+61 1300 303 281
info@dmi65.com

DMI-65 ADVANTAGES

- ✓Prevents staining
- ✓Save on costly membrane cleaning and replacement
- ✓Significantly improve system performance reducing initial system capital investment
- ✓High Disinfection rate achieved
- ✓No leaching of chemicals
- ✓Substantial whole of life cost savings

DMI-65 IS USED IN:

- ✓ Reverse Osmosis Pre-treatment
- ✓ Drinking Water Treatment
- ✓ Arsenic Removal
- ✓ Irrigation Systems
- ✓ Landscape Reticulation
- ✓ Cooling Towers and Boilers
- ✓ Environmental Dewatering
- ✓ Industrial Applications
- ✓ Food and Beverage

INDUSTRIAL APPLICATIONS

DMI-65 is an extremely powerful silica sand based catalytic action water filtration media that is designed for the removal of Iron and Manganese without the use of potassium permanganate through an Advanced Oxidation Process.

Iron and manganese are non-hazardous elements that can be a nuisance in a water supply. Iron and manganese are chemically similar and cause similar problems. Iron is the most frequent of the two contaminants in water supplies; manganese is typically found in iron-bearing water. Iron and manganese can stain laundry, plates, and fixtures.

In deep wells, where oxygen content is low, the iron/manganese-bearing water is clear and colorless (the iron and manganese are dissolved). Water from the tap may be clear, but when exposed to air, iron and manganese are oxidized and change from colorless, dissolved forms to colored, solid forms.

Oxidation of dissolved iron particles in water changes the iron to white, then yellow and finally to red-brown solid particles that settle out of the water. Iron that does not form particles large enough to settle out and that remains suspended (colloidal iron) leaves the water with a red tint. Manganese usually is dissolved in water, although some shallow wells contain colloidal manganese (black tint). These sediments are responsible for the staining properties of water containing high concentrations of iron and manganese. These precipitates or sediments may be severe enough to plug water pipes and sprinklers.

Iron will cause reddish-brown staining of laundry, porcelain, dishes, utensils and even glassware. Manganese acts in a similar way but causes a brownish-black stain. Soaps and detergents do not remove these stains, and use of chlorine bleach and alkaline builders (such as sodium and carbonate) may intensify the stains.

Iron and manganese deposits will build up in pipelines, pressure tanks, water heaters and water softeners. This reduces the available quantity and pressure of the water supply. Iron and manganese accumulations become an economic problem when water supply or water softening equipment must be replaced. There also are associated increases in energy costs from pumping water through constricted pipes or heating water with heating rods coated with iron or manganese mineral deposits.

Incorporation of a DMI-65 based filtration system will materially reduce these symptoms as well as performing disinfection and mechanical filtration of undissolved solids.

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DMI-65 is infused technology and not just a surface coating technology, unlike other catalytic water filtration media, which removes the chance of any chemical leaching into the water stream.

In order to begin the process of oxidation of the iron (and manganese) in solution DMI-65 is designed to operate in the presence of chlorine or other oxidant. In this process the oxidant removes electrons and is consumed in the process. The operator needs to ensure that there is a 0.1 – 0.3 ppm free chlorine residual in the effluent water. Chlorine, fed as sodium hypochlorite or bleach (12.5% NaOCl), is the preferred oxidant since it is relatively inexpensive, readily available around the world and it is effective. It also performs the vast majority of any disinfectant process.

Unlike ion exchange resins where higher regenerant dosages will increase the ion exchange capacity, NaOCl residuals or concentrations higher than required to oxidize the Fe and Mn do not increase the oxidative properties of the media.

DMI-65 has been certified to the US Standard of NSF/ANSI 61 for Drinking Water System Components and for use in England and Wales Under Regulation 31(4)(a) of the water supply (Water Quality) regulations 2010 and has also been tested by many other water treatment authorities and laboratories.

DMI-65 is used in a wide variety of food and beverage applications

Case History

Fleischmann's Yeast selects Yardney / DMI-65 Water Filtration for the Removal of Iron (Fe)

This food processing plant located in Memphis, TN was unable to use the water from a newly drilled well for boiler and cooling tower make–up due to the high level of iron (Fe) in the water. This resulted in higher than expected plant operating costs since the company had to purchase water from the city for these uses.

During the testing period, Yardney Water Management Systems, Inc of Riverside, CA teamed with Sparkling Clear Industries of Houston, TX (SCI) for a field trial at the plant using DMI–65, a revolutionary new filtration media manufactured by Quantum Filtration Medium in Western Australia. DMI–65

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is a silica sand based filtration media that will remove iron, manganese and arsenic when operated in the presence of chlorine (sodium hypochlorite). The purpose of the trial was two-fold: to determine the effectiveness of the iron removal properties of the DMI–65, and to ascertain the appropriate hydraulic flow rate (in gpm/ft2) for the sizing and design of the required filtration equipment.

The system was installed and commissioned in mid–2009 (Figure 1). Since start–up, the quality of the water being supplied by the Yardney system utilizing the specialty iron removal media has met and exceeded the client's expectations. This has allowed the plant to use the well water treated by the Yardney system for make–up to the boilers and cooling towers. Additionally, they have found other uses in the plant due to the high quality of the water produced. In terms of cost savings, the client is realizing over $9,000/month on water savings since the installation and start–up of the treatment system. Additional savings, yet to be quantified, are in nature gas and chemical savings due to the significant reduction of boiler and cooling tower blow down.

Advantages of using DMI-65

INHIBITS STAINING
DMI-65 efficiently removes dissolved iron to the almost undetectable levels as low as 0.001 PPM and manganese to 0.001 PPM which will allow the use of the water in most industrial applications without causing unsightly staining or blockages to waterflow that adversely affects the systems performance.

REDUCED COSTS
The total cost of the iron and manganese removal water filtration system is significantly less than alternative solutions, the effectiveness, but relative simplicity, of DMI-65 based systems reduces the upfront capital expenditure on plant complexity as well as the ongoing operational expenditure in chemicals, power and backwash waste water recovery.

HIGH FLOW RATES
The infused technology of DMI-65 promotes the highest oxidation rate of any catalytic filtration media. This permits a significantly higher water flow rate to achieve the same level of iron and manganese removal. DMI-65 can operate at linear filtration velocities up to twice that of conventional media with a corresponding reduction in capital equipment costs.

HIGH LOAD CAPACITY
DMI-65 also has higher iron and manganese load capacity which can extend the duration of filter runs and the time between backwashing, thereby reducing downtime, operating expense and wastage.

REGENERATION NOT REQUIRED

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The media operates with a continuous injection of sodium hypochlorite at low residual levels (0.1 to 0.3 ppm) which eliminates the need for Potassium Permanganate.

WIDE OPERATING ENVIRONMENT

Stable and satisfactory performance at pH 5.8 to 8.6 and a maximum operating temperature of 113° F (45°C) reduces the need for investment to alter the operating environment.

LONG LIFE

DMI-65 is not consumed in the process giving it an expected operational life of up to 10 years, providing considerable advantages over other processes or media. The media does not display a decaying capacity to do its catalytic work. Over the 5 to 10 year period, through many backwashing operations of the bed to remove retained solids, an attrition loss of the media occurs by contact between particles and mechanical abrasion.