



Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

ANNOUNCER

You're listening to Behind the Wheels with Doug Mason, Dave Walters, and Mike Yagley. This is a show where we talk about heavy truck and medium duty axle ends. Doug, Dave, and Mike bring close to 100 years of experience and expertise in the transportation business.

Join us once a month to learn new things about axle ends. Sponsored by Alcoa® Wheels, the global leader in aluminum wheel innovation.

MIKE YAGLEY

Well, welcome to another episode of Behind the Wheels. I'm Mike Yagley.

DOUG MASON

I'm Doug Mason.

DAVE WALTERS

I'm Dave Walters.

MIKE YAGLEY

Today, we're going to be talking about finishes, wheel finishes. Now when we were developing this program, this episode, we were going back and forth talking about what was the scope? How far do we want to go into this? Obviously, the commercial vehicle wheels, that's where we knew we needed to talk, but we were also thinking about possibly going into auto wheel finishes, but there are literally dozens of auto wheel finishes out there. And that's just a little bit too much for one show. If you're interested in hearing about auto wheel finishes, we certainly have experience, so drop us a line and let us know. But for this episode, we're just going to be focusing on the commercial vehicle wheels and the different finishes that are available out there. So focusing just on commercial vehicle wheel finishes there are an awful lot of options. I'd like to start with steel wheels. Dave, you want to talk a little bit about what you see out in the field with steel wheel finishes?

DAVE WALTERS

Ever since the industry kind of went to powder coat wheels, it gives you more life. The only issue that I see out in the field with the outer coat wheels to refinish them, it's quite a different process. A lot of them have to use bake-off ovens to bake off the paint, and that's a lot more than costs added when you add all these different processes into a refurb of a steel wheel.



1616 Harvard Ave. Cleveland, OH 44105

| 1-800-242-9898

| www.alcoawheels.com

facebook.com/alcoawheels

youtube.com/AlcoaWheelsNorthAmerica

alcoawheels

[@alcoawheels](https://alcoawheels)

Listen to Our Podcast
Behind the Wheels

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

DOUG MASON

You can do a lot of different things. There's a lot of options out there for the steel wheel refinishing. Like you said, Dave, it really comes down to the amount of work you have to put into it. You have to fully remove that powder coat as you were talking about and that typically takes a blasting, sanding type of situation. And that takes most of the time that is required to refurb the wheel. And it's so important when you're refurbing the wheel to get all of that coating and back down to the base steel wheel or when you go to put that new coating on, it just won't last and won't really be worth doing. And that cost of refurbing, like you said, we've looked into that when we're doing some cost benefits of aluminum wheels, obviously, and it can run you in the \$30 to \$50 range for wheel. So you've got to take that into account when you're going to look at getting the steel wheels and how often you might need to refinish them and the overall cost to do that.

MIKE YAGLEY

One of the things that we see out there are simulators. Doug, you've looked at simulators a little bit over the years. Do you got any comments on those?

DOUG MASON

Well, primarily I've worked lot in the medium duty segment and there's a fair use of them in that segment for RVs, for emergency vehicles, that type of thing, and just a standard person who wants to make their wheel look brighter, look better. And that's what a simulator does. It basically covers up the steel wheel and gives you a nice, bright, shiny chrome plated look.

MIKE YAGLEY

It's basically a sheet metal. It's like a chrome plated piece of sheet metal or plastic, typically sheet metal, that goes over the stainless steel, basically bolts to the wheel. It actually sort of fakes having a stainless steel or aluminum wheels. It's sort of like a fake covering that goes over them, right?

DOUG MASON

Yeah, and the main concern there is the fact that you don't know what's going on behind it. And that comes down to again, the maintenance and taking care of it. You can get a false sense of security that everything looks great, but underneath, and Dave, I think you would have more experience on that as well, it's what happens beneath that stainless steel or chrome-plated covering can be a concern. Right?

DAVE WALTERS

Yeah. I mean, I'll give you my take on simulators and I've done many studies and fire departments used to use them. And I had to write out a couple of letters stating, okay, first of all, simulators cover up, like if you had a broken stud or a loose nut or something like that. They cover up even like if you had a leaking wheel seal or something. And then the other big thing was simulators is they hold in the heat instead of like the aluminum wheel dissipates the heat. So here you're holding the heat in with this simulator. That's not a real good thing either. And the cost of a simulator is not cheap and they do rust out. Stainless steel's not supposed to, but in our conditions, in the roads they do rust out. So once you give them the whole story on them, why spend \$195 or \$200 on a simulator when you can buy a real aluminum wheel for just a little bit more and never have all these issues? So we've converted most of the firetruck companies over to aluminum wheels just by stating facts.

