

Quadro Ytron®

MANUFACTURING PRESATURATED WIPES

BACKGROUND/REQUIREMENT

Presaturated wipes have grown in popularity over the past number of years. With a wipe for everything from removing dirt on your cat's paws, cleaning the leather seats in the car, applying sunscreen and potty training toddlers, there is a wipe for most all personal care, household and industrial cleaning uses. Most wipes are Isopropyl Alcohol (IPA) and/or DI (de-ionized) Water based, with mild cleaning agents impregnated into non-woven materials. To bind the liquid components to the non-woven materials, a polymer is added in to produce the desired adhesiveness.

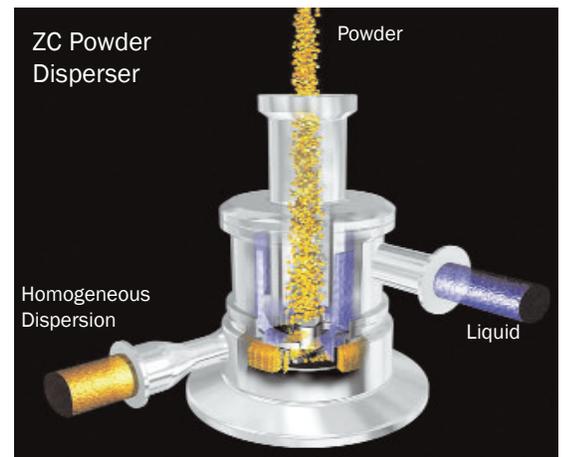
A major manufacturer of baby wipes approached Quadro to help them solve some of their processing issues. The manufacturer was using the Pemulen® polymer to form the emulsion required to give the liquid solution the desired adhesiveness. As a result, the manufacturer encountered the typical problem of "fish-eyes" or agglomerates. "Fish-eyes" are lumps of product with a hydrated skin but an unhydrated dry core. They are created when a hydrophilic powder comes into contact with water. The particles on the surfaces hydrate and crosslink to form a tough outer layer and the particles on the interior cannot be hydrated because they are shielded from the water. Other problems included long mixing cycles to obtain uniform dispersion and complete hydration, powder rafting, increased cleaning times and waste due to a significant amount of dry material has to be removed through filtering.

QUADRO'S APPROACH

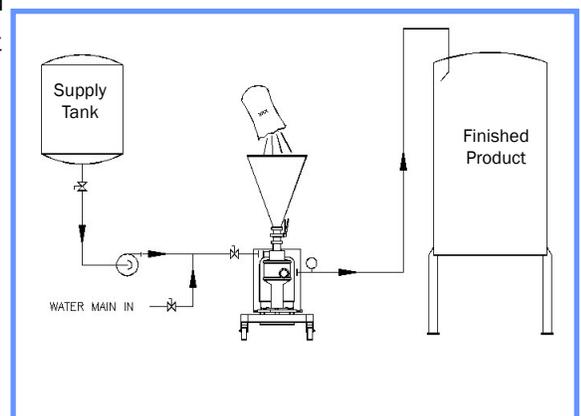
The Quadro Ytron® In-line Powder Dispenser is designed specifically to disperse extremely difficult-to-wet powders such as polymers, into a liquid stream in a single-pass. Powder incorporation is achieved by the presence of significant vacuum in the reactor housing generated by the liquid seal created between the rotor and stator. This vacuum ensures that powders from the hopper above are drawn into the reactor head, where the particles are subjected to intense mechanical shearing PRIOR to hydration into the liquid stream. The result is a perfectly dispersed and homogeneous dispersion of hydrophilic powders WITHOUT "fish-eyes".

SUMMARY

The Quadro Ytron® In-line Powder Dispenser eliminated the problems experienced by the manufacturer. Other benefits realized included repeatable and consistent product batch-to-batch, less air entrainment and the requirement to install expensive de-aerating equipment, reduced batch times of up to 90%, and decreased cleaning times due to the elimination of powder build-up on tank walls and mixer shaft.



TYPICAL IN-LINE SETUP



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