Walker Emulsions
Asphalt Emulsions

How is asphalt emulsion made?

The components:

Asphalt cement

- Asphalt cement is received via tanker trucks and unloaded into large storage tanks, heated to about 140°C to keep the asphalt cement in liquid form.

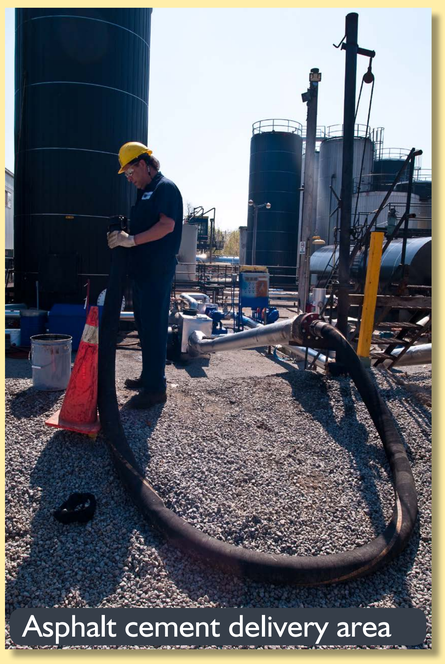
Emulsifier and water mixture

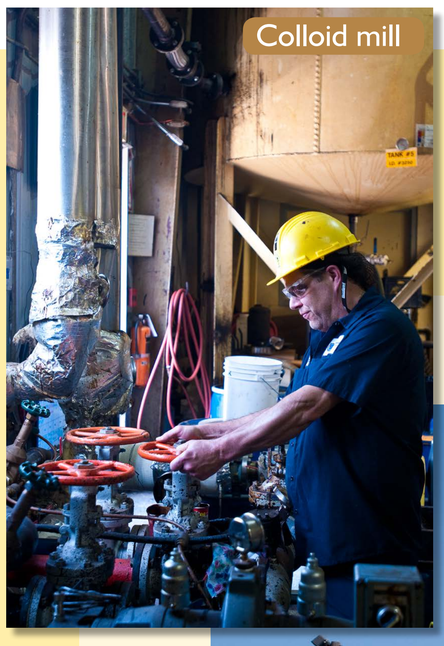
- The emulsifier and water mixture is stored in tanks at about 30°C.
- This soap-like solution is made from a mixture of acid, emulsifier and a stablilizer. The chemistry of the soap mixture depends on the ultimate use of the asphalt emulsion.

Mixing in the colloid mill

- To make the asphalt emulsion, the hot asphalt cement and the warm soap solution are mixed together using a "colloid mill."
- The colloid mill also reduces the size of the asphalt cement droplets to a more uniform size by applying high levels of hydraulic shear to the asphalt and soap solution.
- A tremendous amount of energy is applied to a small portion of the mixture to form a thin film.
- The emulsion leaves the colloid mill and is pumped into large heated product storage tanks.
- From there they are loaded into insulated tanker trucks to be transported to the location where they will be used by the customer.


Asphalt emulsions storage tanks


Asphalt cement delivery area


Colloid mill


Asphalt emulsion loading rack

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Walker Emulsions
Wax Emulsions

How are wax emulsions made?

A wax emulsion is a mixture of wax and water with an emulsifier to keep the wax droplets suspended in the water solution.

Process steps:

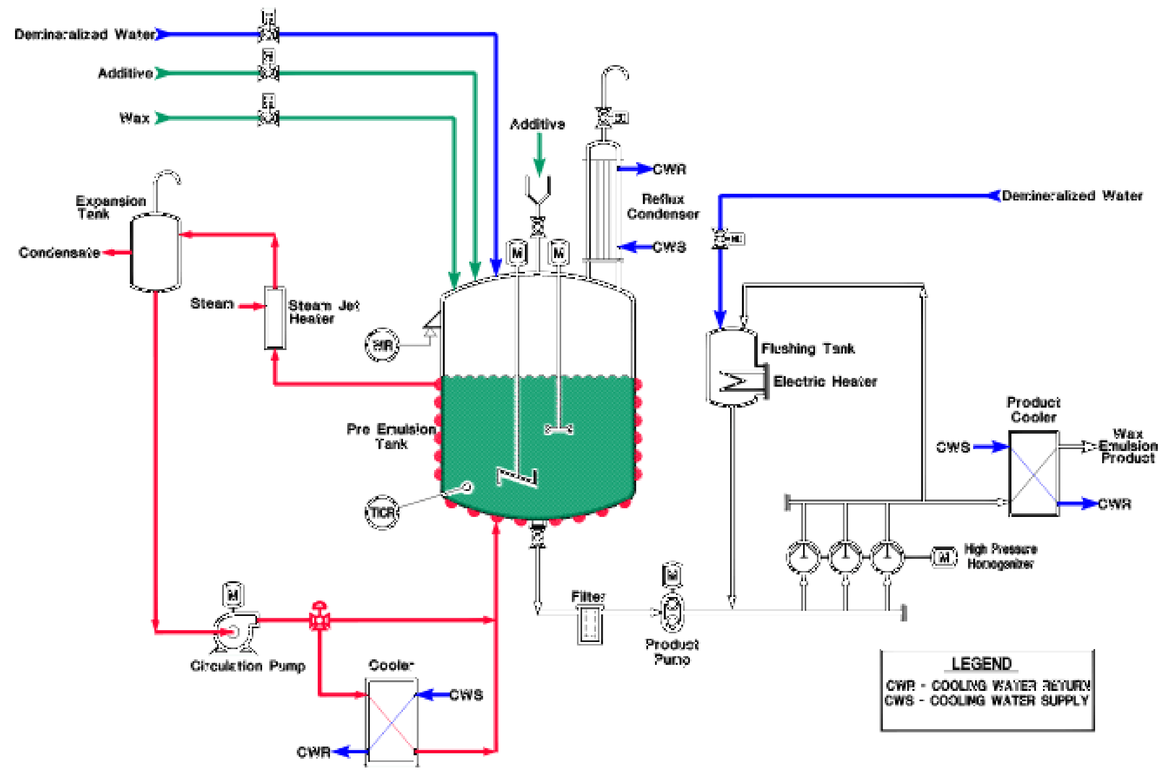
Delivery: Wax is delivered in bulk.

Heating: The wax is heated in a tank to liquefy it in preparation for production. The type of wax that is used depends on the end use of the product.

Adding emulsifier: The emulsifier is added to a water solution in a tank. The type of emulsifier and additives used to prepare the solution depend on the use of the final product.

Combining: The liquefied wax is slowly added to the water/emulsifier mixture by pumping them through the disperser.

Dispersing: The disperser decreases the size of the wax droplets and scatters them throughout the water solution. The disperser creates a coarse emulsion by shearing the wax into small droplets.



Cooling: The heat exchanger rapidly reduces the temperature of the emulsion to below the melt point of the base wax, "freezing" the particles in the suspension.

Homogenizing: The mixture then passes through a homogenizer, which reduces the droplets into submicron particles. This finishes the product by making it homogeneous, with the same character, structure and composition throughout.

Transporting: The finished product is then loaded into containers or tanker trucks for transport to the customer.


Product storage tanks


Disperser


Homogenizer


R & D lab


QA/QC sampling


Product loading

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