



# NAX-BTC

# Application Guide

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Aug 23  
2023

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## SECTION 1: PRODUCT SPECIFICATIONS

NAX-BTC is a superior quality, flexible, water based textured paint based on a pure acrylic emulsion.

It offers very good weather and water resistance. The unique UV protected colors offer outstanding protection against destructive effect of UV rays present in sunlight. Its unique formulation protects concrete from carbonation (Acts as anti-carbonation coating). Provides an attractive texture that will hide and cover minor imperfections when applied with a sponge roller. Designed to provide eggshell\* finish with medium texture. Has ability to cover cracks up to 2.6mm.

NAX-BTC can also be used on the following surfaces:

Concrete, blocks, cement plaster, cement/calcium silicate boards, acrylic cement plaster.

This application guide provides product details and suggested ways to use the product. The data and information provided are not definitive requirements, but suggestions to help ensure optimal, safe use and increase the efficiency of product performance.

The responsibility of Nano Axon Company includes only the responsibilities defined in the quality of the product and it is not responsible for the quality of execution and this responsibility is considered by the executor. In cases where the team leader is Nano Axon Company, Nano Axon Company will bear the above responsibility.

Application guide should be read in conjunction with the Technical Data Sheet and the Safety Data Sheet.

## SECTION 2: PREPARING SURFACES

The quality required for surface preparation can vary depending on the project area, expected durability, desired element, and use in each project.

The entire surface must be physically clean, dry, and free of mud, concrete slurry, grease, and other contaminants.

## SECTION 3: ENVIRONMENTAL CONDITIONS

Environmental and storage conditions should be considered as soon as the final coating of this product is completely dry. During relocation or construction, surfaces exposed to air must be coated.

|                            |             |
|----------------------------|-------------|
| <b>Ambient Temperature</b> | 10°C ~ 45°C |
| <b>Surface Temperature</b> | 17°C ~ 40°C |
| <b>Relative Humidity</b>   | 10% ~ 80%   |

The following restrictions must be observed:

- For optimal use and drying, ambient and surface temperature should be more than 13°C and relative humidity should be below 80%.
- Apply the coating only when the surface temperature is at least seven °C above the dew point.
- Do not use the product if the surface is wet or is likely to get wet.
- If the weather is deteriorating to apply or dry the product, do not spray.
- Do not spray in strong wind conditions.
- Before applying the coating in cold seasons, the ambient temperature must be controlled every 4 hours for 24 hours a day.

Activity in environmental conditions less than 10°C and in higher than 80% of relative humidity causes freezing and cracking of the coating. Temperature and humidity controls using electric heaters or dehumidifiers are recommended to maintain environmental conditions in acceptable parameters. When conditions are different, monitoring at least every hour or two will be necessary.

## SECTION 4: MATERIAL STORAGE CONDITIONS

During storage and transportation, the temperature should be between 10°C and 45°C. The executor or buyer must ensure the storage conditions of the material. It is recommended to control the weather conditions continuously. Protect from always freezing during storage and transportation. In case of freezing, discard this product in accordance with environmental regulations and do not reuse

frozen materials in any way. To facilitate airless application, materials should be stored in a warm environment (above 17 ° C) for at least 16 hours prior to spraying.

## SECTION 5: PRODUCT MIXING

The product may become a non-homogeneous liquid during storage, meaning that the viscosity of the product changes drastically when pressed, creating shear stress and agitation and mixing. For example, mixing this product should be done with a mechanical mixer with a clean and suitable Helical ribbon impeller. Stir with a mechanical stirrer for about 1–2 minutes to ensure that the product is uniform in consistency and completely homogeneous. Ensure that the mixer is in such a way that no air bubbles are created during the mixing process, especially in water and coatings. Manual mixing is not recommended at all. It should be noted that after finishing the work every day, if the material remains in the bucket, the lid of the bucket must be tightly closed to prevent the material from drying out, and care must also be taken to stir the material again the next day.

