

**Need
steam
reliability?**

Improve boiler system efficiency and performance with water treatment products from Buckman.

Buckman's Performance Chemicals Division offers a wide array of boiler water treatment additives and products that can be applied directly or easily formulated for use in every step of the process, including boiler cleaning, pretreatment of incoming water, deaeration, condensate treatment and scale and corrosion control.

Effective boiler products for every part of your system

Boiler and preoperational cleaners

SADA 2 is a fully formulated combination of dispersing agents and scale inhibitors designed to clean both new and old boilers. It is designed to remove deposits of scale, mud, oil, slime and other fouling materials and to prevent the formation of new deposits. It is recommended for use with all metals, including aluminum.

Bulab® 8204 is an alkaline cleaner incorporating surfactants, dispersants and corrosion inhibitors for newly installed equipment such as steam boilers, high temperature hot water systems, evaporating systems and their associated piping. Bulab 8204 will effectively remove hydrocarbon and oil-based rust preventative films commonly applied by equipment manufacturers prior to shipment. The product will remove sedimentary materials such as dirt and clay as well as construction debris.

Incoming water pretreatment

Buckman has an extensive line of water treatment products that provide cost effective solutions for problems common to ion exchange and reverse osmosis systems. Buckman's chemical solutions control fouling and maintain optimum performance. Our products are formulated to be used on both thin-film composite and cellulose-acetate membranes.

Scale inhibitors and dispersants

Buckman uses proprietary blends of phosphonates and polymer chemistries that are optimized to inhibit and disperse specific scales and foulants that can adversely affect your system.

BSC™ 8802, a NSF approved concentrated phosphonate, is effective for CaCO_3 scale. **BSC 8805** is specific for CaCO_3 and other hardness salts such as CaSO_4 , BaSO_4 , and MgSiO_2 . **BSC 8806**, a proprietary phosphonate/polymer is NSF approved. It is especially effective against CaCO_3 , CaSO_4 , SrSO_4 and silt. **BSC 8808**, another NSF approved proprietary phosphonate polymer, is most effective against SiSO_3 , MgSiO_3 and $\text{Ca}_3(\text{PO}_4)_2$. **BSC 8809**, a blend of proprietary polymers, is effective against alum, BaSO_4 , CaCO_3 and CaSO_4 scales and foulants and is also NSF approved. **BSC 8812**, is a unique phosphonate effective against CaCO_3 , BaSO_4 , soluble Fe and Mn. For information on these and many other scale inhibitors for RO systems, please contact your Buckman sales representative.

Microbicides

A recognized leader in microbiological research and control, Buckman provides high-performance, oxidizing and

non-oxidizing biocides to control microorganisms in your RO system. Buckman's most popular biocides include **Bronam® 20** (DBNPA) and **Busan® 85**, a dithiocarbamate. Both Buckman products are effective against aerobic and anaerobic bacteria, such as sulfate reducers (SRB). **KTND**, Buckman's isothiazolinone, is effective against bacteria that cause fouling, planktonic organisms and biofilm organisms. Your Buckman sales representative can help recommend the most appropriate biocide for your needs.

Membrane Cleaners

Buckman offers a number of acid and alkaline cleaners designed to remove inorganic and organic foulants. The result is improved performance and longer element life providing reduced operational costs. Our cleaners include **Bulab 8856** (concentrated) and **BSC 8884**, both of which are alkaline cleaners specific against organics and inorganic colloids, and **Bulab 8889**, an acidic cleaner specific for carbonate and iron. We also offer dry acidic and alkaline cleaners.

Deaeration and passivation

Buckman offers a wide range of oxygen scavenger and passivation chemistries to meet the requirements of your system.

Bulab 9605 is a catalyzed liquid, volatile oxygen scavenger and metal passivator designed to protect the boiler and feedwater from oxygen attack. Bulab 9605 will carry over with the steam to help protect the condensate system from oxygen attack. It will also promote formation of magnetite in the condensate return line thereby reducing iron levels in the returning condensate to provide an increased level of protection from iron deposition in the boiler.

Bulab 9622 is a solution of carbonylhydrazide designed to produce hydrazine in the boiler system when exposed to heat. Hydrazine will protect the boiler and feedwater systems from oxygen attack and does not contribute conductivity in the boiler feedwater.

