

# Sugar & Ethanol Technologies

## ASIA-PACIFIC PRODUCTS

### ADVANCED TECHNOLOGIES THAT HELP YOU EXTRACT MORE VALUE FROM YOUR ENTIRE OPERATION

Buckman offers a wide range of solutions for sugarcane, beet, and wheat processors around the world, solutions that can improve processes, keep water systems cleaner, improve product quality and enhance mill performance dramatically. Look to us for leading chemistries, including next generation enzymatic technologies, to help you optimize:

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- Washing
  - Extraction
  - Purification
  - Evaporation
  - Crystallization
  - Ethanol fermentation and refining
  - Distillation
  - Microbiological control
  - Cooling tower and boiler performance
  - Reverse osmosis
  - Cleaning
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We can help you reduce your environmental footprint, too, even as we improve your return on investment. If you want to know more about any of these products and how they can make a difference in your mill, contact your Buckman representative or visit [buckman.com](https://www.buckman.com).

PRODUCT	DESCRIPTION
<b>Microbicides &amp; Sanitation Aids</b>	
Busan® 1035	This broad-spectrum microbicide, based on a blend of carbamates, is applied directly into the juice in the sugar mill grinding, crusher and diffuser system at up to a total of 12.5 ppm. It is effective against contamination by dextran-forming bacteria, <i>Leuconostoc mesenteroides</i> and <i>Bacillus stearothermophilus</i> . FDA allowed: 21 CFR § 173-320 (b) (3). Halal certified.
Busan® 1038SG	This broad-spectrum microbicide, based on a single component carbamate, is applied directly into the juice or raw sugar melter in the sugar refinery. It is effective against contamination by dextran-forming bacteria, <i>Leuconostoc mesenteroides</i> and <i>Bacillus stearothermophilus</i> . FDA allowed: 21 CFR 173-320 (b) (3). Halal certified.
Busan® 1001	This microbicide, based on quaternary ammonium compounds, is an effective spray sanitizer when applied as a 5% aqueous dilution on equipment and system, followed by adequate draining before it comes into contact with sugar juice. It is effective against <i>Leuconostoc mesenteroides</i> . FDA allowed: 21 CFR § 178-1010. Halal certified.
Oxamine® Technologies	Oxamine, Buckman's newest technology and a greener oxidizing biocide, is generated on site. Oxamine is an alternative that can replace chlorine-based biocides or can replace antibiotics in the fermentation process in the ethanol industry. It is active against a broad range of microbes, and is especially effective against filamentous microorganisms. It also gives better penetration and removal of biofouling. Oxamine can work at a pH of up to 10, and is less corrosive than chlorine. Oxamine can also be used to control algal, bacterial and fungal deposits in industrial cooling towers, recirculating cooling water systems, evaporative condensers, influent water systems, municipal water, brewery and food industries, pasteurizers, industrial fresh water systems, air washers, seawater desalination and reverse osmosis systems, etc. The product is Halal certified.
<b>Clarification Aids</b>	
Bufluc® 5811	This high molecular weight, high charge density cationic powder flocculant is used to improve the lime mud separation process. It is also very efficient at a low dosage range. The product is Halal certified.
Bulab® 5196	This potable grade cationic flocculant polymer is used in the clarification process for influent water clarification. The product is Halal certified.
Bufluc® 5631	This anionic flocculant polymer is extremely effective in phosphatation applications as well as sugar juice and syrup clarification in sugar mills or in sugar refineries. This anionic product, with a low molecular weight and low charge density, is very efficient at low dosages based on Brix in refinery liquor applications. This product is Halal certified.
<b>Colour Removal</b>	
Bulab® 5819	This product is a highly cationic, liquid coagulant that is effective in the removal of visual colour and turbidity in the sugar refinery process. A high charge density and low molecular weight makes this product very efficient at dosages of up to 300 mg/l in colour removal applications, depending on the raw sugar quality. FDA allowed: 21 CFR § 173.60. Halal certified.
Bulab® 5031	This product is a highly cationic, liquid coagulant that is effective in the removal of visual colour, turbidity and polysaccharides in sugar mixed juice and the raw sugar refineries process. High charge density and low molecular weight makes this product very efficient at dosages of 50 to 125 mg/l in mixed juice colour removal applications. This product is FDA allowed: 21 CFR § 173.60, NSF certified, Kosher approved and Halal certified.
<b>Evaporator Scale Control</b>	
Bulab® 8301	This product is a proprietary blend of specific anionic polymers, strong scale inhibitors and dispersants for scale control in multiple effect evaporators and juice heaters. It is very effective in controlling calcium-based scales in addition to magnesium and barium-based scales at dosages of 6 to 22 mg/l. This product contains no phosphates. FDA allowed: 21 CFR § 173.73 and Halal certified.
Busperse® 39	This anionic polyacrylate-based dispersant and scale inhibitor, used for multiple effect evaporators and juice heaters, is very effective in the control of calcium scale at dosages of 10 mg/l. FDA allowed: 21 CFR § 173.73 and Halal certified.
Busperse® 2126	Busperse 2126 is a proprietary blend of specific anionic polymers, strong scale inhibitors and dispersants for scale control in multiple effect evaporators and juice heaters. It is very effective in controlling calcium-based scales in addition to magnesium and barium-based scales at dosages of 6 to 22 mg/l. This product contains no phosphates. FDA allowed: 21 CFR § 173.73 and Halal certified.
<b>Boilout Additive</b>	
Bulab® 8152	This highly active organic dispersant and biodispersant blend of surfactants improves the efficiency of boilout solutions for cleaning. It increases penetration, dispersion and dissolution when added to caustic or acid boilout solutions at concentrations of 0.1–0.8%. It reduces the amount of caustic or acid required while minimizing the need for a corrosive acid cleaning cycle. It can also reduce or eliminate the need for manual cleaning with brushes. The product is Halal certified.