## SECTION 6: COLOR SHADE

Access and creation of colors desired by the customer is also possible by adding polymer pigments compatible with the existing water-based product. (To add pigments, it is necessary to contact Nano Axon Company.)

## SECTION 7: CLEANING EQUIPMENT

It is recommended to use airless equipment exclusively for spraying water-based coatings. All equipment including pumps, hoses and guns must be thoroughly cleaned daily. Prior to spraying, the hoses and guns should be flushed with clean water until a stream of clean water is observed. Care should be taken not to mix water with this product when the material is circulating through the pump, hose, and spray gun. Allow water to drain completely out of the bin to ensure that the product mixed with the wash water is not used for spraying.

## SECTION 8: SPRAYING

|   |  |
|---|--|
| <b>Pump ratio (minimum):</b>            | 1:45 for NAX-BTC   |
| <b>Nozzle pressure (minimum):</b>       | 200 bar / 2900 psi   |
| <b>Nozzle tip (inches / 1000):</b>      | 17 to 23 for NAX-BTC   |
| <b>Nozzle output (liters / minute):</b> | 9 to 11  |
| <b>Filters (mesh):</b>                  | Filter with mesh 800–850 is used at the beginning of the material suction input. |
| <b>Hose length:</b>                     | Maximum 45 meters  |

Note: The size of the nozzle in the table is suggested and discernment of the operator is a priority to reduce the consumption and coating.

To maintain the recommended pressure in the nozzle, several factors affect. Among the factors that cause pressure drop are:

- Long hoses or hose connection clamps
- Tilt of the hose from the sprayer
- Hoses with small inner diameter
- High color viscosity
- Improper nozzle size
- Inadequate air capacity of the compressor
- Improper or clogged filters

Note: If the material gets stuck inside the gun and the spray shape is inappropriate, there is probably still waste in the material, so first pass the material through a filter with a mesh of 800–850 and put it back in the machine. The choice of nozzle type has a great impact on the quality of spray, spray thickness and spray continuity.

## SECTION 9: FILM THICKNESS OF NAX-CTC

|                           |                         |
|---------------------------|-------------------------|
| <b>Wet film thickness</b> | 100 ~ 120 $\mu\text{m}$ |
| <b>Dry film thickness</b> | 80 ~ 100 $\mu\text{m}$  |

Note: This thickness is based on airless spraying calculated on the surface.

## SECTION 10: DRYING TIME

| <b>Surface Temperature</b>                         | <b>10°C</b> | <b>23°C</b> | <b>40°C</b> |
|--|-------------|-------------|-------------|
| Surface drying (Hour)                              | 3           | 2           | 1           |
| Deep drying (Hour)                                 | 8           | 6           | 4           |
| Minimum drying time to apply the next layer (Hour) | 24          | 20          | 12          |

The entire drying time was measured in a wet film thickness of 1000 microns at a controlled temperature and a relative humidity below 80%.

Actual drying time depends on environmental conditions such as air temperature, relative humidity, weather conditions, ventilation as well as the number of layers and the total thickness of the dried film.

## SECTION 11: FILM THICKNESS MEASUREMENT

Instructions for measuring the film thickness.

Thickness control is very important in the project. If you do not control the dry film thickness, some color characteristics such as impact resistance, adhesion, scratch resistance, etc. may change and the paint will lose its proper performance, which indicates the importance of controlling the thickness of the film. Wet film thickness can be measured immediately after applying and dry film thickness 8 hours after applying.

Note: Wet and dry film thickness variations are different in different colors and should be controlled with technical specifications.

## SECTION 12: WET FILM MEASUREMENT WITH WET GAUGE

To perform this test, special blades are used to measure wet films. These blades are made in different thickness ranges. Each of these blades has different indentation that are different in height from each other and are located between the two main bases along each other. The following figure shows a sample of a wet film thickness gauge (Wet Gauge).



## 12.1 SAMPLE OF A WET GAUGE

To measure the wet film thickness, place the main bases of the blade at a 90-degree angle to the surface on the freshly painted surface and gently press, then gently remove the blade from the surface. The thickness of the wet film is the color of the number written on the last indentation of the blade that has been colored.

