



## TECHNICAL BULLETIN - POSEIDON REGULATOR CLEANING GUIDANCE

Older Poseidon manuals referenced specific branded cleaners and did not always provide clear concentration guidance. These legacy products are no longer sold or recommended by Poseidon, may be difficult to source in the US, and many are hazardous to ship and handle. PDL considers the following options available in the US as suitable for routine service cleaning of Poseidon regulator parts when used as separate descaling and degreasing steps:

**DIY descaling solution:** Mix food-grade 5% acetic acid, such as white cooking vinegar, about 1:1 with distilled or demineralized water. This produces a mild acid solution suitable for removing mineral scale, salt residue, verdigris, and other acid-soluble deposits from regulator parts. To be clear, although often referenced for this application because of its availability, acetic acid is the least desirable choice and mention here is not a recommendation.

**Commercial descaling products:** [Citranox®](#) is PDL's recommended commercial acidic descaling cleaner, containing a blend of 10% to 20% citric acid, glycolic acid, anionic and non-ionic surfactants, and alkanolamines. Sold as a concentrate, the manufacturer's recommended dilution strength for general use is much weaker than the strengths typically used for descaling regulator parts. A dilution ratio of 1:10 is about one and one-half cups of Citranox per finished gallon of distilled or demineralized water, yielding an often referenced strength of approximately 1% to 2% citric acid. For heavier buildup, PDL considers a 1:4 dilution appropriate; this uses about three cups of Citranox topped off with water to make one finished gallon, yielding approximately 2% to 4% citric acid. For severe buildup, a strong 1:1 dilution may be used by adding two quarts of Citranox and topping off with water to make one finished gallon. This yields approximately 5% to 10% citric acid. Use this strength only with careful dwell-time control, close inspection, and prompt rinsing. Citranox is phosphate-free and is not regulated as hazardous material for transportation; manufacturer literature also references government and military use.

An alternative generally available only to dive shops is [GSM Hydrosonic Solvent #43101](#), a strong phosphoric-acid cleaner with 2-butoxyethanol surfactant content that must ship as hazmat. Closer in character to the older acid-detergent products referenced in legacy Poseidon manuals than to the milder citric-acid options above, it is described by Global as formulated to proper strength for its scuba-cleaning application, with no field dilution or mixing required. The GSM formulation is so strong that it must be used with great care because it can rapidly damage brass and plated parts if used for excessive dwell times.

**Acid cleaner caution:** Do not use hydrochloric acid for regulator cleaning. Hydrochloric acid is highly aggressive toward brass, chrome plating, and other regulator materials, and can contribute to corrosion, plating damage, and metal loss. Phosphoric acid cleaners should also be used with caution, and are not recommended as a routine default. When any acidic cleaner is used, the solution strength, dwell time, bath temperature, and part condition must be carefully controlled. Parts should be monitored during cleaning, removed promptly when deposits have softened or dissolved, inspected closely for discoloration, plating attack, corrosion, or material damage, and rinsed thoroughly with clean distilled, demineralized, or de-ionized water. However, rinsing alone is insufficient, the important next step is to proceed to degreasing with an alkaline agent, which will neutralize any remaining acid.

**DIY degreasing solution:** Mix [Extreme Simple Green](#) with distilled or demineralized water. For routine cleaning, start at a 1:10 dilution, using about one and one-half cups of cleaner topped off with water to make one finished gallon. For heavier contamination, a stronger 1:3 dilution uses about one quart of cleaner and three quarts of water to make one finished gallon. These mixtures produce alkaline detergent solutions suitable for removing oils, handling residue, and general contamination from regulator parts before final rinsing.

**Commercial oxygen-compatible degreasing products:** [Blue Gold Industrial Cleaner](#) is PDL's recommended commercial alkaline detergent specifically described by the manufacturer as an [oxygen-equipment cleaner](#). Its SDS identifies the concentrate as containing diethylene glycol monobutyl ether, disodium trioxosilicate, and nonylphenyl-polyethylene glycol. Mix at 1:20 with distilled or demineralized water, about 3/4 cup of degreaser per gallon of water. Manufacturer literature states that Blue Gold has been tested under ASTM F495 and SAE ARP1775A, documenting testing applicable to oxygen-cleaning use. Blue Gold is accepted for military use and is assigned National Stock Number (NSN) 6850-01-397-2306.



An alternative generally available only to dive shops is [GSM Special Cleaner Clear #42100OX](#), a strong alkaline detergent cleaner described by Global as suitable for oxygen cleaning. Its SDS identifies the concentrate as containing ethoxylated alcohol, sodium citrate, tetrasodium glutamate diacetate, and sodium carbonate. Highly concentrated, mix 1:128 with distilled or demineralized water, or about 2 tablespoons per gallon.

**Water:** Concentrated cleaner directions for use commonly state they may be diluted with ordinary potable water, but that is not appropriate for regulator cleaning. Dilute cleaning solutions and rinse parts only with clean distilled, demineralized, or de-ionized water. Use separate rinse water after descaling, separate rinse water after degreasing, and fresh clean water for the final rinse before drying and inspection.

**Heated ultrasonic cleaners:** Unless the cleaner manufacturer or applicable service procedure specifies otherwise, use these solutions with a general working temperature of 60°C to 70°C | 140°F to 158°F. PDL does not follow older Poseidon manual guidance that mentioned extended ultrasonic cleaning times based on older lower power ultrasonic equipment. PDL's preferred practice when using a modern ultrasonic cleaner is 3 to 5 minutes for ordinary contamination, while 10 to a maximum of 15 minutes is appropriate for heavy buildup on metal parts. For heavy buildup, a pre-soak in a mild acid cleaner can be more effective than simply increasing ultrasonic time. PDL does not recommend ultrasonic cleaning for sensitive soft parts such as valve seats, diaphragms, and servos; if a part needs cleaning that aggressively, it should be replaced.

**Important:** Do not mix acidic descaling solutions with alkaline degreasing solutions. Use them as separate steps only, with a thorough rinse using fresh distilled or demineralized water between them. For oxygen-clean preparation, cleaning solution selection is only one part of the process; parts must also be cleaned, rinsed, dried, inspected, packaged, and handled according to the applicable oxygen-cleaning procedure.