

Storage & Handling of Emulsions

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Emulsion Storage & Handling

✘ **Briefly – What is an Emulsion**

✘ **Handling**

✘ **Storage**

✘ **Pumping**

✘ **Loading**

✘ **Destruction**

Asphalt Emulsions

✘ Mixture of Asphalt & Water

✘ Asphalt Particles Suspended in Water

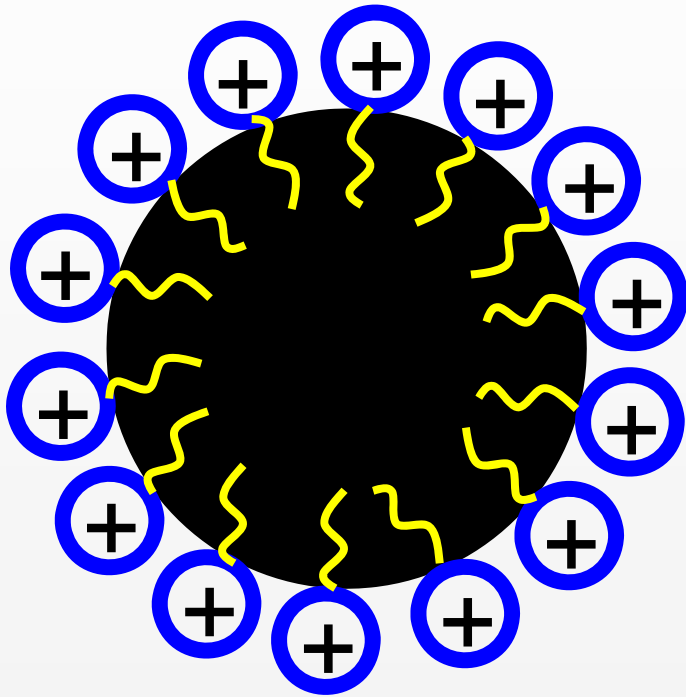
✘ 3 to 7 micron Particle Size

✘ 1g of Asphalt Produces 10 Billion Particles

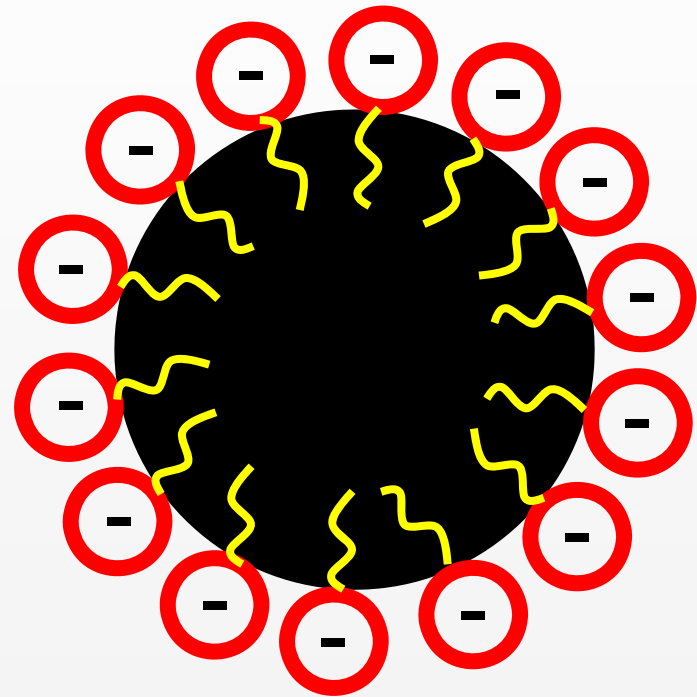
✘ Emulsifier Coats the Particles and Prevents Coalescing



