 41 (water-based, pH like vinegar)**
  JK 41 is our water-based coating developed for superplastic-forming, which yields the best lubrication/release layers of Boron Nitride for parts. Read more about JK 41.
- **JK SD (solvent based, for dip-coating)**
  JK SD is our solvent-based dippable coating developed for superplastic-forming, which yields very-thin/uniform, lubrication/release layers of Boron Nitride for parts. Read more about JK SD.
- **BN High Purity (water-based, near-neutral pH)**
  BN High Purity is our water-based, near-neutral-pH, washcoat-type of Boron Nitride coating; usable to >1400 C in non-air atmospheres on all substrates. Read more about BN High Purity.

- **BN HPB**
  BN HPB developed to have a very-high-purity and very-high-loading of Boron Nitride while having a very-low viscosity.
- **BN Glass Release Spray and BN Glass Release Brushable 'bulk' paint version (water-based, near-neutral pH)**
  Boron Nitride Glass Release Spray provides a water-based BN paint packaged in a convenient trigger sprayer for applying onto most any non-glazed (i.e., bisque) mold. The BN Glass Release Spray and Brushable 'bulk' paint version provide an alternative to our flammable solvent-based aerosol BN Aerosol Lubricoat (sometimes referred to as just "ZYP" or "ZYP Mold Release Spray"). Glass Release Thinner (containing no BN) is also available if thinning of the 'bulk' brushable paint is desired. Read more about BN Glass Release Spray. Read more about BN Glass Release Brushable. Read more about Glass Release Thinner.
- **Dental Cast Release**
  Dental Cast Release is a water-based BN paint for coating ceramic crucibles/molds of graphite, glassy-carbon, fused silica/quartz that are used for vacuum melting and casting of specialty alloys to 1550 C. The finger-pump sprayer allows easy application of the coating.
- **RepelKote**
  RepelKote is an economical water-based Boron Nitride coating that repels molten Aluminum and prevents adhering and sticking to transport refractories.
- **Supercoat W with BN**
  Supercoat® W with BN has all the properties of water-based Supercoat W but has Boron Nitride added to provide all of its special lubricating and non-wetting properties. The coating is ideal for application onto Fe-Cr-Ni metal surfaces. After applying and drying, Supercoat W with BN also requires a one-time "bake-on" to 800-850 C. after which a well-bonded tough/flexible, electrically insulating coating results.
- **Supercoat S with BN**
  Supercoat® S with BN is modified to allow fast drying when applied by brushing, dipping, or spraying. When applied and dried onto Iron-Chrome-Nickel alloys such as Stainless Steel, a one-time "bake-on" at 800-850 C is required. The result is a tough, flexible Supercoat that has the special lubricating and non-wetting properties of Boron Nitride.
- **BN Pyrrhos**
  BN Pyrrhos is a light gray, water-based coating that is adherent to metal and ceramic substrates, usable to over 800 C (1472 F).
- **EasyRelease RBN Concentrate**
  Easy Release RBN Concentrate is a water-based Boron Nitride paste that is highly reducible/dilutable with water – minimally settling, providing good molten metal flowing and release/nonwetting. Usable to 1000 C in all atmospheres and with all substrates.
- **BN Lubricoat ER**
  BN Lubricoat ER is a ready-to-use, economical water-based Boron Nitride coating that works to provide true non-wetting performance with liquid metal transfer systems processing molten Aluminum and its alloys.
- **CeraSeal BN**
  CeraSeal BN is a ready-to-use, water-based brushable Boron Nitride coating that forms a very tough refractory sealant coating for ceramic materials. CeraSeal BN is usable to 1000 C (1832 F).

Clay/Slip

- **BN EsoCeraClay**
  BN Eso Cera Clay is an esoteric ceramic claylike material that is loaded with Boron Nitride in order to impart the great properties of BN into a formable clay. Shapes can be formed as desired, followed by drying and then firing to a strong, well-bonded body by heating to 1000 C in air for ½ hour "soak".
- **BN EsoCera Slip**
  BN EsoCera Slip is an esoteric ceramic casting slip loaded with BN in order to impart the great properties of BN into a part cast-and-sintered from this slip.