## SECTION 13: DRY FILM MEASUREMENT WITH ELCOMETER

A magnetic thickness gauge (Elcometer) is used to measure the thickness of the dry film.

First, calibrate the device (Elcometer) with metal plates inside the package to ensure the correct result. It should be noted that to calibrate the device, plates with different thicknesses should be used to prevent any errors in high or low thickness. Place the probe of the device on the dry painted surface and by pressing the device button, the film thickness is written in microns. It should also be noted that when measuring the thickness, the coating should be completely dry (at least 8 hours have passed) so that the thickness gauge probe does not sink into the paint. In this case, while maintaining the effect of probe on the wet film, the device shows the thickness of the layer less than the actual amount.

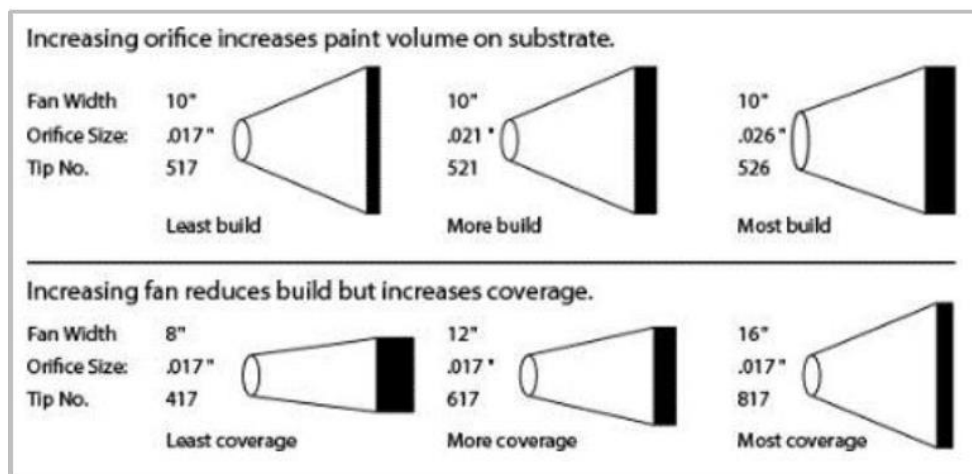
Note: It is worth mentioning that the probe of the Elcometer device is very sensitive to wet colors and the color measurement time should be at least 8 hours after its implementation.

## SECTION 14: SPRAYING WASTING

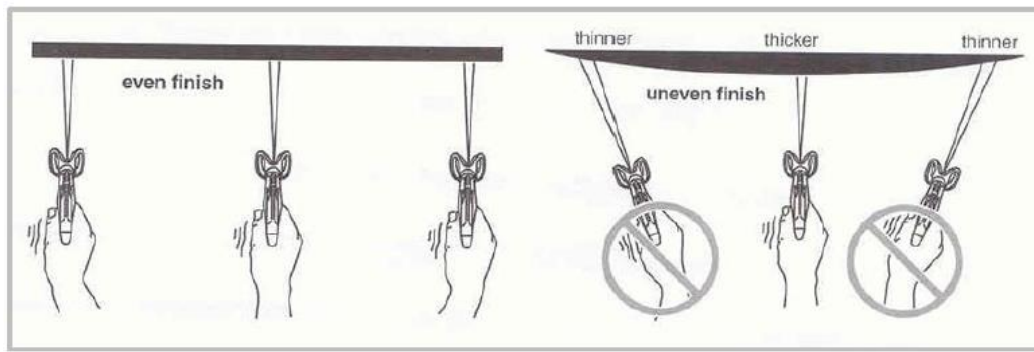
Paint consumption should be controlled with careful planning and a practical approach to reducing waste.