Asphalt Emulsions

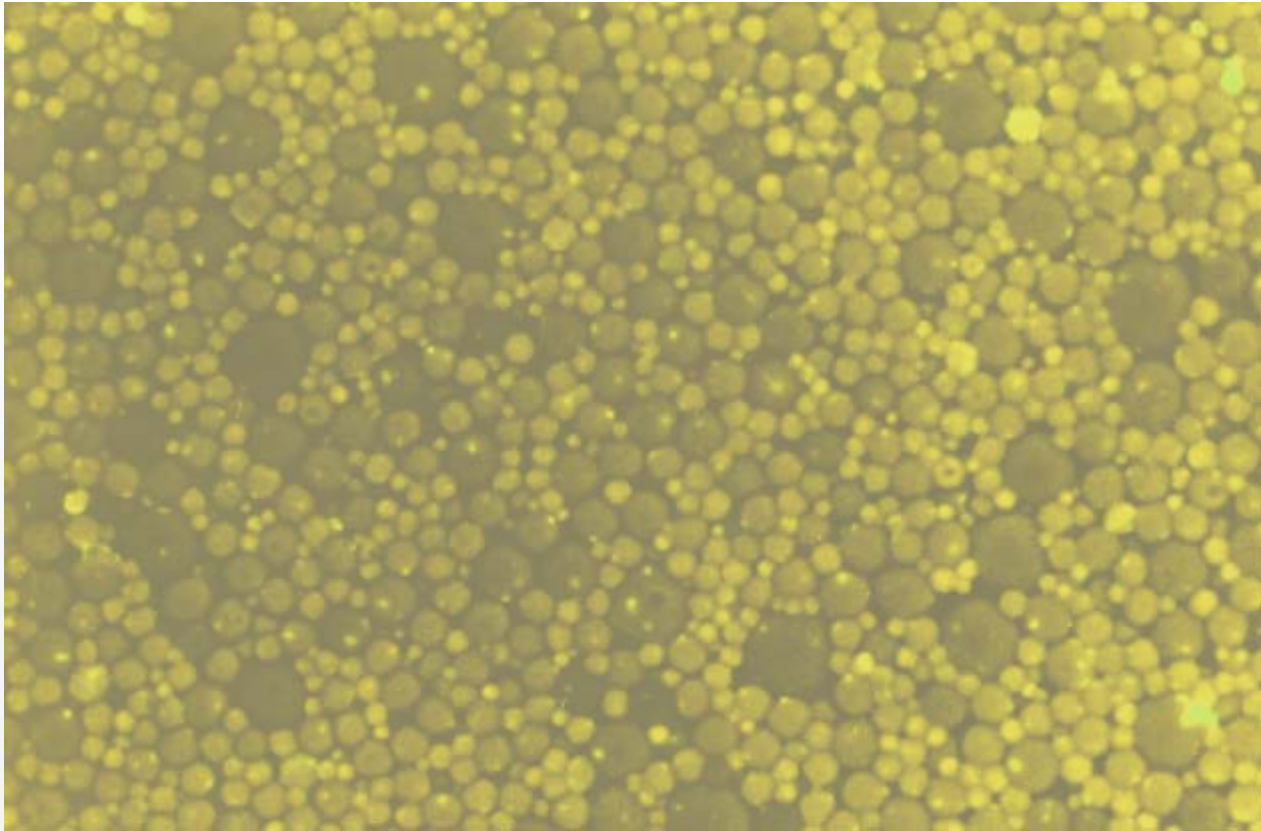


Cationic Emulsion



Anionic Emulsion

Asphalt Emulsions



Asphalt Emulsions

Cationic

✘ **CRS, CMS, CQS, CSS**

✘ **Suffix**

✘ 1 or 2 – Viscosity

✘ H – Asphalt Base
Hardness

✘ P - Polymer

Anionic

✘ **RS, MS, QS, SS**

✘ **Suffix**

✘ 1 or 2 – Viscosity

✘ H – Asphalt Base
Hardness

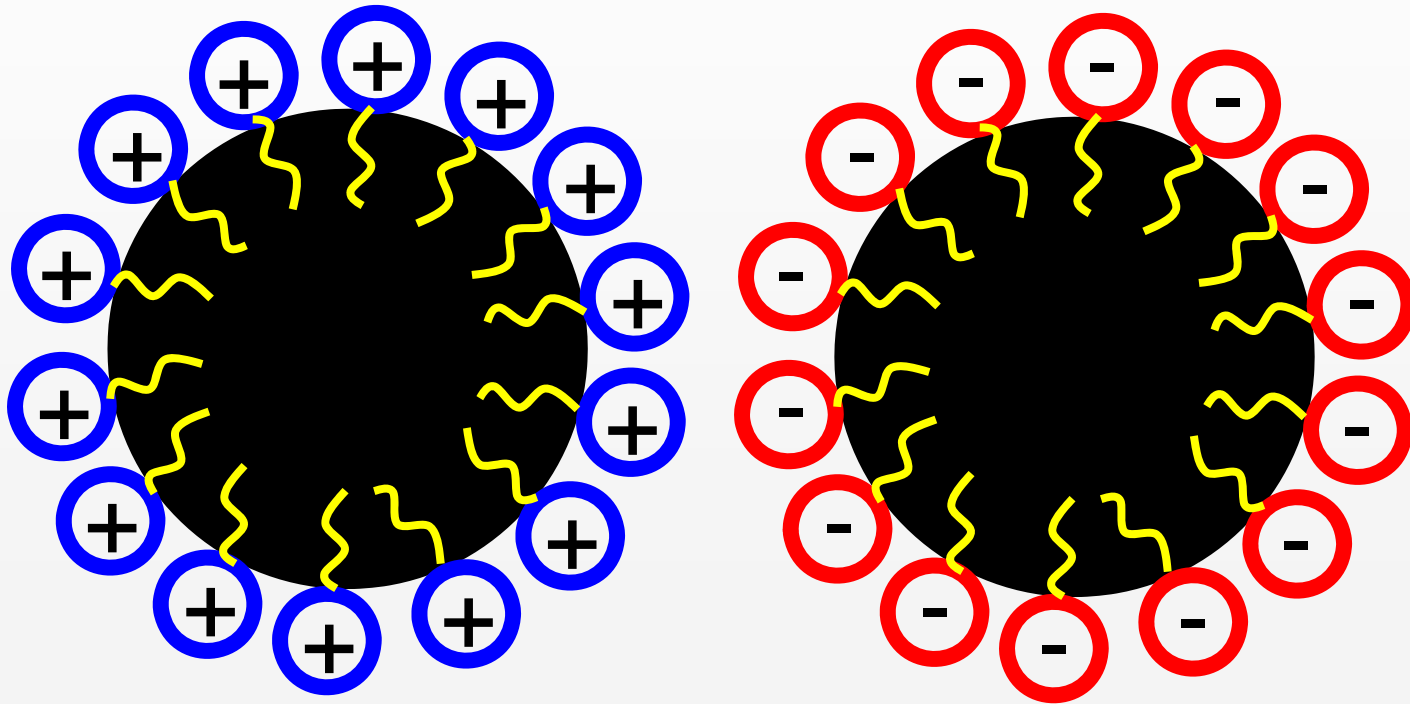
✘ P – Polymer

✘ **Prefix**

✘ HF – High Float

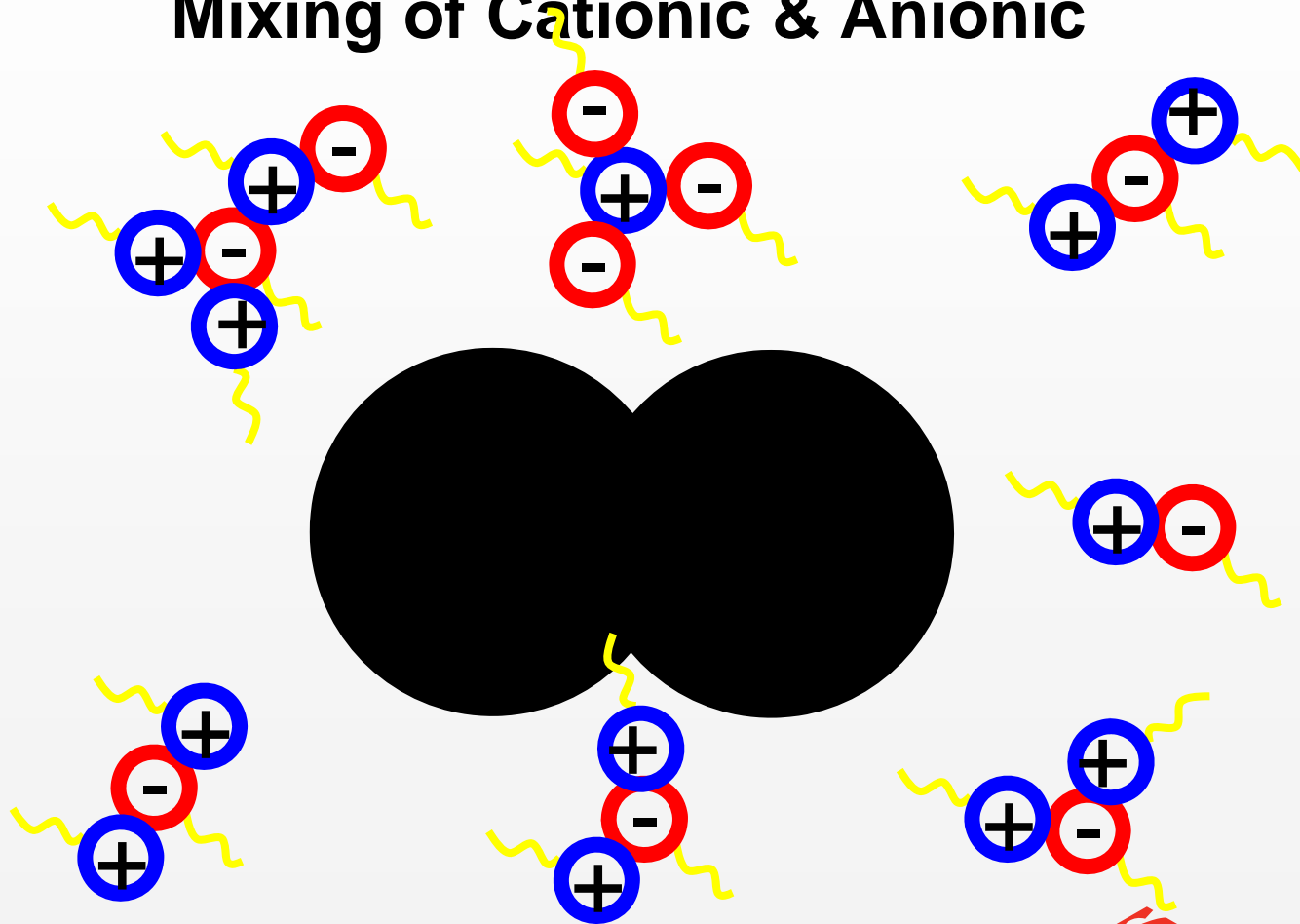
Handling

Never Mix the Two Chemical Types



Handling

