

# COuest

*sodium silicate*




*change for the better...*

# the CQuest Story

CQuest is a leader in the development of market opportunities based on green and sustainability initiatives. CQuest's mission is to provide stewardship for quality products that can replace environmentally unfriendly products. One of the innovative, "green" chemicals we are proud to offer is sodium silicate liquid. This new sodium silicate offers major gains for the environment and is the result of visionary innovation and stubborn persistence of Producer's Rice, one of the leading rice producers in North America. Producer's Rice

commercialized a proprietary process that utilizes alkaline extraction to convert rice hull ash (RHA) into high purity sodium silicate. Now, instead of the ash being landfilled, a significant portion of what was formerly a waste product can be used as a renewable, sustainable feedstock for quality chemicals with diverse applications.

CQuest recognized what Producer's Rice, and its newly formed venture, AgritecSorbents, had accomplished and teamed up to



**S**odium silicate is a product found in thousands of products we use every day – from adhesives and paints to soaps and detergents. The product has an amazing array of properties. Depending on the application, sodium silicate can function as an algae inhibitor with fire retardant characteristics, an anti-mold/mildew agent, as a penetrant and sealer for harder, more abrasion-resistant surfaces and as a corrosion inhibitor through its formation of protective film surfaces. Soluble sodium silicate is also used to sequester unwanted metals in groundwater systems and plays an important role in de-inking recycled paper. And because the viscosity of sodium silicate increases as it dries, the hard, glasslike bond makes sodium silicate a versatile, economical adhesive.

Non-toxic, non-flammable and non-explosive, sodium silicate liquids are water solutions of silica (silicon dioxide) and sodium oxide. Also known as water glass or liquid glass, sodium silicate is available from CQuest in a variety of concentrations and weight ratios. By varying the silica:sodium oxide ( $\text{SiO}_2:\text{Na}_2\text{O}$ ) ratios and total dissolved solids, CQuest can furnish products that match the handling needs and properties of virtually any requirement. Sodium silicate liquid from CQuest is made from amorphous silica derived from rice hull ash in contrast to silicate made from the crystalline silica of conventional processes. Extensive testing with customers in select markets has indicated that this feedstock difference actually enhances their processes.

provide technical and marketing services for this environmentally friendly product. In working with its core customers in the Oil & Gas and Construction industries, CQuest has taken a leadership role in developing new silicates-based products for these industries. At its Houston, TX- area lab, the emphasis is on evaluating existing product performance and then developing new products that not only match performance but also offer diminished environmental and safety concerns. Silicate-based drilling fluids and silicate-enhanced

asphalt highway construction materials are two examples of new products to come out of the CQuest laboratories.

Partnering with a vision is CQuest's goal. That vision includes bringing marketing and technological expertise to companies developing new products that meet customer needs and give back to the environment in positive, measurable ways.



## General Applications

Adhesives • Building Materials • Cement • Coatings & Paint • Concrete • Detergents & Soap  
Drilling & Workover Fluids • Pulp & Paper • Textiles • Water Treatment • Automobile Tires  
Catalysts • Ceramics • Inhibitors • Waste Treatment • & many more every day products

## Environmental Benefits

Sodium silicate liquid made from rice hull ash (RHA) is a major gain for the environment. For years, the Rice Industry has searched for ways to utilize the rice hull byproduct. As an energy source, burning the hulls displaced more expensive, fossil fuel alternatives while reducing the mass volume of the hulls and was a good first step. However, the development of a process to extract the valuable silica content for use as the primary feedstock for CQuest's sodium silicate liquid was a major breakthrough. Not only did this new use reduce landfill disposal volumes but also represented a major improvement over current methods of producing sodium silicate. Conventional manufacturing processes involve roasting sand in gas fired open hearth furnaces at temperatures exceeding 2000 degrees F. During this process, soda ash is introduced, resulting in large releases of the greenhouse gas, carbon dioxide. Compared to CQuest's rice hull-derived sodium silicate liquid, conventional processes result in much greater usage of increasingly scarce energy resources and also results in a much greater carbon footprint.

CQuest

*vision. innovation. persistence. success.*

# Liquid Sodium Silicate

Sodium silicate is a water soluble compound derived from sodium oxide ( $\text{Na}_2\text{O}$ ) and silica ( $\text{SiO}_2$ ). CQuest offers its sodium silicate in several formulations with properties that meet the needs of many industrial and consumer product applications. By varying the  $\text{SiO}_2:\text{Na}_2\text{O}$  ratios and total dissolved solids, CQuest sodium silicate products can match the handling needs of virtually any requirement.

CQuest Liquid sodium silicates are alkaline with a pH in the 11 – 12 range and are characterized by the properties shown in the table below. The parameters listed are typical values for the principal grades and are not to be considered manufacturing specifications. Physical properties are measured at 20° C (68° F).

CQuest Product Name	Wt. Ratio ( $\text{SiO}_2:\text{Na}_2\text{O}$ ) $\pm 0.05$	Wt % $\text{Na}_2\text{O}$ $\pm 0.2$	Wt % $\text{SiO}_2$ $\pm 1.0$	Viscosity cps	Density (lb/gal)
LCF – 322	3.22	9.1	29.0	200	11.7
LCF – 258	2.58	12.5	32.1	725	12.5
LCF – 200	2.00	14.5	29.5	385	12.6
LCF – 180	1.80	13.3	24.9	150	11.9

For Sales or Customer Service, please call (936)441.1770  
For Technical Support or product comparison, please call (281)681-2018

The logo for CQuest features the word "CQuest" in a white, serif font. The letter "Q" is stylized with a green swoosh underneath it.

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