PRODUCT	DESCRIPTION
<b>Defoamer/Anti Foam</b>	
Bubreak® 4019	This product is a high quality blend of mineral oil, polyethylene wax and a glycol compound for foam control in alcohol fermentation, refinery melt liquor, sugar syrup and sugar recovery systems. It is also very effective at controlling foam at low dosage rates. The product is FDA allowed: 21 CFR § 173.340 and 172.878, Kosher and Halal certified.
Bubreak® 4243	This product is a high quality blend of fatty alcohol compounds for foam control in effluent wastewater systems of sugar mills or sugar refineries. The product is very effective at low dosages in controlling foam in activated sludge, contamination in open cooling water systems and other non-food contact systems.
<b>Viscosity Depressant</b>	
Bupan®	This product is a high quality surfactant blend that helps lower the viscosity of massecuite and syrup in vacuum pans and centrifuges. The product is very effective at improving process efficiency and increasing the sugar yield. FDA allowed: 21 CFR § 172.810 and Halal certified.
<b>Condensate &amp; Oxygen Scavenger in Boiler System</b>	
Bulab® 9707	This product is an aqueous blend of low volatility neutralizing amines suitable for short vapor phase and/or condensate distribution systems. It is approved for steam contact with food products when fed in conformance with total amine limitations. The product is FDA allowed: 21 CFR § 173.310 for up to 25 ppm limitation.
Bulab® 9708	This aqueous blend of neutralizing filming amines is suitable for a wide variety of vapor phase and/or condensate corrosion applications. It is approved for steam contact with food products when fed in conformance with total amine limitations. FDA allowed: 21 CFR § 173.310 for up to 50 ppm limitation. Halal certified.
Bulab® 9601NC	This product acts as an oxygen scavenger in boiler water systems. The product is Halal certified and FDA allowed: 21 CFR § 173.310. The product is allowed with food contact processing.
<b>Enzymatic Technologies</b>	
Buzyme® 2583 (Alpha Amylase)	This stable enzyme is used to facilitate degradation of starch in sugar juice, syrup and melter that originates from cane and raw sugar. Starch is responsible for poor crystal formation and poor filterability. Buzyme 2583 improves performance in the mill and sugar refinery through viscosity control, reduction of organic deposits and enhances the clarity of the sugar crystal. Please call our Buckman representative to help you design an effective application. The product is Halal certified.
New Enzymatic Technologies Coming Soon!	Our new dextranase enzymatic product facilitates degradation of the dextran polysaccharide in sugar juice, syrup and melted raw sugar by enzymatic activity. It improves the process efficiency in the mill and sugar refinery by breaking the large dextran molecule into shorter fragments, reducing viscosity of the high Brix liquor. Recommended dosage is 1 to 5 mg/l to thin juice and/or 60 to 80 mg/l in syrup. The product is Halal certified.  A second new enzymatic gluco-amilase product is a heat stable enzyme used for starch conversion in the production of sugar and ethanol. The product is added at the conversion stage at 0.35 to 1 kg/ton based on stock. It is GRAS Approved (Generally Recognized As Safe) and Halal certified.  And finally we will have a combination product of an alpha amylase and dextranase enzyme. This product has been designed to deliver a combined performance of controlling starch and dextran with a single control. Most mixed raw sugar from the Latin America and Asia region needs a combined treatment to help the mill improve process control, performance and sugar recovery. Your Buckman representative will help you design this application for optimum control and good product performance. The product is Halal certified.
<b>Coal Combustion Catalyst</b>	
Bulab® 9672	Bulab 9672 is a proven product to help improve boiler efficiency, improve coal combustion and reduce SO <sub>x</sub> /NO <sub>x</sub> emissions. You want a boiler system that runs reliably and also saves money by conserving natural resources, labour and energy. This unique blend of fuel additives increases coal combustion efficiency and reduces SO <sub>x</sub> emissions effectively by up to 80%. Bulab 9672 combines smart chemistry and proprietary technology to create more efficient coal-burning (and organic fuel) in steam generation systems. It helps reduce the activation energy required to complete the combustion process, burning coal more efficiently and delivering higher calorific value. Plants that use this product typically experience the ability to use low calorific value coal quality (cheaper coal), little to no slagging issues and a 4–10% reduction in pulverized coal consumption. Bulab 9672 improves combustion efficiency, improves system reliability and reduces maintenance costs.

