

# Arctic Silver® 5

## High-Density Polysynthetic Silver Thermal Compound

With its unique high-density filling of micronized silver and enhanced thermally conductive ceramic particles, Arctic Silver 5 provides a new level of performance and stability. Available at Arctic Silver resellers worldwide. Arctic Silver 5 is the reference premium thermal compound. Arctic Silver 5 is optimized for a wide range of bond lines between modern high-power CPUs and high performance heatsinks or water-cooling solutions.

### Features:

#### Made With 99.9% Pure Silver:

Arctic Silver 5 uses three unique shapes and sizes of pure silver particles to maximize particle-to-particle contact area and thermal transfer.

#### High-Density:

Arctic Silver 5 contains over 88% thermally conductive filler by weight. In addition to micronized silver, Arctic Silver 5 also contains sub-micron zinc oxide, aluminum oxide and boron nitride particles. These thermally-enhanced ceramic particles improve the compound's performance and long-term stability

#### Controlled Triple-Phase Viscosity:

Arctic Silver 5 does not contain any silicone. The suspension fluid is a proprietary mixture of advanced polysynthetic oils that work together to provide three distinctive functional phases. As it comes from the syringe, Arctic Silver 5's consistency is engineered for easy application. During the CPU's initial use, the compound thins out to enhance the filling of the microscopic valleys and ensure the best physical contact between the heatsink and the CPU core. Then the compound thickens slightly over the next 50 to 200 hours of use to its final consistency designed for long-term stability. (This should not be confused with conventional phase change pads that are pre-attached to many heatsinks. Those pads melt each time they get hot then re-solidify when they cool. The viscosity changes that Arctic Silver 5 goes through are much more subtle and ultimately much more effective.)

#### Not Electrically Conductive:

Arctic Silver 5 was formulated to conduct heat, not electricity.

(While much safer than electrically conductive silver and copper greases, Arctic Silver 5 should be kept away from electrical traces, pins, and leads. While it is not electrically conductive, the compound is very slightly capacitive and could potentially cause problems if it bridges two close-proximity electrical paths.)

#### Absolute Stability:

Arctic Silver 5 will not separate, run, migrate, or bleed.

**Compliance:** RoHS Compliant.



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## Specifications:

**Average Particle Size:**

<0.49 micron <0.000020 inch

**Extended Temperature Limits:**

Peak: -50°C to >180°C

Long-Term: -50°C to 130°C

**Performance:**

3 to 12 degrees centigrade lower CPU full load core temperatures than standard thermal compounds or thermal pads when measured with a calibrated thermal diode imbedded in the CPU core.

**Coverage Area:**

A 3.5 gram syringe contains enough compound to cover at least 15 to 25 small CPU cores, or 6 to 10 large CPU cores, or 2 to 5 heat plates. At a layer 0.003" thick, the 3.5 gram syringe will cover approximately 16 square inches.

**Important Reminder:**

Due to the unique shape and sizes of the particles in Arctic Silver 5's conductive matrix, it will take a up to 200 hours and several thermal cycles to achieve maximum particle to particle thermal conduction and for the heatsink to CPU interface to reach maximum conductivity. (This period will be longer in a system without a fan on the heatsink or with a low speed fan on the heatsink.) On systems measuring actual internal core temperatures via the CPU's internal diode, the measured temperature will often drop 2C to 5C over this "break-in" period. This break-in will occur during the normal use of the computer as long as the computer is turned off from time to time and the interface is allowed to cool to room temperature. Once the break-in is complete, the computer can be left on if desired.

**Caution:**

We do not recommend using Arctic Silver 5 on the older slot type Intel Xeon processors with large multiple square inch CPU to heatsink interfaces. The huge contact area and large gaps between the processor and the heatsink require a thermal pad or thick mesh-reinforced paste. Arctic Silver 5 can be used on socket type Xeons without a problem.