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AquaLuxus[®] FAQ

What is AquaLuxus[®] WC?

AquaLuxus[®] WC (Well Clean) was an NSF/ANSI 60 certified liquid well cleaning solution and will regain that status soon and is for the use in new and existing groundwater wells to improve water production of bio-fouled wells, water clarity and mitigate microbial growth on well screens. AquaLuxus[®] WC injected down hole on new and existing wells coats metal and mineral surfaces with a molecular barrier that reduces corrosion and deters bacterial growth. AquaLuxus[®] WC also reduces the unpleasant odor caused by high levels of sulfur compounds found in some wells.

(Appendix A: AquaLuxus[®] WC Product Data Sheet)

Is AquaLuxus[®] WC Environmentally-Friendly?

Yes, AquaLuxus[®] WC is an inorganic compound and thus contains no organic compounds, toxic metals, or their salts. The environmental fate of AquaLuxus[®] WC is silica, the same material as found in beach sand. The chemistries of AquaLuxus[®] WC pose no threat of persistence in the environment, no bio-accumulation, nor toxicity when used at the recommended concentrations.

Can AquaLuxus[®] WC be used in Potable Water?

Yes, AquaLuxus[®] WC is NSF/ANSI Standard 60 certified. NSF/ANSI (American National Standards Institute) Standard 60: Drinking Water Treatment Chemicals – Health Effects by governmental agencies that regulate drinking water supplies. Developed by a team of scientists, industry experts and key industry stakeholders, NSF/ANSI Standard 60 sets health effects criteria from many water treatment chemicals including:

- Corrosion and scale inhibitors
- Coagulants and flocculants
- Disinfection and oxidation chemical
- pH adjustment, softening, precipitation and sequestering chemicals
- Well Drilling aids
- All other specialty chemicals used in drinking water treatments

For additional information on NSF/ANSI Standard 60, please visit: <http://www.nsf.org/services/by-industry/water-wastewater/water-treatment-chemicals/nsf-ansi-standard-60/>

(Appendix B1 & B2: NSF/ANSI Standard 60: Certificate # CO142260-01) (Note: this is currently being updated)



Is AquaLuxus[®] WC harmful to humans?

AquaLuxus[®] WC is shipped in its concentrated form. It has a very high pH – 12.5+. Although the pH is high, it is highly buffered in its concentrated form, though if it is spilled on skin it will not harm. But follow the safety handling instructions as specified in the MSDS.

(Appendix C: AquaLuxus[®] WC Material Safety Data Sheet)

How is AquaLuxus[®] WC designed to perform?

AquaLuxus[®] WC was designed as a multipurpose water treatment formulation. The advantages of AquaLuxus[®] WC are the many distinct advantages over other water treatment formulation such as chlorine. These advantages include:

- Anti-Microbial
- Anti-Corrosion properties
- Heavy Metal Containment
- H₂S Mitigation
- Odor elimination
- Drilling Mud Mobilization
- Produces no toxic byproducts
- Safe to handle
- Does not produce toxic gases

How many different chemicals does it replace?

Depending on the operation and the current chemicals be used, AquaLuxus[®] WC and replace between 4-8 different chemicals. This cost benefit makes AquaLuxus[®] WC an exceptional value proposition and greatly mitigates the potential of human error while mixing chemicals.

Where can AquaLuxus[®] WC be applied?

AquaLuxus[®] WC can be applied to **potable and non-potable** water systems. These include municipal water wells, irrigation water wells, piping systems, storage tanks, etc.



How does AquaLuxus[®] WC benefit water wells that are being treated?

There are multiple benefits of using AquaLuxus[®] WC to treat water wells. These benefits include: increased production, reduced microbial growth, reduced corrosion and scaling, corrosion inhibitor, reduced operational energy requirements, reduced maintenance costs and downtime.

Is AquaLuxus[®] WC a biocide?

NO! Biocides work on the mechanism of poisoning bacteria. Biocides such as chlorine work by poisoning the bacteria, although some stronger bacteria species have a survival mechanism whereby they move back into their protein protective shell. This allows the bacteria to survive the poisoning.

