

Cleaning Ceramic Latex Molds

Ceramic molds, widely-used in the rubber industry, necessitate special methods to assure proper cleaning. The tough soils involved – baked-on carbonaceous soils of rubber, latex, and release agents – must be removed completely or they can interfere with forming and releasing of product. This interference can lead to roughage, breaks, and tears. The time allotted for cleaning, however, must be kept short to minimize down time and achieve optimum production, particularly in high-volume facilities.

Previous cleaning operations frequently relied on either hand scrubbing with abrasives, which took large amounts of time and effort, or dipping the molds in a strong mineral acid, which created safety problems as well as disposal issues.

Today the most efficient method of removing difficult soils and keeping production moving is ultrasonic cleaning. Ultrasound provides the safest, most widely-used and effective means of mechanical agitation. It provides the thorough, noncontact, overall scrubbing action needed to remove the stubborn baked-on carbonaceous soils found on ceramic latex molds without scratching or abrasion.

Ultrasonic cleaning is a function of cavitation, the rapid formation and violent collapse of minute bubbles or cavities in a liquid. Cavitation is produced in a liquid by the alternating patterns of compression and rarefaction generated during sound wave half cycles. As the liquid is stretched beyond its tensile strength during rarefaction, these cavities grow from microscopic nuclei. During the subsequent compression phase, they implode violently.



The agitation caused by countless imploding bubbles creates a highly-effective scrubbing of both exposed and hidden surfaces of the ceramic latex mold as it is immersed in the cleaning liquid. Ultrasonics cleans molds uniformly and consistently with repeatability at speeds required to meet or increase production rates without sacrificing quality and precision.

Cleaning Ceramic Latex Molds – The Process

Challenge:

Remove latex residue, releasing agents, and tenacious soils from ceramic latex molds.

Previous

Cleaning Method:

Use of strong mineral acids and subsequent hand scrubbing with abrasives to achieve acceptably-cleaned molds.

Recommended

Process:

1. Vertical immersion of molds for 15 seconds in a heated 25 kHz ultrasonic tank containing Branson RS solution – a high-alkaline cleaning solution.
2. Hot water spray rinse.
3. Hot water overflow rinse at 160°F.
4. Hot air knife blow-off.
5. Forced hot air drying system. (optional)

Equipment:

A Branson aqueous batch cleaning process system.

Benefits:

- Higher quality latex/rubber products.
- No residue left on mold after rinsing.
- Rapid cleaning for higher throughput.
- Completely automated for lower cost/mold.
- Non-contact cleaning extends mold life.
- Simple, repeatable process for high reliability.

For application assistance, contact your nearest Branson office or Branson's Cleaning Applications Laboratory at (203) 796-0522.



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