

APPLICATION BULLETIN

AQUACLEAN 900 CLEANING AGENT

For Use in Dissolving AQUABOND Adhesives and General Cleaning

Revision: November 27, 2000

DESCRIPTION: *AQUACLEAN 900* IS A HIGH PERFORMANCE CLEANING AGENT DESIGNED TO REPLACE HAZARDOUS, TOXIC, OR WASTE INTENSIVE MATERIALS. *AQUACLEAN 900* IS USED TO DISSOLVE ADHESIVES AND AS AN EMULSIFIER FOR ORGANICS, HYDROCARBONS, OR PETROLEUM PRODUCTS. CORROSION INHIBITORS MAY BE ADDED TO PROTECT SENSITIVE METALS OR ALLOYS.

APPLICATION: *AQUACLEAN 900* is a concentrated powder-form detergent designed to be dissolved in aqueous cleaning systems. It has demonstrated its ability to remove a variety of materials. Generally, the product is used in heated and agitated cleaning systems such as a heated ultrasonic unit. *AQUACLEAN 900* is safe for a wide range of metals including those used in manufacturing sensitive devices. Where necessary, corrosion inhibitors may be added for extreme protection. Contact AquaBond Technologies, Inc. (ABT) for further information.

Based upon bench testing conducted at ABT, we suggest the following dilution. We recommend tests be performed to demonstrate the material usage. *AQUACLEAN 900* concentration usage will depend upon the material, contaminant, substrate, agitation, heating, and the frequency of bath changing. All concentrations are reported as a percent (%w/w) of *AQUACLEAN 900* present in water, depending upon the material to be removed:

<u>Material to be Removed</u>	<u>'900 (%w/w)</u>	<u>Conditions</u>
AQUABOND adhesive (55/65/85)	1-2	ultrasonic, >50C/>85C, 1-3 min
Aqueous metal-working coolant w/ particulate	1-2	ultrasonic, >50C, 1-3 min
Lapping slurries, aqueous w/ particulate	1-2	ultrasonic, >50C, 1-3 min
Lapping slurries, non-aqueous w/ particulate	3-5	ultrasonic, >50C, 3-5 min
Non-aqueous lubricant w/ particulate	4-7	ultrasonic, >50C, 3-5 min
General oils, greases, films, sludge	4-7	ultrasonic, >50C, 5-10 min

CHEMISTRY: The formulation for *AQUACLEAN 900* involves a delicate "package" of chemistries. This "package" is composed of phosphates, carbonates, and silicates with surfactants to offer properties which aid in maximum solubility and dispersion of dissimilar materials. The surfactants in the *AQUACLEAN 900*, exhibit low cloud-point chemistry. This chemistry encourages micelle formation at elevated temperatures causing a hydrophobic surface to form on the parts to be cleaned. This phenomenon causes "sheet rinsing" to occur when rinsed with ambient water. This rinsing will solvate the micelle layer and produce a pristine clean part. An additional advantage of the micelle formation is a microscopic protective quality. Low foaming characteristics of *AQUACLEAN 900* will maintain cleaning/rinsing efficiency of microscopic dimensions during a variety of agitation conditions.

USAGE: *AQUACLEAN 900* is intended to be diluted in water and used as an aqueous-based cleaning agent. In general, <5% w/w is recommended for most systems. To effect the "sheet rinsing" activity, a temperature of >50C must be used. Subsequent rinsing is recommended at room temperature. Agitation is recommended to include ultrasonic, N₂ bubbling, spray-wash, or combinations thereof. *AQUACLEAN 900* is recommended for general aqueous cleaning systems and ultrasonic agitation.

RINSE: Step-wise rinsing commonly works best for most applications. *AQUACLEAN 900* is used in the recommended concentration with agitation and temperature control. Good "sheet rinsing" and penetration of small spot areas where *AQUACLEAN 900* may be present is enhanced at >50C. Follow-up rinsing in pure water or similar media is recommended. In most cases, a single rinse bath is all that is necessary to facilitate *AQUACLEAN 900* residue removal.

ANALYSIS: Process control can be carried out with a refractometer. The presence of *AQUACLEAN 900* is identified in a change in refractive index as referenced towards water. A reference curve may be established by the user for concentration adjustment.

COMPATIBILITY: *AQUACLEAN 900* is completely metal-friendly. When diluted in water, the system is slightly alkaline and non-reactive towards many of the most reactive metals, such as copper and aluminum. *AQUACLEAN 900* is compatible with all plastics and materials used in manufacturing and cleaning systems. No long term negative effects towards metals, alloys, or plastics are witnessed in using *AQUACLEAN 900* at the recommended dilution and conditions. Where necessary, corrosion inhibitors may be added for extreme protection.

TOXICITY: *AQUACLEAN 900* contains only non-hazardous materials which are not regulated under the OSHA Hazard Communication Standard or SARA Title III (see MSDS).

WASTE: Uncontaminated *AQUACLEAN 900* may be disposed directly to the sewer for treatment at a local Publicly Owned Treatment Works (POTW). Due to the high biodegradability of *AQUACLEAN 900*, treatment at a POTW is common via biodegradation during secondary treatment. Approvals should be received prior to discharge.

AVAILABILITY: *AQUACLEAN 900 CLEANING AGENT* is available in three-pound containers, cases and drums.

Contact Aquabond Technologies at 1 (805) 383-4008 for more information.