# Buckman

Buckman Laboratories International, Inc.  
1256 North McLean Blvd.  
Memphis, Tennessee 38108-1241 U.S.A.

[buckman.com](http://buckman.com)

## **Buckman Laboratories (Asia) Pte Ltd**

33 Tuas South Street 1  
Singapore 638038  
Tel (65) 68919200, Fax (65) 68634122

## **Buckman Laboratories (India) Pvt Ltd**

Block A & B, 11th Floor, Ega Trade Centre  
No. 809, Poonamallee High Road, Kilpauk  
Chennai, Tamil Nadu- 600010 India  
Tel (91) 44-26480220, Fax (91) 44-26480222

## **PT Buckman Indonesia**

DBS Bank Tower, 28/F Suite 2888  
Ciputra World One.  
Jl. Prof. Dr. Satrio Kav 3-5,  
Jakarta 12940  
Tel (62) 21-29888288, Tel (62) 21-29888289, Fax (62) 21-29888201

## **Buckman Laboratories Korea Corporation**

#205 SA Tower, 175 LS-Ro Gunpo-Si  
Gyeonggi-Do, 15808 Korea  
Tel (82) 31-4168991, Fax (82) 31-4165752

## **Buckman Laboratories (Australia) Pty Ltd**

## **Buckman Laboratories New Zealand Ltd**

Office Building 2  
280 Byrnes Road  
PO Box 1396  
Wagga Wagga, NSW, 2650, Australia  
Tel: (61) 2-69235888, Fax: (61) 2-69235889



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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

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