Mixing of Cationic & Anionic



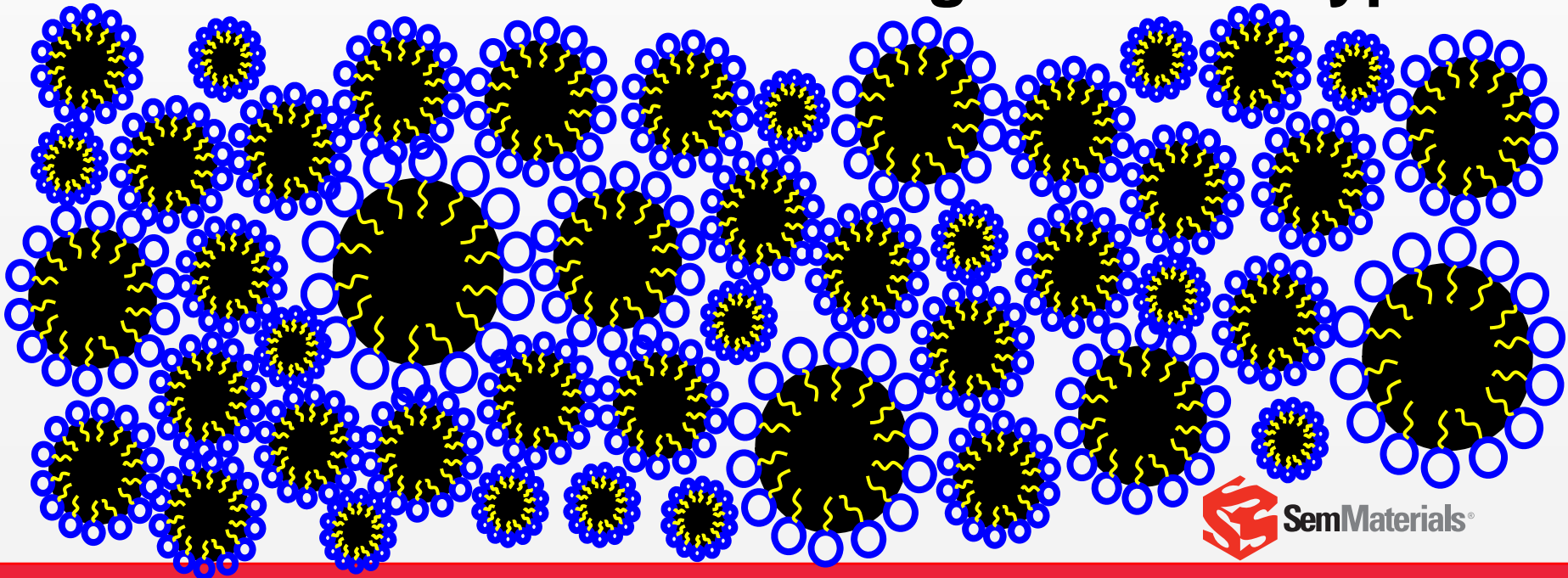
Handling

⊗ Avoid

⊗ Combining Different Source Emulsions

⊗ Combining Different Aged Emulsions

⊗ **Drain Tanks if Combining Different Types**



Handling

⊗ Never

⊗ Add Hot Asphalt to Emulsion

⊗ Violent Boiling Over Reaction

⊗ Adding Asphalt to Emulsion Transport

⊗ Add Small Amount of Asphalt

⊗ Let Water Boil Off

⊗ May Have to Repeat

⊗ Avoid Adding Emulsion to Asphalt

Handling

Temperature

⊗ Avoid the Extremes

- ⊗ Freezing – Lose Emulsifier Coating
- ⊗ Excess Heat
