How to Properly Use Boron Nitride Paste?

Table of contents

We recommend Boron Nitride Paste for use in hotends of any brand to significantly improve heat transfer. For decades it has been used as a “heat transfer and release coating” for industrial cartridge heaters. Boron Nitride Paste can be used in many sections of the hotend as explained in the next section.

Applying Boron Nitride Paste to the Hotend

From the Cartridge Heater to the Hot Block

Boron Nitride Paste should be applied to the outside of the heater and the inside of the heater cartridge hole inside of the hot block using the included applicators. Then, the heater can be inserted into the hot block and the excess Boron Nitride Paste that comes out of the hot block can be wiped away. Having Boron Nitride Paste here will help to extend the life of the cartridge heater. For more information on this, please see our instructional video here.

From the Temperature Sensor to the Hot Block

Boron Nitride Paste should be applied to the outside of the temperature sensor and the inside of the temperature sensor hole inside of the hot block using the included applicators. Then, the temperature sensor can be inserted into the hot block and the excess Boron Nitride Paste that comes out of the hot block can be wiped away. Having

Boron Nitride Paste here will help to shorten response time and improve the accuracy of temperature measurements. For more information on this, please see our instructional video here.

From the Heat Break to the Hot Block

⚠ Warning: This step should **only** be followed if reassembly of the hotend is required. If your Mosquito® was purchased pre-assembled, **do not remove** the heat break from the hot block to apply Boron Nitride Paste to the threads. Boron Nitride Paste is not needed in the heat break threads when the proper torque specification is applied. If you need to reassemble your hotend and have the proper torque wrench (according to the torque specification shown in your hotend's assembly documentation) for installing the heat break, please use it. If you don't have the proper torque wrench, please follow the steps shown below.

I f you need to reassemble your hotend, and don't have a proper torque wrench, you can apply Boron Nitride Paste around the threads of the heat break (using the included applicators) and approximate the torque. The Boron Nitride Paste will act as a thread locker in this application. Then, the heat break can be inserted into the hot block and the excess Boron Nitride Paste that comes out of the hot block can be wiped away. Boron Nitride Paste acts as a conductive agent to improve heat transfer between the threads. Having Boron Nitride Paste here will also help to improve high flow rate performance when printing with large diameter nozzles.

Removing a Heat Break with Boron Nitride Paste Applied

If you are trying to remove the heat break, have previously applied Boron Nitride Paste, and are having trouble, try heating up the hotend first and then try to remove the heat break.

⚠ Warning: Be careful as the hotend will be hot!

Drying Boron Nitride Paste

Boron Nitride Paste may be used generally, in assemblies operating in temperatures up to 1000°C, as an electrically insulative heat transfer and anti-seize compound.

The paste is aqueous, so the water carrier must evaporate before the compound becomes an electrical insulator. Paste bridging a temperature sensor’s lead wires will affect the sensor’s measurements while the paste remains wet. Dry the paste by allowing it to set overnight, or to save time, heat it to a temperature of 90°C for ten minutes. The paste will dry completely, and temperature measurements will return to normal upon first use of the hotend.

⚠ Avoid exceeding 100°C while drying, to keep the water from boiling and ejecting the paste with steam.