

BRAKE DUST REPELLENT STUDY

<http://brakeduststudy.blogspot.com.au/>

WHY STUDY BRAKE DUST REPELLENTS?



Do you like the way this looks? I don't either. How long does it take for the coating of brake dust to become visible on your wheels? Around town? To the store or the office? This wheel looked bad only after a little driving, but this accumulation built up after 350 miles. Cars like an Aston Martin are meant to look their best at all times for the owners and for anyone watching it as it passes by.

[SLK Owner Editor's note: The author is particular about appearance, but has not experienced the aggravation of coping with Mercedes brake dust!]



What if the same wheels could look like this after 350 miles? They can! Washing or applying wax is not enough. Even with wax-protected wheels, hosing off the dust does not do the job. Most is washed away, but enough clings to the wheel to where you have to get up close and personal with every spoke. Every dimple and each painted caliper needs a wipe down even though the rest of the car looks immaculate. Cleaning wheels is time consuming, and I, for one, don't get any therapeutic value that I do when washing or dusting the car. The fewer times the wheels have to be cleaned, the better for me. This study was done to see if brake dust repellents worked, and if so, how well, and which one works the best.

OTHER ALTERNATIVES

There are a few other preventative measures that will help reduce brake dust.

Some cars have brake dust covers that completely cover the brakes and rotors, and prevent dust from reaching the wheels. Mostly, these are ugly, hide the calipers and as far as I could find they don't exist as an option for Aston Martins.

Switching to ceramic brake pads does seem to be very effective from what I've been able to find. Unfortunately, if you are going to stay with factory service while you have your car, then you are going to get the same pads that your car came with. Aston Martin dealers do not offer ceramic pads for the V8 Vantage (Gaydon era). My warranty is good for at least one more year and my brakes function really well, so I won't be going for any aftermarket brake pads just yet. -You could buy anthracite colored wheels, and not worry about the dust build-up since it's disguised.

Chrome wheels don't seem to show dust as much and there is a coating called Cilajet. This is a coating applied by dealers in the US, and is normally applied to a car's paint, and the wheels are sprayed with a permanent coating as part of the overall protection. It appears to work very well on the wheels, but once it's on it's not coming off. That might be fine for the wheels, but any imperfections in the paint job will be sealed in as-is. Also, you can't do it yourself.

An AMOC post talks about using a pressure washer to clean the wheels. I'm sure this makes cleaning easier, but it means getting the hose and then drying the wheels, and possibly your car where overspray hit it. I'm also a little concerned about the long-term effects of high-pressure water on the wheel's finish.

The one other solution I found was to use brake dust repellents and hence this report.

HOW PRODUCTS WERE SELECTED

Products for this study were found by searching the earlier AMOC postings by other members, searching other car club websites for their suggestions, searching car detailing sites for ideas, and browser searches for brake dust prevention. I also went into a few auto detailing stores for ideas, too. If a product claimed to prevent or slow brake dust accumulation, then I got it. If it didn't specifically say that it did that, then it was not included since there were plenty of others who did. If any member of AMOC made mention of a possible product I tried to include it. I should mention that only one non-auto car care product was included, and that one product was mentioned on more than one website and was already on hand. If you found that your Aunt Millie's hairspray does a fantastic job or a light coating of yak oil can't be beat, then you may be on to something, but there too many non-auto products for me to chase down and rate every one of them. I did find a couple of other studies on other sites that compared a single product against an untreated wheel, or compared two products against each other. There was also a study done five years ago by Auto Express in the UK. That study helped in that it included some products I couldn't get, but I was able to get the winner of their comparison (AutoGlym), and check it against the 15 others in this report. My study took place over a year and over 5,000 miles. New products came on the market during the testing. What started off as a test between 4 or 5 products grew into a comparison between 16 (list shows 14, but some products were mixed with others to check for possible benefits). Some untested products may be out there now, but as of May, 2010 I think they're mostly covered. The results of this study may give you a starting point to try your own testing if you want to try to find something better. There are many products that help slightly, but there is one that really helps, and there was one spectacular loser. None claimed to eliminate the problem. These products could have just as accurately been called brake dust postponers, although the winner is still going strong, and is only looking ratty because I keep rubbing it with my finger, spraying water on it, or wiping a cloth on it. Except for three, none of the tested products were available at any local store, and had to be ordered from suppliers. You may find more of these on the shelf outside of the US.

