



MOTORSPORTS FAQs

Q: What are racing brake pads made from?

A: Racing brake pads are made from a variety of ingredients like metals, resins and fillers. The combination of ingredients and the size and weight of the ingredients used in the friction formula can create very different performance levels and characteristics.

Q: With all the different brake compounds available today, how do I make the proper choice of what to use on my racecar?

A: Choosing the proper brake pad compound that will provide the best performance for your Motorsports application can be made easier by following the guidelines outlined below:

- Determine what compounds and styles of brake pads are available for your calipers and type of racing.
- Determine the operating temperature of your car's brake system. Heat sensitive paint can be applied to the brake pads and rotors to help you gauge temperature. Tire pyrometers can be used, but due to the cool down time the temperature numbers may not be accurate.
- Upon learning your system's temperatures, or if you do not know your temperatures, contact Hawk Performance at 440-528-4000 for recommendations regarding proper brake material for your application.
- Other drivers that share your driving style will sometimes provide valuable information that may allow you to learn what brake pads other drivers have used and liked or disliked.
- Contact your local racing products dealer and inquire as to what brake pads they offer and recommend for your application.
- It's important to understand different types of racecars, racing surfaces and driving styles may require different levels of braking performance, and many drivers expect the brake system to have a certain feel that suits their individual needs. Because of this, it should not be assumed that what works for one driver would work for all. In some cases the best way to learn what is best for you is to experiment with a variety of friction compounds to determine how a particular pad differs from another regarding issues such as pedal feel, consistency, and rotor and brake pad wear.

Q: What are some noticeable signs that I have made the wrong pad choice for my Motorsports racing application?

A: When a friction compound is used in a substantially higher temperature range than intended, the material can quickly lose its ability to perform correctly. Generally, an overheated brake pad will continue to provide a hard pedal but require more foot and pedal effort to achieve even marginal performance. Continued use during this type of circumstance can result in complete brake pad failure.

Q: What happens if I choose a brake pad compound that does not have a high enough temperature range for my application?

A: It's important to understand the chain of events that take place when a brake pad becomes too hot to work correctly. As the pad begins to lose performance effectiveness the driver may try to compensate by pushing harder and longer on the pedal. This may cause friction surface temperature to increase thereby increasing the brake problem. When this occurs, great stress is put on the friction material and the material can begin to crystallize. In extreme cases delaminating between the friction material and the pad's backing plate can sometimes occur. This type of situation may be corrected by choosing a friction compound designed to withstand higher temperature.

Q: Why should I perform a break-in procedure on new brake pads?

A: Correct brake pad break-in (bedding) is important to assure optimal braking performance over the life of the pad. This procedure allows the rubbing surface of the brake pad to slowly be brought up to racing temperatures. Proper bedding creates a transfer layer film of friction material to be applied to the rotor surface. This allows the brake pad material to rub against itself rather than the bare rotor. This increases the stopping performance of the brake pad and can reduce pad and rotor wear.

Q: What is the proper procedure for breaking in new brake pads?

A: Brake pad break-in procedure:

Brake Pad Burnishing/Bedding-In Instructions

1. After reaching medium speed engage brake pedal to slow car without coming to a complete stop. Release pedal quickly and do not drag brakes. Repeat four or five times.
2. At higher speeds engage brake pedal to slow car without coming to a complete stop. Release pedal quickly and do not drag brakes. Repeat five times.
3. At or near race speed engage brake pedal to slow car without coming to a complete stop. Release pedal quickly and do not drag brakes. Repeat three times. Allow a few seconds between brake engagements while car is in motion.
4. Do not hold brake pedal. Park car for approximately 20 minutes or until brake rotors are completely cool to the touch.
5. If during the above steps the brake pedal becomes soft or brake fade is noticed, park the car immediately for approximately 20 minutes. Do not hold brake pedal.

IMPORTANT REMINDERS WHEN BURNISHING/BEDDING BRAKE PADS

- Do not attempt to use badly worn or damaged rotors with new brake pads.
- Do not drag brakes while car is moving during break-in procedure.
- Do not engage pedal while car is stopped at any time following the break-in procedure.
- Upon completing the procedure, allow the brake system to completely cool before racing.
- Applying the pedal a few times before the start of the race will allow the brake pads to heat up before attempting to reach race speeds.
- Clean a used rotor surface with fine sand paper or steel wool, rinse with water, dry and install before bedding new pads.
- Some forms of racing don't allow time for the proper break-in procedure to be performed. However, it is still very important to attempt to perform at least the core of the procedure: Build up heat slowly and allow the system to completely cool down before racing if possible.

Q: What can happen to my brake pads if not bedded properly?

A: Proper break-in will assure that small amounts of heat are introduced to the brake pad. Brake pads that are brought up to temperature too fast and not properly allowed to cool down may quickly become glazed and not perform as originally intended. The pad's rubbing surface reaches extreme heat levels during racing use. The surface needs slow temperature increases to help prepare the pad. Large amounts of heat all at one time can cause the brake pad rubbing surface to become somewhat liquified and coat the pad surface with a glaze. This will dramatically reduce stopping performance as certain ingredients in the friction compound breakdown and cause glazing of the rubbing surface of the brake pad.

Q: How can I tell by looking at the brake pad if my pads have been glazed over?

A: When a brake pad glazes over, the friction surface develops a cloudy or glassy looking coating. It is possible to remove the glazed surface by using sand paper to grind away the damaged layer and expose a new layer that will require the proper bedding procedure.

Q: What is a pre-bedded brake pad?

A: Some brake pad manufacturers offer a pre-bedded pad and/or a pre-bedding service. Pre-bedding involves placing pads in a caliper and running them against a mechanically driven rotor in a controlled environment. The rotor and pads are slowly brought up to temperature and allowed to cool down over several cycles. This process simulates on track situations while allowing the two surfaces to mate correctly in an optimum environment. While this process can be very expensive, it greatly reduces the break-in time prior to pad purchase. In most cases the rotor and the pad are, and should be, sold as a matched set.



Q: What is a pre-burnished brake pad?

A: Some brake pads are pre-burnished during the manufacturing process. Pads that are pre-burnished have had high temperature applied to the rubbing surface to simulate the first few engagements on an actual racecar. The process will allow the pad to break-in quickly and to begin working more effectively in a shorter time. Pre-burnished pads still need to be properly bedded to help assure that the pad and the rotor have an opportunity to mate correctly.