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 stabilizer. 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.
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.