FAA Specifications for Pavement Maintenance Products

2015 MCOA Conference
The FAA is re-emphasizing that airport pavement projects that are using FAA AIP funds need to be using the FAA specifications.

So what are the specifications available for use?

Since most airport pavements in Minnesota are black top pavements, I’m go to limit my discussion to those types pavements.
Asphalt Cement is the basis for most of these pavement maintenance products.
Asphalt cement is fairly stiff at room temperature, so we use three methods to make the material workable:

1. We can dissolve the asphalt cement in a thin petroleum solvent. This is called a cut-back asphalt. Not used much any more for environmental reasons.

2. We can use water and an emulsifier and blend the asphalt in it to make a water based asphalt emulsion. Used in most surface treatments.

3. Or we can heat the asphalt cement to a high temperature to significantly reduce its viscosity. Most common use is hot pour crack sealer.
Emulsions can come in different varieties:

1. There are straight emulsions, containing raw petroleum based elements.

2. Some emulsions contain polymers that are work to modify the stiffness of the resulting residue, or to enhance adhesion characteristics.

3. Some emulsions contain pavement rejuvenators that work to bring back some of the flexible characteristics that have been lost due to age, back to the asphalt pavement.
Hot Pour Crack Sealants
FAA Specifications

- P-608 Emulsified Asphalt Seal Coat
- P-626 Emulsified Asphalt Slurry Seal Surface Treatment
- M-361 Hot-Applied Joint and Crack Sealants
There are a few other spec’s that we shouldn’t use as they contain coal tar:

- P629 – Thermoplastic Coal Tar Emulsion Surface Treatments
- P630 – Refined Coal Tar Emulsion Without Additives, Slurry Seal Surface Treatment
- P631 – Refined Coal Tar Emulsion with Additives, Slurry Seal Surface Treatment
Where to Find FAA Specs

- FAA Specification for Construction Materials
  - Advisory Circular 150/5370-10G

- FAA Airport Pavement Maintenance Guidelines
  - Advisory Circular 150/5380-6B or 150/5380-6C
... and a few products that the FAA does not have specifications for.

- Mastic Type Crack Sealants
- Micro-Surface Sealing
Surface Treatments

- Most of the surface treatments used today are based on asphalt emulsions.
So we will start with a fog seal, simply spraying an emulsion on the pavement. Since the residual asphalt that will remain after the emulsion cures is basically a very stiff petroleum oil, it will tend to be slippery. So the application rate is generally the lowest for all types of surface treatments.

Application rates of 0.03 to 0.10 gallons per square yard for undiluted emulsion. What does that work out for my fairly small driveway of about 1200 square feet?

- About 4 to 13 gallons.
Fog Sealing

The FAA does not have a fog sealing specification.

Because fog seals tend to be slippery when wet, they are not necessarily a good choice for airports and definitely not to be used on runways.
P608 – Asphalt Seal Coat

- P-608 is the FAA specification for a specialized type of Emulsified Asphalt Seal Coat. It uses an emulsified asphalt that contains 20% Gilsonite and a medium to fine graded sand. The Gilsonite additive and the use of more finely graded aggregate differentiate it from more conventional Seal Coats. The FAA specification also allows for prescribing a polymer additive as well.

- The application rate for a 1:1 diluted emulsion is 0.10 to 0.15 gallons per square yard (0.05 to 0.075 gal/sqyd undiluted). Similar to a fog seal application rate. For my driveway:
  - 7 to 10 gallons.
Emulsified Asphalt Slurry Seal Surface Treatment

Asphalt Emulsion is mixed together with aggregate in a pug mill prior to being applied to the pavement. The mixture would be a similar consistency of very wet concrete.

The application rate as undiluted emulsion is 0.40 gallons per square yard. For my driveway:

- 50 gallons
Solid bricks of crack sealant material are put into a heating kettle and brought up to temperatures around 350 degrees Fahrenheit.
Mastic Sealers (05)
QUESTIONS