



## Asphalt Testing Solutions & Engineering, LLC

*Advancing the industry through EXPERTISE, QUALITY and COMMITMENT!*

1. Do you feel that balanced mix design parameters will dictate the "recipe" and/or how would you suggest those specs be written to allow for performance and innovation?

TN:

The hope is that BMD will allow us to move away from the recipe type of specifications. Until the agencies release their hold on the volumetrics or the properties dictating the materials, then BMD will not have much innovation to drive it, just status quo in a different form. True innovation will come over time as the agencies gain trust in the tests and can see field performance first hand. Unfortunately, the latter comes with a little blind faith as well to find out if it works.

PB:

Absolutely. In an ideal world, we will only use volumetrics and the recipe to validate what is going through the plant for quality control guidance only. Pay items should all be based upon the performance (HWT and IDEAL-CT for example). I do think we are quite a few years from that and will be using a recipe with balanced mix design. It will be difficult to turn loose of what has guidance HMA since the 1950's.

2. How often do you see products do great in lab setting and fail in the field?

TN:

This a great question. There are many times we see the reverse, but all the work starts in a lab somewhere and progresses to the field only when the lab work looks positive. There are times where the field projects do not go as smoothly as the lab testing. You are moving from a complete controlled environment to one with many variables and things that may not have been considered or impossible to mimic in the lab. Ultimately, yes. This does happen but I would say that the reverse is more often true.

PB:

That is a great question. I have to say it is rare to see something do good in the lab and fail in the field. Usually it is the other way around. There are a few occasions where you have a new product and the lab cannot simulate the environment such as humidity. In today's testing world, I believe we will see many less failures in the field when it does great in the lab.

3. Phil, I agree that trying to get states to adopt new products is almost impossible, districts using products with success is key. Do you see bio products receiving subsidies like in the past? I am having trouble finding any manufactures of B100 or B99 in middle of the country.

PB:

Another great question. The trend that I think I'm seeing is that sustainable materials will be subsidized in some way to offset the risk and cost of using them. This is no different than what we saw with rubber in the 1990s as it was mandated in states such as California and Arizona. Rubber asphalt today is more common because we have learned how to use it and know how to test...barriers are removed.

4. Hi! I would like to ask you a question about the research I am doing on my Phd. I am studying porous mixtures in which I will also try to incorporate a small percentage of plastic waste. Do you have any



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information how to add the plastic to the mixture? Do you believe it would be better to blend it with the asphalt or just add it as an aggregate?

TN:

I would say that the jury is still out on some of the processes with plastics. Decide on what contribution you want the plastic to play in the mix. Are you looking for a filler or a binder modifier? Most are blending with the binder, but the filler option is not off the table. Can it replace the fibers? I would suggest reading the most recent NAPA publication on plastics and get a good understanding of the state of the state of the use of plastics.

PB:

Congratulations on your doctoral work. You have asked \$1,000,000 question. Unfortunately all I can say is you need to contact the manufacturer. The manufacturer should know more about this process than both of us. If you're just gathering plastic waste and trying to do something on your own, I don't know of a how to guide you other than take a look at the various websites on plastics. It varies from shredding the plastic to chemically breaking it down. The shredded plastic may go in like an aggregate and then melt whereas the plastic that is chemically dissolved can be added to the asphalt binder.

5. How much of product development success is based on perception? i.e. Asphalt Replacement products – epoxies, etc.

TN:

Perception is a powerful thing. It is what many base a large amount of their decisions on. There are some products that have a more difficult path than others due to this. The education process is much harder for these products which requires a more strategic path than variations of known (and accepted) products. Finding the agencies that are considered to be innovators is a critical first step with these types of technologies. Having the right consultant on hand to guide the clients through not only the testing, but the marketing analysis as well is critical to the success of these type of highly innovative products.

6. What is the balance of “getting the foot in the door” with these donations versus losing so much revenue with the donated product that they will have problems moving forward?

TN

As the development gets closer to this stage, this is a conversation that needs to be had to understand the limitations of budget with the company. This gives a more realistic expectation of the path moving forward for all parties. If the company is not willing to donate to a certain extent, it is typically a hard pathway to get “that foot in the door”.