

Best Practices for PPA Modification of Asphalt

Published in Cooperation of the
Polyphosphoric Acid Producers in the US

- Innophos
- ICL Performance Products

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PPA in Asphalt Paving 12 Years and Counting...

- Over the last 5 years – estimated 200 million tons of asphalt mixes containing PPA – about equivalent to 3,000 miles of 2” thick 2-lane highways
- No failures identified
- PPA has achieved user expectations for more than a decade

General Considerations

- PPA is Polyphosphoric Acid. Contains no water
- Base Asphalt Selection
- PPA Level Selection
- Anti-Strip Selection
- Use in an Asphalt Plant
- Additional Testing

Base Asphalt Selection

- Low temperature properties are determined mainly by the base asphalt
- PPA, when used alone, generally provides high temperature improvement
- Co-modification with polymers is more complex, with improvements at both high and low ends a possibility.

PPA Level selection

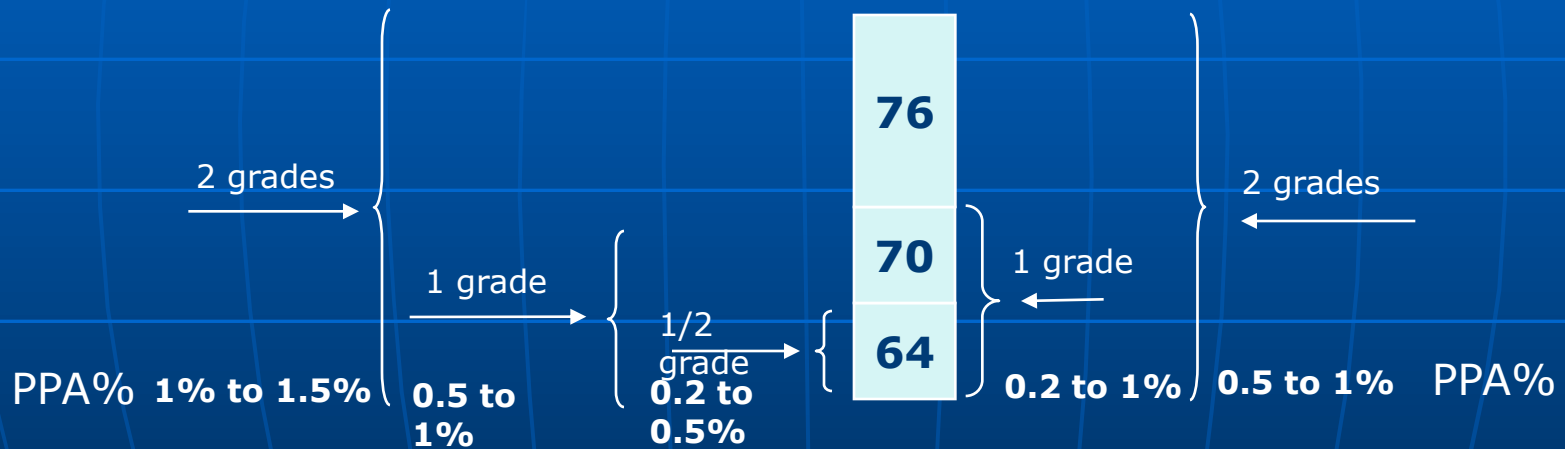
BINDER

Without Polymers

With Polymers

Step 1

PG



MIX

Step 2

Moisture resistance tests pass/failed
With or without compatible antistripping agent

Anti-Strip Selection

- Anti-strip additives should be tested with PPA. Some amine agents are not compatible with PPA and should not be used
- Generally, a DSR test of binder with PPA and anti-strip at the PG spec temperature will be sufficient
- Best Practices document includes a current list of anti-strip agents that have been found to be compatible
- Properties of final binder formulation and mix should be tested and verified

Use of PPA in an Asphalt Plant

Both suppliers have in house expertise to assist in the proper design of storage, pumping, and metering equipment

Conclusions

The Best Practices document has been published in cooperation between the Polyphosphoric Acid Producers in the US, ICL Performance Products and Innophos, working with the Phosphate Forum of the Americas

This document is our best effort to provide manufacturers, specifiers and users, with a thorough guide to the proper use of PPA in asphalt modification, to the best of our current knowledge

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