Pastes/Putties

- **BN Lubricoat Paste (water-based, pH like lemon juice)**
  BN Lubricoat Paste is the same formulation as our "workhorse" very-nonwetting BN Lubricoat, only modified to a paste consistency – usable on all substrates that are OK with pH-Acidic (like lemon juice) systems, HNO_3 peptised. Read more about BN Lubricoat Paste.
- **BN Lubricoat ZA Paste (water-based, pH like lemon juice)**
  BN Lubricoat ZA Paste is a highly loaded BN paste with an Aluminum Phosphate binder for obtaining a tough, abrasion-resistant layer. The ZA paste is usable with substrates that are OK with pH-Acidic (like lemon juice) systems – used as is or diluted. Read more about BN Lubricoat ZA Paste
- **BNW Paste (water-based, near-neutral pH)**
  BNW Paste is our versatile water-based, near-neutral-pH paste which yields a good non-wetting layer of Boron Nitride on all substrates – used as is or diluted. Read more about BNW Paste.
- **BNA Paste (solvent-based)**
  BNA Paste is a non-aqueous-based or solvent-based paste that is usable in all atmospheres and can be applied in thick layers or brushed like house paint It yields excellent nonwetting and release with aluminum, magnesium, zinc and other nonferrous metals and alloys. BNA Paste.
- **BN Cera Patch**
  BN Cera Patch provides a ready-to-use, water-based ceramic putty/patching material that can be filled into any fissure, crack or defect in refractory materials to achieve non-wetting with molten aluminum. Contains no Refractory Ceramic Fiber (RCF). read more about BN Cera Patch.
- **BN TAPA Screen Printing Paste**
  BN TAPA is a ready-to-use water-based, totally inorganic, pH-Acidic (like lemon juice) white paste that is designed to produce a tough, flexible, abrasion-resistant and water-resistant coating of Boron Nitride on all substrates – cloths, metals, ceramics and graphite. BN TAPA is particularly designed for applying to cotton, cotton-polyester or ceramic fabrics or cloths.
- **BN ZAPA Screen Printing Paste**
  BN ZAPA is a ready-to-use water-based, totally inorganic, pH-Acidic (like lemon juice) white paste that is designed to produce a tough, flexible, abrasion-resistant and water-resistant coating of Boron Nitride on all substrates – cloths, metals, ceramics and graphite. BN ZAPA is a paste with Zirconium Oxide binder and is particularly designed for applying to cotton, cotton-polyester or ceramic fabrics or cloths.
- **3D Cer-Paste BN**
  3D Cer-Paste BN is a solvent-based paste designed for extrusion-based Paste Deposition Modeling (PDM) 3D printers. This paste allows additive manufacturing/ 3D printing of parts – useful for 1000 C applications, having all the dramatic properties of Boron Nitride.

- **BN ThermKote Paste**
  BN ThermKote Paste is a small (1 oz.) container of water-based Boron Nitride paste that is specially designed for best heat conduction from heater unites such as used for 3D printers.
- **ZYPLON EPJ**
  ZYPLON EPJ is a unique lubricating Enhanced Petroleum Jelly (EPJ) combining the great properties of petroleum jelly and boron nitride (BN).

Oil-Based Coatings

- **Levikote BN**
  Levikote BN is a oil-based, self-leveling coating of Boron Nitride. The coating is nonwetting/nonreactive with reactive molten metals/fluxes to 1000 C (1832 F) in all atmospheres.
- **Levikote ZBN**
  Levikote ZBN is a water-miscible, oil-based paint of Zirconium Oxide and Boron Nitride. The coating is nonwetting/nonreactive with reactive molten metals/fluxes to 1000 C (1832 F) in all atmospheres. Provides both thermally insulating and nonwetting for surfaces used for molten metal transport or for molds.
- **Seize-Stop**
  Seize-Stop is a biodegradable-oil-based, non-metallic, corrosion-inhibiting coating utilizing Boron Nitride and Graphite. Excellent anti-seize for most all metals … prevents seizing, corrosion, rusting and galling between metal parts. Usable to 900 C in air atmosphere. Thermally conductive/Electrically Insulating.

Powders

- **BN Powder (Grade ZG)**
  BN Powder of Grade ZG (ZYP Grade) is ultra-high-purity (>99.9%) BN with mean-particle-size of 7.4 micrometers. Read more about BN Powder.
- **NovaMix LC Powder**
  NovaMix LC Powder is a dry powder mixture that forms a nonwetting paint by merely adding water and mixing – making a liquid paint/coating that is unreactive/nonwetting with molten nonferrous metals and alloys. Economical – shipped as powder, avoiding cost of shipping water as with liquid coating such as BN Lubricoat. No worries about freezing.
- **NovaMix HC Powder**
  NovaMix HC Powder is a dry powder mixture that forms an erosion-resistant paint by merely adding water and mixing – making a liquid paint/coating that is unreactive/nonwetting with molten nonferrous metals and alloys. Economical – shipped as powder, avoiding cost of shipping water as with liquid coating such as BN Hardcoat. No worries about freezing.
- **BN Powder Grade ASP**
  ZYP Coatings' unique spherical powder of 85% BN – 15% Al2O3 can be used for experimentation in many areas. BN Powder Grade ASP combines the great properties of two superior ceramic materials, Boron Nitride and Aluminum Oxide intimately mixed and united into a spherical particle shape.
- **MUY BN**
  MUY BN is a small container (18 grams) of ultra-high purity h-BN (hexagonal Boron Nitride) powder that is ideal for dry lubrication by merely rubbing onto surfaces.