MIKE YAGLEY

So that gets into when we're talking about, and this is what we're going to spend most of our time talking about the aluminum wheel and the different kinds of aluminum wheels that are out there. The polished wheels are the most common type of aluminum wheels in the North American market and the plant. We're looking at a lot of different things. When we're making wheels and we're polishing them and something goes wrong. We do a lot of measurements on the wheels, things like roughness and waviness and loss. And there's just so many things you can measure on an aluminum wheel on the way it reflects light, but that's primarily to help us identify which part of the manufacturing process that we're having a problem. For example, if you have a lot of waviness or something, you might be, let's say you have a lot of roughness on the wheel. That's going to tell you, you probably have a problem either in machining or you can have some idea where to look.

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

MIKE YAGLEY

But out in the field, you don't need that level of detail. What do you tell customers, Dave, when they're looking at a wheel and they're trying to understand the difference between one kind of polish and another kind of polish, what's your guidance?

DAVE WALTERS

Well, most of the time fleets kind of have an idea of where they want to go, but I always love to go in when we have wheel pieces and samples of different polishes. I love to go in and say, "Okay, this is this polish, this is this polish." And kind of say, "Hey, this is, what are you looking for?" It's nice to give these customers a lot of options. I always tell a truck salesman, take them out. And here you have a lot of brand new trucks, show them the different wheels out there, and they'll be able to kind of choose what they want to do, but each one of those wheels have advantages and disadvantages, so understand that.

DOUG MASON

Isn't it fair to say typically as well, the amount of work we put into a wheel to make it look brighter and brighter and brighter, and that's just really gives you a range, really, of the cost that you're going to run into as well, all the way up to the finish of the Dura-Bright finishes we'll maybe talk about in a little bit, that would seal in that look for the long-term.

DAVE WALTERS

I guess what I would always tell the customers is a polished wheel looks fantastic. You better go in with an understanding to keep that wheel looking good without using Dura-Bright or something else, it's going to take some work and they kind of have to know that. So, I mean, you always would go to like a Mid-American Truck Show and see a lot of polished wheels. And those guys spent a lot of time doing that. So if you're a person that don't really want to do that type of work, I would always tell them, you can maintain the look by putting a coat of car wax on them. Sooner or later, you're going to have to do some buffing and polishing, and that's some effort. So just kind of know the different things. And that's why I really believe that Dura-Bright has been a great scenario in this business.

MIKE YAGLEY

Just to give a little explanation perhaps for people as well. Obviously, a steel wheel, it needs to be coated. It has to be coated or it's begins rusting and everybody knows what rust looks like. When you go to a polished aluminum wheel, that's a raw aluminum. What really happens is you get an oxide that starts building up and it gets thicker and thicker and thicker over time. And what that does is it takes you from a very bright shine, which has no oxide, you're getting a look at the raw aluminum in the high polished state, and as the oxidation occurs, it becomes a little duller, a little duller, a little duller, a little duller. And so, what you're really doing to bring that back, and that's what we're talking about, polishing, Dave, and we can maybe talk a little bit more about that too, is that removes that outside oxide layer and allows you to see that bright shine of the raw aluminum again.

DAVE WALTERS

Yeah. And again, as I tell people, there's many ways of going about that in the field and there's companies that actually make machines that you can, the tire dealers and some truck dealers are buying, you can take your wheel to them and this machines actually a machine and sell, machines them back to like polish, like brand new. And now there's a cost involved there. When you do something like that, the big thing about it is the roll stamp. According to the DOT, if that roll stamp has gone in the wheel, that wheel is basically out of service. They require that information, some of the information on the roll stamp, and if it's not there, that wheel's deemed not road worthy by the Commercial Vehicle Safety Association. So just keep that in mind too, when you take your wheel to one of these polishers, make sure they're repairable, make sure they do a good job, because if they screw your wheel up, you could be in DOT violation.

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

DOUG MASON

You bring up a good point, too, Dave, that at this time when your wheel, whether it's a steel wheel or an aluminum wheel, and it gets to the point where it needs to be refurbished and not only the DOT, which is very important, but in a previous episode, we talked about different things that were put a wheel out of service. This is a prime time to be looking for all of those situations, whether it's a crack or an out of round condition, whatever it might be, just refer others maybe to go back to some of our previous podcasts where we discussed those inspection criteria. And this is a good time to do it when you're refurbishing a wheel.