Environmentally-friendly AquaLuxus[®] WC works on the mechanism of destabilizing the homeostasis - The ability or tendency of an organism or a cell to maintain internal equilibrium by adjusting its physiological processes. AquaLuxus[®] WC chemistry disrupts the bacteria's ability thrive through a "coating" mechanism with coats the bacteria and/or the food source for the bacteria. This mechanism does not allow the bacteria to survive or thrive.

(Appendix D1 & D2: Sangre de Cristo Laboratory Results – Please review Lab notes)

How is AquaLuxus[®] WC a corrosion inhibitor?

Yes, When AquaLuxus[®] WC comes into contact with metal surfaces a polymer layer of silicon and oxygen are deposited. The polymer creates in effect, a barrier that prevents the metal surface from interacting with the chemistry of the water stream. It is resistant to acids, alkali and organic compounds.

Water well components: pumps, casing, tubulars, screens, etc., pipelines and storage tanks receive the above mentioned coating barrier which extends the life of the components and equipment.

(Appendix E: Halliburton Stainless Steel Test)

(Appendix F: Corrosion Inhibitor Photos)

What effect does AquaLuxus[®] WC have on heavy metals?

The chemistry of AquaLuxus[®] WC is such that it will covalently bond with most polyvalent metal ions in water and ultimately render the metal cations insoluble in water which allows them to



settle out or be filtered out. The toxicity is significantly reduced when in an insoluble state. Some of the metals that can be re-acted out of the water stream are: arsenic, cadmium, iron, mercury, and many other transitional metals. The efficiency of the metal conversions will depend on several factors. Among these factors are pH, species of the metal ions, concentration (metal ions, AquaLuxus[®] WC or both).

How does AquaLuxus[®] WC affect drilling mud?

Drilling muds are an essential component in the construction and development of water wells. Unfortunately, drilling mud is pushed back into the formation during the drilling process. Although the well completion process is designed to remove as much drilling mud as possible, large quantities of drilling mud remain in the well. The remaining drilling mud in the well restricts and inhibits fluid entry into the well bore.

Field reports indicate that water wells that have been treated with AquaLuxus[®] WC are showing significant mobilization of drilling muds that were left in the well bore and formation thus removing obstructions to fluid entry into the well bore.

What is the appearance of a water well after an AquaLuxus[®] WC treatment?

Appendix F shows the before and after AquaLuxus[®] WC treatment in a well located in the Town of Castle Rock, Colorado. One can see a significant difference in the cleanliness and bacteria removal on the screens after treatment.

Appendix G: Town of Castle Rock before and after photo

Appendix H: Meridian Colorado before and after photo

What water production increases can I expect from an AquaLuxus[®] WC treatment?

AquaLuxus[®] WC treated water wells have realized water production increases ranging from 50 – 300% or more. More importantly the treated wells have maintained the production increases since treatment.

Appendix I Well production increases.

What is the application procedure in a water well?



See Appendix J for complete application procedure.

How much AquaLuxus[®] WC is required per well?

See Appendix J for application procedure. But on average a domestic water well will require 5 gallons of AquaLuxus[®] WC and a larger municipal well will require between 30-40 gallons of AquaLuxus[®] WC per well.

What should I expect when the well is turned back on?

After the well has been treated and agitated, bring the well back on line. As the water is pumped from the reservoir, the water will dark to black. This is due to the dead bacteria that resided at the bottom of the well and the gravel pack. It could also have a foul odor. This will clear up as the water is pumped off.

How long does an AquaLuxus[®] WC treatment last?

This has not been firmly established yet. For example one of the earliest wells treated with AquaLuxus[®] WC was for the US Department of the Interior's Bureau of Reclamation in Colorado. On average the life of a well there is 12-18 months due to the high concentration of bacteria. This well was treated in the summer of 2011 and is still pumping with minimal reduction in water production.

How is AquaLuxus[®] WC shipped?

AquaLuxus[®] WC is shipped in various size containers.

275 gallon IBC Totes (Actual 250 gallons)
55 gallon drum (Actual 50 gallons)
5 gallon pail

Are any hazardous placards required for transport?

AquaLuxus[®] WC is an environmentally-friendly product that is certified to NSF/ANSI Standard 60 – Chemicals used for the treatment of potable water. It is non-toxic, non-flammable and non-hazardous. There are no DOT restriction in the United States thus no Hazardous placards are required for transport.