 - ⊗ Water Evaporates – Lose Mixture
 - ⊗ Localized Hot Spots – Torches, Fire Heating
- ⊗ Do Not Exceed 190°F
 - ⊗ Tanks & Pumps



Handling

Storage Temperatures

☒ #1 Viscosity – CSS & CQS


☒ 50°F to 140°F

☒ #2 Viscosity – CRS, CMS, RS, MS

☒ 125°F to 185°F



Plant

- ❌ Tanks Should Be  A black silhouette of a tank lying on its side, with a large puddle of material spilled out onto the ground.
- ❌ Dedicated Tanks for Different Types
- ❌ Do Not Heat Without Circulation or Mixing
- ❌ Vertical Tanks Preferred
- ❌ Minimize Surface Area Exposed to Air
- ❌ Use Oil Heating over Fire Burners
- ❌ Minimize Storage Time

Storage

In the Field

- ❌ More Surface Area in Field
- ❌ Keep Transport Lid Closed
- ❌ Drain Tank by Using All Product
- ❌ Diluting – Use What You Dilute!



Pumping & Loading

⊠ Pumping

- ⊠ Pre-Heat Pumps – 150°F
- ⊠ Do Not Excessively Circulate – Excessive Shear

⊠ Loading

- ⊠ Minimize Air Entrainment
- ⊠ Minimize Multiple Transfers



Destruction

- ❌ **Do Opposite of Everything I Mentioned Today**
- ❌ **Change the Ph!**

Thank You! - Questions

Easy Questions Only!!