MIKE YAGLEY

Well, one of the things that a little bit more detail on that is that the Federal Motor Vehicle Safety Standards, the FMVSS, who is what the government puts out and tells us, as wheel manufacturers, what needs to be on our wheels. Pretty much every country in the world has some version of this. The government says that you must have some markings on the wheel. If you take it into a polish cell and that polisher gets a little bit aggressive with that polish and takes that roll stamp out, takes that marking out where you can't read it anymore, then that wheel, like Dave said, that wheel is no longer compliant to the Federal Motor Vehicle Safety Standard, the FMVSS. And once you're not compliant with FMVSS, that's a federal government requirement and that is one of the laws that every wheel on the road for commercial vehicles has to have those markings. Once you take that off, that's no longer a legal wheel. That wheel has to be taken out of service. Be careful.

MIKE YAGLEY

I can't overstate what Dave brought up earlier about being careful with who you go to with those when they start putting out the machines. If you're going to polish by hand, the chances of taking that off are pretty slim, but once you bring machines out, you need to be careful. We have our own terminology. The different marketing groups have their own terminology for the different kinds of polishes out there. Dave, there's really like two groups of wheels. When customers are looking at finishes, they call them either machine finishes or polished finishes. Isn't that right?

DAVE WALTERS

Yeah. I mean, the terminology in the field is really machine finished or polished. They understand, you have a polished wheel, there's going to be more care and maintenance to it. Even on your washes. If you have a polish wash, like you go to some of these truck washes and it's really funny because they know they got a polish wheel that if they put certain acids and stuff, it's going to take it down completely where a machine finished wheel, a lot of the customers who run machine finished wheels will use acid at the truck washes and stuff more than the polish guys. Because if the polish guys use it, it takes the finish or dulls them up right away. So I mean there's issues. And as we try to tell people, the great thing about wheels is there's a lot of choices. So you kind of get to pick and choose what you want. That's a good thing.

MIKE YAGLEY

One of the things that we've talked about is the different kinds of refurbishment. And I think we've touched on this already, but there's some TMC RPs out there for refurbishment, for like pitting and re-polish. Anything you want to say about those, Dave?

DAVE WALTERS

Yeah. I mean, at TMC, when the fleets come, the great thing about TMC, the Technology and Maintenance Council, fleets will say, "Is there any criteria on like pitting?" It was more of a pitting on steel wheels. How bad can they be pitted before you don't want to refinish them? That's a great RP just to kind of give you guidelines of before you send them in and they have a guideline on what you think is going to be done. The re-polishing one was really nice because we kind of lay out all the issues of re-polishing and, you know, we lay out the roll stamp. We talk about some polishers get a lot of wash out when they do polishing. And we have pictures in there of what that is and kind of go through the criteria. These are very useful kind of before you make that decision of, "Okay, if I'm going to do this, what do I got to look for? What are some of the things I need to know?"

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

MIKE YAGLEY

So, Doug, you want to take a crack at trying to verbally explain what wash out is?

DOUG MASON

Yeah, I mean, really wash out is where you're just basically over polished or buffed a certain area and you're going to get basically an indentation. And one of the main areas of concern there is on the hub itself. As you're buffing the bolt hole area, it's easy to catch and create, I'll call them, divots, if you would, where then you no longer are going to have a flat contact surface. And that's a critical situation, both from a mounting surface situation of the wheel to the hub and also for the wheel nuts that are going to be, they're supposed to be flat washers on a flat surface. And if that isn't the case, then you may not be getting the torque that you're expecting. You can have other issues as well. So you got to watch out for the washout, as you're saying.

MIKE YAGLEY

I'm going to take a crack at trying to visualize. If you look at a bolt hole, on a brand new wheel, it's going to be effectively just a drilled through hole that goes straight down. The edges are going to be nice and 90 degrees between the wall of the hole, the bore of the hole and the face of the wheel. As you get wash out, what it looks like is the direction of the pads that they use to polish. It creates sort of like a teardrop with the old hole being at the fat end of the teardrop. And it sort of tapers off to whatever that direction is. And what you get is, like Doug said, like a divot that goes down into the wheel on that surface, in that teardrop shape.

MIKE YAGLEY

And so when you put the bolts on, when you put your nuts on, I should say, when you put your nuts on, they're not getting contact in that area of that teardrop that it's dropped away, where the material has washed away, the washout is. And so you're not going to get the kind of contact forces, the kind of retention that you think you're getting once you start seeing the wash on those bolt holes. So that's something really very dangerous and you really need to watch out for that. Let's talk a little bit about the different coatings out there on the aluminum wheels.