WHEEL CARE BASICS

Left alone brake dust can cause pitting in your wheels. Waxing your wheels has at least two benefits. The first is it will protect your wheels from the pitting. The other is it makes it easier to clean them of brake dust and dirt. It may make them look better too, but I didn't notice that. A wax specifically made for wheels is recommended, and not a wax designed for only paint like carnauba. More than one other site mentioned using carnauba wax on their wheels. They claimed the wax later heated up during braking, got soft, and then entrapped brake dust as it cooled or was reported to turn yellow. I never tried to see if that happened, but it sounds so plausible I took their word for it. Plus, my garage is already filled with so many other wheel-specific products that don't feel I need to confirm the bad results of others. Most waxes alone do little to help prevent dust build up. They do make it easier to hose most of it off, but it still leaves a dust residue that requires a thorough cleaning. Before applying a wax I used a wheel cleaner that was pH balanced to give a clean starting surface. The two I happened to use were made by Eagle and by Black Magic. I used a pH balanced cleaner since some sites reported repeated use of an acid cleaner could dull and strip the wheels' finish. Even though it's not part of the study I found the Black Magic worked a little better than the Eagle product.

HOW BRAKE DUST REPELLENTS WORK

Brake dust apparently has a charge (negative or positive) to it. By applying a coating to your wheel with the same charge (same charges repel) it will push the dust particles away from the coating and the wheel. The efficacy of these repelling charges is limited, and at a certain point they either give up the ghost or enough dust forms that buries these charges. Then dust collects rapidly. The winner of the contest didn't claim to use static charges, but had some sort of very slippery barrier.

OUR CONTESTANTS/METHODOLOGY

No manufacturer or supplier donated any materials. All were purchased to prevent me from feeling obligated to give favorable comments. One contender was matched against another on either the front or back wheels of my V8 Vantage. Fronts to rears were not compared since front brakes do more of the stopping than the rear brakes. After 200 miles or so both wheels were compared, and the winner moved on to compete against another product. No attempt to rank the entrants was done since the difference between one or another was often minor. This was a search for the best rather than second best as the cost difference between them was not too large. Also, the difference between the winner and the others was so great that it became a matter of splitting hairs between the also-rans. Those were quickly eliminated from the competition.

Armor All Wheel Protectant- This product was released a few years ago, but it's been reformulated, tested in Australia and now available elsewhere. Spray it on and leave it alone. Wipe any off that drips on your tire. Takes at least an hour to set at 65° F. The longer the better, though. After that, don't touch it. The darn stuff works!

AutoGlym Wheel Seal- Aston Martin recommends the AutoGlym product line for their cars. Worked OK, but was a middle of the pack finisher.

CG Jetseal 109- mentioned on AMOC site. Tried it stand alone and in combination with Zaino Z-6 since another AMOC forum member had tried it in combination with another product (not Zaino). CG recommended the 109 for what I was doing, but it worked better in combination with Zaino Z-6.

DiamondBrite- Used widely in the U.K. Made sure to include since it seems popular in the U.K. Not the winner, but it did a good job. The only product to cause a rainbow effect on the brake rotor. The effect went away after driving.

G Wheel Brake Dust Shield- Says it's a totally green product on the bottle. Glad it has that going for it since I didn't find the brake repellent qualities too remarkable.

Klasse AIO (All In One)- Used in a Mercedes brake dust test. They liked it, but it did not do very well compared to others I tested.

Michelin Brake Dust Repellent- Very mixed reviews from others, but found it did very well compared to most, but fell far short of the winner. Very easy to apply.

Pam Vegetable Spray- mentioned by a well respected participant on AMOC website and showed up on at least one other web site so I added it to the list. Big mistake!

Prestone Wheel Cleaner and Brake Dust Repellent- Recently released, and was the in the top 3. It's applied in conjunction with a hose. Because of this I thought it might be acidic, but it measured around 10 on the pH scale so it was far from being an acid. It does strip any wax you have applied so you have no long term protection against pitting.

Rejex- Developed for US Air Force to keep engine exhaust from clinging to fuselages. Heard that it worked well on wheels. Did OK, but not the winner. 12 hour curing time!

