USES OF EMULSIONS IN LOUISIANA

LTRC – Technology Transfer Education Center
By: William “Bill” King, Jr., P.E.
LTRC Asphalt Research Engineer

http://www.ltrc.lsu.edu
Emulsions – Found in Products Used in Everyday Life
Asphalt Emulsions Have Been Used for More than 100 Years
Uses of Asphalt Emulsions in Louisiana Today

- Fog Seals
- Surface Treatments (Chip Seals)
- In Place Stabilization
- Slurry Seals (Micro-Surfacing)
- Prime Coats
- Tack Coats
  - Common Types
  - New Technology – Trackless Tack Coats
FOG SEALS

• Asphalt Emulsion Manufacturers Assoc. (AEMA) – A light spray application of diluted asphalt emulsion used primarily to seal an existing asphalt surface to reduce raveling and enrich dry and weathered surfaces.

• Commonly Used Emulsions – SS-1, SS-1h, CSS-1 and CSS-1h
Surface Treatments (Chip Seals)

- Oldest and most successful road surfacing strategy.
- Consist of an application of emulsion and an aggregate as close to a single size as possible.
- Used to restore skid resistance, protecting aging of surface, and sealing of pavements.
- CRS-2P Emulsion, or PAC-15 For Hot Application.

LTRC

http://www.ltrc.lsu.edu
Chip Seals
Chip Seals

Placing Emulsion
Chip Seals

Rolling

http://www.ltrc.lsu.edu
In Place Stabilization

- **Hot In-Place Stabilization**
  - Effective Tool, Costly
  - Rejuvenators Used to Stabilize

- **Cold In-Place Stabilization**
  - Good Results, Environmentally Friendly, Lower Costs
  - Rejuvenator Used to Stabilize

- **Full Depth In-Place Stabilization**
  - Potential Use on Low Volume Roads
  - Specially formulated Emulsions
Full Depth Reclamation

LTRC

http://www.ltrc.lsu.edu
Slurry Seal (Micro-Surfacing)

- A designed mixture of:
  - polymer modified emulsified asphalt
  - mineral aggregate
  - mineral filler
  - water
  - other additives
- Proportioned, mixed & uniformly spread over a properly prepared surface
Micro-Surfacing

- Developed in Europe in 1970’s
- Introduced in U.S. in 1980
  - Now routinely used in more than 40 states
- Used for rut filling & texturing
- Restoring surface quality & skid resistance
- Quick construction, quick traffic return
- Polymer Modified Emulsions Used
Micro-Surfacing
Prime Coats

Cutbacks – MC 30, MC-70, AEP
Tack Coats

- Light spray application of diluted emulsion
- Used to ensure bond between a surface being paved and the new surface course
- Common Types – SS-1, SS-1h, CSS-1, and CSS-1h
- New Technology – Trackless Tack Coat
  - Successfully used on US 61 near Gonzales, La.
  - NTSS-1HM Specifications developed
Further Discussion of Tack Coats

• Dr. Louay Mohammad
  Professor Civil Engineering
  Louisiana State University

http://www.ltrc.lsu.edu
3. Find $x$.

Here it is.