Some of the factors that can affect the loss of fireproof materials are:

- Type of spray gun
- Air pressure of the pump
- Spray tip or nozzle size
- Width of spray gun or nozzle
- The amount of water or diluent added.
- The distance between the spray gun and the applying surface.
- The shape of the spray surface element
- Environmental conditions such as wind and air temperature



Dimensions of different gun tips



Correct and incorrect spraying conditions

Note: Care must be taken that the spray angle is perpendicular to the surface (as shown in the above figure)

## SECTION 15: VENTILATION

1. Adequate ventilation is crucial to ensure proper drying of the film.
2. Improper ventilation and low air circulation will increase the relative humidity in the area and close to the surface of the elements, and as a result can increase the drying time or improper shape of the surface.
3. Forced ventilation and excessive ventilation can also cause the paint surface to shrink or the surface to flake.

## SECTION 16: SPRAYING INTERVALS

Spray intervals must be observed between each layer according to the NAX–BTC Technical Data Sheet.

Environmental conditions, humidity, air conditioning, ambient temperature and geographical conditions have a great impact on the drying time of the product and the application of each wet film layer on the previous layer. All thicknesses and execution time of each layer are proposed by Nano Axon Company, and the environmental conditions and detection of the executor confirm the actual thickness and execution distances in each project.

## SECTION 17: MAINTENANCE INSTRUCTIONS

Items that must be observed to maintain the fireproof coating after application and drying of the surface.

1. Any bumps or scratches that cause damage to the layer, or layers of coating need to be extended and repaired.
2. Chemicals such as diesel, diluents, and acidic substances cause the destruction of coating layers.

## SECTION 18: QUALITY GUARANTEE

The following information is the minimum condition required.

- Make sure the installed ventilation is appropriate and has the possibility to supply and maintain.
- Make sure the surface preparation standard is implemented before applying the coating.
- Make sure there are weather conditions in the implementation instructions during run time.
- Make sure the coating is applied layer by layer.
- Make sure that the specifications are observed in each layer.
- Make sure that there is enough coverage in the corners, gaps, edges, and surfaces where the spray gun is difficult to place so that the spray penetrates the surface at 90 degrees.
- Make sure the coating is free of defects, discontinuities, insects, abrasives, blisters, and other contaminants.
- Make sure the coating uniformity is satisfactory.

## SECTION 19: CAUTION

NAX–BTC should be run by experienced executors. Operators must be trained, experienced and capable and have the ability and equipment to mix and use correctly and in accordance with the technical documentation of Nano Axon Company. Applicants and operators must use appropriate personal protective equipment when using this product. This guide is based on the current knowledge of the product and any proposed deviation in accordance with the site conditions must be sent to the representative of the Nano Axon Company for approval before starting work.

For more advice, contact the office of Nano Axon Company.

## SECTION 20: SAFETY AND HEALTH

Please observe the precautions displayed on the package. Coatings should be sprayed in a well-ventilated area and care should be taken not to inhale the paint dye and to avoid skin contact. If spilled on the skin, it should be removed immediately with a suitable cleanser, soap, and water. Eyes should be thoroughly rinsed with water and rushed to a clinic for medical attention.

In case of problems, you should refer to the product safety data sheet.

## SECTION 21: REFER TO RELATED DOCUMENTS

Implementation instructions should be in relation to the relevant specifications, technical information sheet and safety data sheet for all products used as part of the coating system.

Always use the latest version of the safety data sheet, technical data sheet and product implementation instructions to ensure the accuracy of the information.

## SECTION 22: DISCLAIMER

The information in this document is based on laboratory tests and practical experience of Nano Axon Company. Nano Axon Company products are considered as semi-finished goods and similarly, the products are usually used under conditions beyond the control of Nano Axon Company. Nano Axon Company cannot guarantee anything but the quality of the product itself. Minor product modifications may be made to suit local requirements. Nano Axon Company reserves the right to change the data without prior notice.

## SECTION 23: REFERENCE STANDARD

The reference standard is the ISO standard. But in different situations, regions and levels, local standards and specific region for each specific level must be considered.

If there are inconsistencies between the various language issues of this document, refer to the English version.