

9190300, Ground Tire Rubber for use in Asphalt Rubber Binder  
Comments from Industry Review

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**Jim Warren**

**Comment:**

I am concerned about increasing the variability of this product as it may affect the consistency that the contractor is getting in a finished ARB product. If we are increasing the range of specific gravity, it is conceivable that swings from very light to very heavy specific gravity rubber will affect the viscosity and handling characteristics, including suspension properties. Based on contractor feedback and concerns, we have already asked the SMO to look into issues of varying Gmb (lab compacted specimens) when ARB is used. This spec change will certainly not help this situation. I'd like to see some lab data to the contrary before this gets approved.

**Response:**

There is inherent product variability in the asphalt rubber binder that is due to the gradation of the rubber, the temperature and time of reaction, the temperature, length of time, amount of agitation and settlement during storage which the Industry has been dealing with since the Department began using the product in 1994. Specific gravity of the GTR does not have an effect on these issues. The original spec requirements (1993) for GTR specific gravity were 1.04-1.16. This was changed in 2001 to 1.10-1.20 due to higher specific gravity GTR being supplied. Recently the Department was able to use its electronic data base to identify the history of GTR specific gravity test results. That data indicates that the GTR specific gravity should be that proposed: 1.06-1.22 to encompass the material being supplied. GTR is not a manufactured product. The specific gravity is dependent on the mix of car versus truck tires, whole tire versus just tread rubber, and the actual chemistry and compounding of the rubber products used in tire construction. This is not something that is controllable by the GTR producer. The specific gravity requirement is one of the specification requirements used to assure that the material is in fact GTR. The Department committed to do binder and mix testing using high and low specific gravity GTR in an ARB5 in a 9.5mm mix. We have been unable to secure either the extreme high or low specific gravity values for the GTR to do that testing. Until such time as that testing is done, there will be no change in the high end specific gravity and will remain at 1.20.

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**Kevin Price**  
3523021515  
[kevinp@dabcon.com](mailto:kevinp@dabcon.com)

**Comment:**

GTR is already very difficult to handle. We are not concerned with the lowering of the SG but increasing will only lead to additional problems. Handling and storage will be adversely affected and could possibly increase the tenderness of friction courses. The SG increase would decrease the quality of the final mix, increase the problems during production (clogs, ect..), decrease the

amount of useable product per tanker, and increase compaction issues and density due to “tenderness” of the mix. The increase has no positive effect to the quality of our product.

**Response:**

I believe that Mr. Price is commenting that asphalt rubber is difficult to handle not GTR. In that regard, see the response above to Mr. Warren’s comment. Regarding the effect on material volume versus weight, the increase of GTR specific gravity from 1.20 to 1.22 or 0.02 would have an effect of 0.001 on the specific gravity of an ARB-5, and 0.00005 on the specific gravity of a 9.5mm mix which the Industry has voiced concern about. The specific gravity effect on an ARB-12 is 0.0024 and 0.000144 on a FC-5 mix. Variability of aggregate specific gravity has a greater impact on volume/weight relationship of a mix than the GTR. No change.

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