



IN THE MIX

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Are You Using the Right Tank Design for Your Industrial Mixing Application? (Part 2)

DISPERSION AND DISSOLUTION

In our last blog post, we discussed tank design considerations for the most common mixing applications: liquid blending and solids suspension. In part two of our discussion on mixing tank design, we look at two additional mixing applications: dispersion and dissolution.

Mixing Tank Design for Dispersion Applications

Dispersion mixing applications use relatively high shear, high speed agitators. This almost always requires a vertical round mixing tank design to provide flow throughout the vessel and circulate material in the high shear zone. Exceptions may be acceptable when the viscosity is relatively high, but these applications are unusual.

Mixing tanks for dispersion applications should be selected so the static height of the greater component is no higher than the tank diameter in order to **efficiently** move material into the dispersion zone. The industrial agitator can be angle-offset mounted, but baffles are typically installed with a center mounted agitator in the mixing tank to prevent fluid swirling **and** promote top to bottom fluid movement.

Mixing Tank Design for Dissolution Applications

The optimum mixing tank design for solids dissolution is round and has an aspect ratio of about 1:1. This configuration typically provides the lowest installed cost and operating cost for the agitator design. The tank must either be baffled with the industrial mixer on center or the mixer can be angle-offset mounted for relatively small volumes, although we have used them successfully in 25,000 gallon mixing tanks.

Baffling is a very important tank design consideration for dissolution applications. A center mounted industrial mixer in an unbaffled tank does not effectively suspend solids. Offset mixers in unbaffled tanks may leave a significant heel of solids in one sector of the vessel floor.



For More Information

Click the following links for more information about [dispersion](#) and [dissolution](#) mixing applications. If you need help with mixing tank design for your dispersion or dissolution application, email applications@proquipinc.com or call us at 330-468-1850.

Look for the final part of our blog series on tank design which addresses several more mixing applications including emulsification, gas dispersion/absorption, crystallization and heat transfer.