Zaino- Used by many AM owners including myself. They don't make any claims to repel brake dust, but I had it and so many others use it, I decided to include their Z2 and Z6 products. These products were tried individually and together. Also, the Z6 was sprayed over the CG JetSeal 106 since the user of this product had found better results by using it in tandem with some product I did not have. Together they worked better than many.

POSSIBLE ENTRANTS, BUT NOT INCLUDED

I could not find the Dupont Teflon based product, and the Turtle Wax Extreme Nano Technology product is widely available in the UK, but not in the US. The Turtle Wax product came in second to the AutoGlym Wheel Seal in the other test I found so I don't feel too bad about not including it here. If it had won I would have somehow figured a way to get it.

THE WINNER- BY A HUGE MARGIN!



Armor All Wheel Protectant. \$8.50 USD @ Pep Boys. Also available at Amazon.com and elsewhere. *[Editor's Note: Available in Oz at Auto Bahn and similar outlets]*

COMMENTS ON ARMOR ALL USE

Videos showed remarkable results such as dirt and mud sticking to an untreated side of a wheel while the treated side remained completely clean. Armor All has also put out their own video showing dirt and mud falling off the treated side of a wheel. For those of you unfortunate enough to live in a beehive they also showed honey falling off the treated side of a wheel.

I got some off the shelf at my local auto parts store, and sprayed it on and left it to set overnight. I drove for a hundred miles and was amazed. No brake dust was sticking to the wheel. I rubbed my finger on it just to see if it was some optical illusion, but the wheel was clean. My other front wheel with a fresh application of Michelin repellent was a mess, and an untreated wheel would have been even worse. There were some clumps of dust on the concave surface of the Armor All wheel, but that blew away with just a puff of air.

After another 100 miles I checked it again. The only dirty place on the Armor All wheel was where I had rubbed my finger earlier or the little clumps of dust that easily blew away. I either broke the protective barrier when I rubbed it or the oil in finger attracts brake dust.

I tried spraying part of the wheel with water to see what would happen. The little clumps washed away and the wheel was clean, and required no further cleaning. I dried one part of the wheel with air from a leaf blower and left one part wet. The brake dust seemed to stick a little after the wheel dried. More stuck in the part of the wheel left wet. It still washed away when hit with a jet of water. My finger streaks remained.

I believe each exposure to water decreases the protection although the people at Armor All told me they've had customers who swear it works even after washing several times. Don't touch it with your finger, even though you'll want to. Until you get up close and look for the little of clumps of dust you won't see any dust on the wheels. They look clean both parked and while driving.

See for yourself in the following pictures- (Michelin is compared to Armor All since Michelin was the runner-up)

[Editor's Note: Braking when driving in wet conditions does cause the dust to cling to the wheel. If allowed to dry it can be wiped off with a cloth, but I found it necessary to spray the rim lightly again. The result was not as good as the original application, but at a glance the rims looked perfectly clean]

Michelin treated wheel after 350 miles of combined city/highway driving.



(Untreated wheel would have been worse.)

Armor All treated wheel after 350 miles of combined city/highway driving



(Dust clumps removed with leaf blower)



Dust clumps before they were blown away. (The caliper looks gray because of some camera bias setting. The dust is accurately shown)

THE LOSER- DON'T TRY THIS AT HOME! – Explanation below



What a boon this would have been if it had worked. It's readily available, cheap, and your wheels glisten in the sunlight when first applied. I was excited about this PAM vegetable spray. I've used it for years on my waffle iron, and it works great. Theoretically, you might think something designed to leave a slick surface on high temperature metal could have a lot of overlap with wheels. So much for theory. When tested, the PAM lost on a side by side test done on the front wheels, and it was time to wash it off, and move on to the next competitor. It started to wipe off after I sprayed it with water, but suddenly froze in place. Black streaks and large black spots had become permanent. I wiped and then wiped harder, but nothing happened. I tried the Zaino wash. Nothing. Sprayed it with wheel cleaner. Nothing. Washed with dish detergent but it was there to stay. There are still one or two places where I still see it if I look hard. NASA may have some practical use for whatever it was I created on my rims, but I am certainly not interested in finding the answer!