BPS 3331 is an aqueous solution of sodium bisulfite used as an oxygen scavenger for the control of oxygen corrosion in pre-boiler and boiler systems. It can be used in boilers with pressures up to 600 psig.

Condensate system treatment

BPS 3344 is a fully formulated non-amine condensate corrosion inhibitor. BPS 3344 contains water dispersible compounds and stabilizers that protect condensate systems against oxygen and carbon dioxide by forming a barrier film. The ingredients in BPS 3344 comply with 21 CFR § 173.310 governing the use of chemicals for

steam treatment in FDA regulated food and dairy plants. BPS 3344 is also Kosher compliant.

BPS® 3340 is an aqueous blend of neutralizing amines suitable for use in a wide variety of applications where condensate corrosion due to low pH is a problem. BPS 3340 is designed to volatilize and travel with the steam. When the steam condenses, BPS 3340 will neutralize carbonic acid in the condensate water. BPS 3340 complies with 21 CFR § 173.310 for use in FDA regulated plants.

Scale inhibitors

Buckman offers a number of products to control boiler deposits and keep your boiler clean. Dispersants are commonly used to inhibit and control or stabilize the deposition of calcium carbonate, calcium phosphate, iron, manganese, silica, magnesium silicate and silt. Some of the more commonly used dispersants are based on copolymers of acrylate and acrylamide, high performance terpolymers and polyacrylic homopolymers. Buckman's organo-phosphonates can also be compounded into boiler treatment products to provide scale control.

BSI® 75 is a copolymer that is highly effective in inhibiting the deposition of calcium carbonate and silt. It can be used in a wide range of boiler treatment situations and is suitable for formulation into carbonate and phosphate cycle programs as well as chelant, phosphonate-based and all polymer treatment programs. BSI 75 is NSF registered.

BSI 81 is a high performance terpolymer. It is especially effective as a chelant and in dispersing iron oxides, stabilizing calcium phosphate, dispersing silt and preventing calcium-based deposits. BSI 81 is NSF registered.

BSI 82 is a co-polymer of acrylate and acrylamide for use as a dispersant and scale inhibitor in water treatment applications. BSI 82 is effective across a wide range of cooling and boiler water conditions, making it the ideal choice when cost is a limiting concern. BSI 82 is allowed under FDA 21 CFR § 173.310 and § 176.170.

BSI 84 is a blend of two acrylate/acrylamide copolymers for use as a scale inhibitor and dispersant in water treatment applications. BSI 84 is especially suited for use in boiler water applications, but the product can also be used in cooling water applications. BSI 84 is allowed under following FDA 21 CFR § 173.310.

BSI 89 is a low molecular weight polyacrylic acid homopolymer designed to inhibit scale and deposition in a wide variety of aqueous systems. It is the product of choice in the formulation of a wide range of internal boiler water programs. The crystal modification and anionic properties of BSI 89 provide excellent sludge conditioning and dispersant performance under a wide variety of boiler conditions. BSI 89 is NSF registered.

BSI 98 is a high performance copolymer of acrylic acid and 2-acrylamido-2-methylpropanesulfonic acid designed for use in boiler treatment applications. It is an effective dispersant and stabilizing agent for iron, calcium phosphate, and other boiler water suspended solids. It is FDA compliant (21 CFR § 173.310).

BSI 332 is a proprietary polymer specifically designed to provide deposit control in boilers that use hard water for make-up. It functions by modifying the crystalline structure of calcium carbonate, forming a fluid, well-conditioned sludge. The sludge can then be readily removed by blow-down. BSI 332 can be fed neat, diluted or formulated with other treatment products, such as sulfite, amines, alkalinity builders and phosphonates to provide a complete boiler water treatment product. BSI 332 is FDA compliant (21 CFR § 173.310) and NSF registered.

BSI® 361 is phosphinocarboxylic acid (PCA) that is both FDA compliant (21 CFR § 173.310) and NSF registered. It can be used as a boiler water dispersant and scale inhibitor. BSI 361 is compatible with most commonly used boiler additives, such as sulfite, amines, phosphates and caustic. It can be formulated with other additives or fed neat as an adjunct treatment in both low and high pressure boilers up to 900 psig.

