

Color Removal with MIEX® Treatment



Color in Water Supplies

Color in water supplies is typically due to natural organic matter, where leaves, soil and other materials in the environment come in contact with the water. In some cases, the color can be caused by inorganic constituents in the water source such as iron and manganese.

Color is not a health concern and as such is not regulated for health reasons. Color is considered a contaminant for aesthetic reasons, and secondary water quality standards exist to maintain the aesthetic quality of treated water supplies.

The MIEX® Solution

The MIEX® Process is an advanced magnetic ion exchange process that utilizes the MIEX® Resin for the removal of contaminants from water. When color is primarily due to the presence of natural organic matter, the MIEX® Process can be used to significantly reduce



Figure 1: Village of Palm Springs WTP Superintendent, Don Ray, with MIEX® treated water and raw water

treated water color levels from 60% to 95% through the removal of dissolved organic carbon (DOC) from raw water.

DOC is removed through anion exchange where negatively charged organic acids are exchanged with chloride ions on the surface of the MIEX® Resin.

The MIEX® Process delivers:

- Consistent treatment that is not subject to chromatographic peaking
- Lower waste volumes than alternative color removal technologies
- Flexibility of placement in the treatment train
- Reliable treatment independent of raw water turbidity
- Removal of other anions such as bromide, sulfide, arsenic, chromate, and nitrate

Table 1: Color Removal at Village of Palm Springs WTP, FL

Parameter	Raw Water	Post MIEX®
True Color (Pt. CO)	30-34	0-2
TOC (mg/L)	12-13	2-3

MIEX® Treatment Systems

MIEX® Treatment Systems are available as open tank gravity flow systems or enclosed pressurized systems and come as packaged units up to 2 MGD (~7.6 MLD) or custom-designed systems for all capacities over 2 MGD.

For surface water supplies, the treatment system is best applied as a pretreatment step to take full advantage of the downstream benefits of DOC removal.

Upfront DOC removal can result in the following treatment benefits:

- Reduction in Disinfection By-Product formation potential
- Improved downstream membrane performance
- Reduced chlorine demand for disinfection
- Reduced chemical demand for downstream coagulation
- Increased capacity of activated carbon

For ground water supplies, the treatment system can be used as the only treatment process if only color removal is required or at softening plants as pretreatment to lime softening or high-pressure membranes.

Feasibility studies can be conducted on water sources to determine the optimum performance of the MIEX® Process and appropriate system design parameters.



MIEX® DOC Resin is certified by the NSF for use in drinking water systems under the provisions of the ANSI/NSF Standard 61: Drinking Water Components - Health Effects.