DOUG MASON

Let me jump on that real quick, because the aluminum alloys that are used, I think this is one of the most important things is that it's a heat treatable alloy. And again, we talked about this on a previous podcast. Those are interested to get in more detail can go back and look at that. But the fact is is that you can basically take these wheels to too high a temperature, and it'll cause you to lose your strength. And that's obviously a very important thing to know, and it becomes a major concern if you obviously over bake them, if you want to say that in that regard. So when there is like an acrylic coating on the wheel, and there are some times acrylic clear coats on certain aluminum wheels that are out there and people will try to refurbish them with another acrylic clear coat, and you usually have to go through a bake off of them, you've got to be very careful of that situation.

DOUG MASON

There's also colored paints that are out there on different wheels that you have to be very careful if you're trying to rework them, that you do not put them through a bake off oven. So I guess that would be the main point on coatings.

MIKE YAGLEY

And there's a difference between coatings. I know Alcoa Wheels has something called, we talk about Dura-Bright being a surface treatment, which is different than a coating. Either one of you guys want to take that one on? Doug?

DOUG MASON

Yeah, sure. The Dura-Bright. Again, it's a proprietary process. There's not a whole lot we can say about it, but it really is not a coating per se. A coating basically lays on top and it really has, the bonding is not integral, I'll call it, because when we talk about a surface treatment, it's actually becomes part of that surface. So the Dura-Bright is not a coating that really lays on top. It's more of a treatment that interfaces with the base aluminum.

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

MIKE YAGLEY

It goes into the aluminum, right?

DOUG MASON

Right.

MIKE YAGLEY

So it's like a conversion layer.

DOUG MASON

Correct. And so the scientists who worked this up were able basically to create an aluminum oxide situation where you could transition from the wheel itself to the surface treatment that we're putting on that then allows for a clear look, but also in a sense pre-corrodes it, but you can't see it. It's clear. And it keeps that surface of bright, obviously the Dura-Bright name, without being just a surface coating that can then have corrosion that gets underneath the coating and grows which people see. That's the difference between the surface treatment and then a typical, let's say, acrylic clear coat type of coating.

MIKE YAGLEY

So one of the things when I'm talking to customers about those acrylic clear coats and the difference between an acrylic clear coat and a Dura-Bright surface, like you said, Doug, an acrylic clear coat sits on top and that corrosion can get underneath that and between the aluminum and the paint. And so it sits, it goes underneath the paint and you'll see this, it looks like a white snowflakes, almost. It's called filiform corrosion. And it sort of grows. If you scratch the surface of an acrylic clear coat, you're going to start getting that corrosion growing underneath that paint. And if you go out to any parking lot with cars in there, you just go look at the wheels on a car and you'll see that filiform corrosion on an older vehicle. You'll start seeing that filiform corrosion. Typically, it'll start around any sort of edge, edge condition on the wheel. You'll get the same thing with any acrylic clear coat.

MIKE YAGLEY

What Dura-Bright does like Doug was saying, it's got that transition layer where it's partly Dura-Bright. It's partly aluminum. And so there's no way for the corrosion to get underneath that between the aluminum and the Dura-Bright. And so when you scratch Dura-Bright, the corrosion stays in that scratch and you can't even see it. It doesn't grow away from that. If you scratch acrylic, it'll grow underneath it. And you'll see that growth. But on a Dura-Bright, it keeps looking good even though it's scratched. Now, Dave, you've dealt with an awful lot of people trying to maintain their Dura-Bright wheels. What do you tell them?

DAVE WALTERS

The biggest thing about Dura-Bright is you want to clean a Dura-Bright with a pH between three to 10. So any of the harsher acids or the higher alkalines, they're really not where you want to be. So you want to be anywhere from three to 10. You always try to tell them, make sure when you're doing the washes that they're between pH levels between three and 10, that's very critical in the Dura-Bright world. Other issues about Dura-Bright is it's a great coating. We've had customers run it through gravel pits and mines and they're hauling gravel. And the gravel gets in there and starts. If the gravel gets in there and starts beating on the coating, you're really beat on the outside of the wheel. We call that sandblasting. And I was always amazed, coal truck guys love them because they get them really dirty, but they're not going through gravel pits or something.

DAVE WALTERS

And just with soap and water, when they take the pressure washer, they look great. You got to understand that Dura-Bright is a coating. You got to treat it a lot like paint. And when you tell somebody that, try to understand that. So don't get too aggressive on trying to clean them. Understand if you are going through corrosive endeavors and it's going to beat up like paint. So, I mean, been great success. Where clear coats in the heavy-duty truck world has really not done very well, Dura-Bright has been the answer. And as we go down the road, just education, more education to the consumer, so they know what to use and when to use it.

Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

MIKE YAGLEY

Dave, why don't you tell us a little bit about Dura-Flange because that's another surface treatment that's out there that Alcoa Wheels puts out to take care of some specific issues out there in the field.

DAVE WALTERS

Rim flange wear, it's odd, because I've been at Alcoa Wheels for about 32 years now. And I remember when I came there two engineers that was there said, "We'll never solve rim flange wear, ever, period, so why do we even think about it?" Well, luckily we thought, okay, rim flange wear was created when radial tires was invented and radial tires flex a lot. They flex over and they start to wear that part of the rim down. So in certain applications that haul heavy and they haul maybe liquids, they haul off road a lot. The stuff gets in there and really starts to wear down that rim. So we came up with a coating that we can put on the outside of that wheel to basically protect that flange. And it just has performed awesome in the conditions that these guys really needed it. So it's done really well for us.

DAVE WALTERS

And I really kind of think back to the beginning when they're like, "You'll never solve it." Well, kind of solved it. So that's pretty good. It's just a great thing. It's really maintenance free. It's really worked well when you have rim flange wear issues.

MIKE YAGLEY

All right, what are the kinds of maintenance issues that you see with Dura-Flange? Are there any problems with it?

DAVE WALTERS

Sometimes you get some corrosion and most of the time that they get the severe corrosion, it's the application the trucks are going into. It's really funny because even when it pits, it doesn't go away. So you're trying to really educate the customer and like, "Hey, you got to wash your truck sometimes. You really do. I mean, and get that stuff off of there." I mean, people that slalom through different types of stuff, you just go some days like, "Wow, don't you think that stuff is?" Fly ash, for example. We have a lot of people that was hauling fly ash and that's very corrosive material. So a lot of them ran Dura-Flange, but they never washed the trucks and that stuff bakes on there, gets into there and you go, okay. But it was still there. That's what I kept telling them.

DAVE WALTERS

It's still there. It's just, you need to do some work to it. Finally got them to do it. And life's pretty good. So there's really not a lot of maintenance to rim flange wear. That's why customers like have that issue again, another option.

MIKE YAGLEY

Right. So we've had a chance to talk a little bit about all the different coatings and surface treatments and some of the issues with finishes on wheels. We've talked about, of course, some of the steel wheel stuff with the powder coating, we've talked about simulators, we've talked about aluminum wheels, acrylic clear coat, Dura-Bright, Dura-Flange. And then of course there are all sorts of different polish options out there. Some of them look real bright. Some of them look a little bit more dull. Some of them are sort of a brushed type finish. Everybody is going to have their own requirements.

MIKE YAGLEY

Everybody's going to have their own needs. Every application also, depending on how much you want to spend. I guess our only guidance is you need to be familiar with all the different products out there, be familiar with your product, whatever finish you choose to put onto your vehicles and make sure you reference the manufacturer guidance when you're looking at how to maintain that. Any final comments from either one of you guys?



Behind the Wheels Podcast Transcription

Episode 5

Which Wheel Finish is Right for You?

DOUG MASON

Just maintenance. Make sure you understand what your preventative maintenance needs to be, and you'll get much longer lives out of any of these finishes that we've been talking about. So that's the important thing.

DAVE WALTERS

I guess my final comment is there's a lot of choices on the market. Please understand that there are choices and there's reasons why we make a variety of different types of wheels, coatings, different things. And if you get educated on that, hopefully you'll make the right choice to put those wheels on your truck and life will be good. And again, as Doug said, there is maintenance even, so try to understand all that.

MIKE YAGLEY

Go in with your eyes open. Well, hey, thanks guys. And thank you all for joining us on another episode of Behind the Wheels. So we'll see you next time.

ANNOUNCER

Sponsored by Alcoa® Wheels, the global leader in aluminum wheel innovation, manufacturing and technology. Inventing the first forged aluminum wheel in 1948, it's team of experts continue to develop the most lightweight, efficient, and high-performing commercial vehicle aluminum wheel products, bringing you revolutionary innovations like Alcoa Dura-Bright® wheels, Alcoa Dura-Black™ wheels, the new Alcoa wheels hub bore technology, and the lightest truck wheel on the market, Alcoa Ultra ONE®, 22.5 x 8.25 wheel. Alcoa Wheels, the global leader in aluminum wheel innovation.