CASI 773 combines the anti-precipitation, deflocculation and sequestration properties of a unique phosphonate with a low molecular weight polyelectrolyte to control deposits. CASI 773 can be used alone or formulated in combination with other compounds for the prevention and control of deposits in low and medium pressure boiler systems.

DMAD is a unique chemical amide with properties that make it useful in boiler water systems as a penetrant, dispersant and corrosion inhibitor. It is NSF registered.



DMAD provides filming protection not only in the boiler itself, but it is recommended for corrosion protection of the steam/condensate system of the boiler operations. Unlike other film forming compounds, such as filming amines, DMAD does not contribute to condensate deposit problems, as it essentially only forms a monomolecular film.

PHOS 2 is an aqueous solution of Amino tris (methylene phosphonic acid) also known as AMP. AMP provides control of the deposition of polyvalent metal ions. It can be used as a component of boiler scale control formulations.

PHOS 6 is an aqueous solution of hydroxyethylidenedi-phosphonic acid (HEDP). PHOS 6 may be used as a component of boiler scale water control formulations. PHOS 6 provides control of calcium and other metal salts by acting as a strong crystal modifying agent and threshold inhibitor. PHOS 6 also has the ability to sequester metal ions, such as iron and manganese. PHOS 6 is NSF registered.

PHOS 12 is efficient and cost-effective, a powerful sequestrant and threshold inhibitor, and is stable in low levels of oxidizing biocides. PHOS 12 is a 45% active solution of diethylenetriamine penta (methylene phosphonic) acid (DETPMP). PHOS 12 is allowed under FDA 21 CFR § 176.170 and § 176.180. PHOS 12 is listed by the NSF under NSF/ANSI Standard 60 for use in potable water applications with the following maximum allowable use rates: NSF certified as a distillation antiscalant and reverse osmosis antiscalant aid not to exceed 10 mg/L.

Corrosion control

BPS® 3360 is a ready to use nitrite/borate closed system inhibitor designed for both hot or chilled water systems. It contains no phosphate, chromate or silicate. It is a complete package that will control corrosion throughout both hot and chilled water closed loop systems.

Internal boiler water treatments—ready to use

Buckman offers a number of fully formulated ready to use boiler water treatment products designed for low

to medium pressure boilers using good to moderate quality feedwater.

BPS® 3302 is a phosphate-based product blended with dispersants, scale inhibitors and an oxygen scavenger. It is recommended for small to medium sized boilers of pressures up to 600 psig where feed of a single product for control of both scale and corrosion in the pre-boiler and boiler areas is advantageous.

BPS® 3310 is a highly concentrated phosphonate-based product that contains no orthophosphate. The complete package of dispersants, sequestrants and scale inhibitors in BPS 3310 allows it to function effectively under a wide range of system conditions. It is designed for use in low to medium pressure boilers up to 400 psig. It is formulated to be used in boilers where the feedwater hardness levels are 15 ppm or less.

BPS 3312 is a phosphonate-based product designed for use in low to medium pressure boilers up to 600 psig. It is a unique blend of dispersants, scale inhibitors, chelating agents and an oxygen scavenger. BPS 3312 is formulated to be used in boilers where the feedwater is of good to moderate quality and hardness levels are 15 ppm or less.

Bulab® 3875 is a blend of all-organic polymers and sequestrants designed to complex hardness and disperse iron to prevent deposits. It is formulated to be highly effective in systems that experience periodic feed water upsets or have high levels of iron contamination. Bulab 3875 can be used alone or as an adjunct with other internal treatments in boilers with operating pressures up to 600 psig. Bulab 3875 is compliant under 21 CFR § 173.310.

Learn more.

Contact your
Buckman representative
or visit
buckman.com.

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Argentina +54 11 4701-6415; Australia +61 (2) 6923 5888; Belgium +32 9 257 92 11; Brasil +55 (19) 3864-5000; Chile +56-2) 2946-1000; China +86-21) 6921-0188; India +91) 44-2648 0220
Indonesia +62) 21-2988 8288; Japan +81) 3 6202 1515; Korea +82) 31-416 8991; Mexico +52 (777) 329 3740; Singapore +65) 6891 9200; South Africa +27 (31) 736 8800; United States +1 (901) 278-0330

Global Headquarters at 1256 N. McLean Blvd., Memphis, TN 38108, USA