- **BN SiloxyKote DMX Powder**
  BN SiloxyKote DMX Powder can be made by anyone to a liquid paint coating by merely adding your own solvent liquid and mixing to create your own solvent-based coating which will have uniform, tough/adherent bonding to all substrates and in all atmospheres to over 800 C (1472 F).
- **BN Glass Release DMX Powder**
  BN Glass Release DMX powder can be made by anyone to a liquid paint coating by merely adding isopropyl alcohol (IPA) and shaking to create your own solvent-based coating with the amazing glass release of Boron Nitride.

Solvent Based, Fast Drying

Flammable

- **BN Aerosol (spray can) and 'bulk' version, BN Aerosol Brushable**
  BN Aerosol Lubricoat is an aerosol spray-can yielding a fast-drying layer of Boron Nitride on any substrate. BN Aerosol Brushable is the "bulk" solvent-based paint with formulation same as our BN Aerosol spray-can. This product is ideal for a DFL (Dry-Film Lubricant). Also, this "ZYP" is the standard in the glass slumping/fusing world. Read more about BN Aerosol Lubricoat. Read more about BN Aerosol Brushable.
- **SEG Aerosol (spray can) and SEG Aerosol-Brushable**
  SEG Aerosol is an aerosol spray-can yielding a a fast-drying layer of "Super Enhanced Graphite" on any substrate. SEG Aerosol Brushable is the "bulk" solvent-based paint. Read more about SEG Aerosol. Read more about SEG Aerosol Brushable.
- **White Silk (spray can)**
  White Silk is an aerosol spray-can, lower BN "loading" to yield fast-drying and thinner layers of Boron Nitride on any substrate; ideal for diamond-drill-bit anti-stick with graphite parts. Read more about White Silk.
- **BNA Paste**
  BNA Paste is a non-aqueous-based or solvent-based paste that is usable in all atmospheres and can be applied in thick layers or brushed like house paint It yields excellent nonwetting and release with aluminum, magnesium, zinc and other nonferrous metals and alloys. BNA Paste
- **JK SD**
  JK SD is a specially formulated solvent-based, very-low-viscosity BN coating to allow dipping onto "blanks" to yield very thin layers that can accommodate the extreme stretching of superplastic forming operations. The uniform-sized BN particles give good adhesion and lubrication over the superplastic-forming and quick-plastic-forming (SPF/QPF) cycle. The consistency of JK SD allows its use for applying thin layers by air-spray as well as dipping.
- **Supercoat S with BN**
  Supercoat® S with BN is modified to allow fast drying when applied by brushing, dipping, or spraying. When applied and dried onto Iron-Chrome-Nickel alloys such as Stainless Steel, a one-time "bake-on" at 800-850 C is required. The result is a tough, flexible Supercoat that has the special lubricating and non-wetting properties of Boron Nitride.

- **ChillOff**
  ChillOff is a gray-colored, solvent-based coating that is adherent to all substrates and dries to form a tough permanent BN coating to dissipate heat quickly.
- **BN SiloxyKote**
  BN SiloxyKote is an enhanced adherence, solvent-based BN – Silicone coating that provides uniform, tough/adherent bonding to all substrates to over 800 C (1472 F). The coating can be used where BN Aerosol Brushable does not provide enough toughness over the entire use-temperature range and also where silicon content is not a problem.
- **BoNimide**
  BoNimide is an easy-to-apply, nonaqueous, paintable boron nitride (BN) coating with an imide precursor that is designed to seal surfaces, prevent reactions, improve tribological properties and provide electrical insulation. Once applied and cured at 150-250 C, BoNimide is usable in any atmosphere to 400-600 C.

Non-Flammable

- **BN Lubricoat NFN-12**
  BN Lubricoat NFN-12 is an easily applied, non-aqueous, nonflammable-solvent based Boron Nitride coating – containing very unique BN that is less than 100 nanometers. Whenever a nonflammable coating is desired, NFN-12 provides all the great properties of Boron Nitride.

Wax Based

- **Cleanlube Grease**
  Cleanlube Grease is a unique mixture of a high-loading of Boron Nitride (BN) and non-petroleum-derived wax. The BN provides friction reduction in conjunction with the wax matrix. Cleanlube Grease can be applied at room temperature or to hot surfaces [100-200 C or 212-392F] without skittering. After drying the grease, the lubricant can be used to above 800 C (1472 F). The grease can be removed while wet with ethanol-water, thus easily cleaned off undesired areas.
- **Cleanlube Liquid**
  Cleanlube Liquid is a easy-to-apply solution containing Boron Nitride (BN) and non-petroleum derived wax. After application and drying for around 60-90 minutes, a dry-film-lubricant (DFL) of BN in wax matrix provides lubrication that is water repellent and does not attract particles/grit. The DFL area can be burnished to a super-smooth finish, if desired. Use-temperature from room temperature to 40 C is common, but the residual BN coating can be used to above 800 C after the wax evaporates.