




**SEAUPG**  
2010 Annual Meeting  
Oklahoma City, OK



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**OVERVIEW**

- What is Sasobit
- Blending Sasobit
- Effect on PG Grade
- Questions
- Other Usages



**Sasobit** "Not Just a WMA Additive"




Recent Questions:

**What is Sasobit?**  
Fischer-Tropsch paraffin wax  
Fine crystalline long chain aliphatic hydrocarbon  
Produced from natural gas.

**What is the melt point of Sasobit?**  
212-230°F

**How Does Sasobit Work?**  
Viscosity Reduction/Flow Enhancer

How do you blend Sasobit?




**Sasobit can be added at the:**  
(1.5 +/- .2% of total binder)







**Sasobit** "Not Just a WMA Additive"




Recent Questions

**How long has Sasobit been used in the USA as a WMA?**  
Since 2005

**Has Sasobit change since the first project?**  
No-Sasobit hasn't changed since the first project in Germany in 1997


**What effect does Sasobit have on PG Grading?**  
Normally increases high temperature by 5-6° and low end by 0-2° Reduced production temperature negates effect on low end temperature.



**Effect on PG Grade**

Hall Street, St. Louis, MO


|              | M320 Continuous Performance Grade | M320, Table 2 Performance Grade | Additive Rate by wt of binder |
|--------------|-----------------------------------|---------------------------------|-------------------------------|
| Base         | 70.9 – 24.8                       | 70 - 22                         |                               |
| w/ Sasobit   | 76.5 – 22.8                       | 76 - 22                         | 1.5%                          |
| Competitor B | 72.4 – 24.6                       | 70 - 22                         | 5.26%                         |
| Competitor C | 66.6 – 26.7                       | 64 - 22                         |                               |



### Effect on PG Grade

*East Entrance Rd, Yellowstone, WY*


|              | M320 Continuous Performance Grade | M320, Table 2 Performance Grade | Additive Rate, by wt. of binder |
|--------------|-----------------------------------|---------------------------------|---------------------------------|
| Base         | 60.2 – 34.1                       | 58 – 28                         |                                 |
| Sasobit      | 65.1 – 32.0                       | 64 – 28                         | 1.5%                            |
| Competitor B | 61.2 – 33.2                       | 58 – 28                         | 5.2%                            |



### Effect on PG Grade

*I-70, Dillon, CO*

|            | M320 Continuous Performance Grade | M320, Table 2 Performance Grade | Additive Rate, by wt of binder |
|------------|-----------------------------------|---------------------------------|--------------------------------|
| Base       | 59.9 – 30.3                       | 58 – 28                         |                                |
| Sasobit    | 64.2 – 29.2                       | 64 – 22                         | 1.5%                           |
| Additive A | 61.1 – 30.9                       | 58 – 28                         |                                |
| Additive B | 60.7 – 30.4                       | 58 - 28                         | 4.33%                          |
|            | No Data Obtained Due to Schedule  |                                 |                                |




### Effect on Hamburg Test

Construction Highlights – TSR and Hamburg Data

| Mix Type                             | Control | Control | 7-26-07 Sasobit | Control |
|--------------------------------------|---------|---------|-----------------|---------|
| TSR (%)                              | 100     | 83      | 197             | 111     |
| Hamburg (mm FAT)                     | 9.0     | 9.5     | 16.0            | 10.0    |
| Hamburg (cycles)                     | 9,700   | 5,100   | 7,650           | 9,650   |
| Hamburg Stripping Infection (cycles) | 7,800   | 3,300   | 5,000           | 5,700   |

TSR Results are from the CDOT QA Lab. 80% min. for design, 70% min. for production. Hamburg Results from CDOT Euro Lab. Max. test time is 10,000 cycles for production.

\*TSR samples compacted immediately at temps previously stated.  
\*Hamburg samples cooled and shipped to Denver where they were all reheated for compaction to standard temperature (280 degrees)




### Effect on PG Grade

**FHWA Test Results**

Table 7. AASHTO M320-09 Table 3 (MSCR) PG Grade Test Results.

| Asphalt Binder ID      | Table 3 PG Grade | Recommended Traffic Levels                         |
|------------------------|------------------|--|
| System A               | PG 58-22H        | Standard Grade (S) less than 10 million ESALs      |
| Sasobit terminal blend | PG 58-22V        |  |
| System B               | PG 58-22H        | Heavy Grade (H) 10 to 30 million ESALs             |
| System B (2)           | PG 58-22H        |  |
| United Base PG 64-22   | PG 58-22H        | Very Heavy Grade (V) greater than 30 million ESALs |
| Valero Base PG 64-22   | PG 58-22H        |  |
| System C               | PG 58-22H        |  |
| System D               | PG 58-22H        |  |



## Sasobit


*"Not Just a WMA Additive"*

### Recent Questions

What effect does crude source have on Sasobit PG Grade?  
**Only on low end temperature. 0-2°**

When blended with the binder will Sasobit deteriorate or loose efficacy?  
**No- Sasobit will not settle, separate or deteriorate for 6 months or more when blended with binder.**

Are there any special handing requirements when using Sasobit?  
**No-Sasobit is worker and environmentally SAFE NO Odor!**



## Sasobit

*"Not Just a WMA Additive"*


### Recent Questions

What is the "shelf life" of a binder that is dosed with Sasobit?  
**Unlimited**

Will the WMA effects degrade with time as the binder sits?  
**No**

Will the WMA effects degrade in the mix?  
**No, will have the same WMA effect when mix is reheated.**

Where else has Sasobit been used?



## Sasobit Around the World


<http://sasolwax.us.com/sasobit.html>



30+ Million Mix Tons




## Sasobit "Not Just a WMA Additive"




### Recent Questions

What are some of the other uses for Sasobit?

- > Compaction Aid
- > Pavement Preservation
  - Thin Lift Paving*
- > Cold Weather Paving
- > Improved Workability
  - Modified Binders*
  - Asphalt Rubber*
- > Increase Percentage of RAP
- > Improve workability with RAS
- > **Going Green**



## Questions



Contact:

|  |  |
|--|--|
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<http://sasolwax.us.com/sasobit.html>