



Nitrate

Water Treatment

Nitrate, which can be present in groundwater from fertilizers and agricultural activity, has been more evident in recent years. The increase is attributable to usage of nitrogen fertilizers at 20-times the usage level of 50 years ago.

Selecting a cost effective treatment technology for the reduction of nitrate is based on a number of factors. Layne Christensen Company engineers can determine which technology or combination of technologies is best suited to meet your water quality needs.



The USEP has set the nitrate MCL measured as nitrogen at 10 mg/l. Nitrate contamination is a concern because ingestion of nitrate in drinking water by infants can lead to oxygen deficiency in the blood, a potentially fatal condition. Other dam-aging effects can be miscarriage and an increased risk of non-Hodgkin's lymphoma.

Advanced Amberpack Advantages

- Higher loading rates enable vessels to be significantly smaller, saving on installation floor space
- Vessel height is only 6 feet, saving overhead space requirements
- Lowest overall capital cost, operating cost and cost of ownership
- High efficiency design
- Low waste from selective brine reuse
- Modular treatment train provides scalability
- Reduced time and cost for field installation
- Reduced regenerant costs
- Standard fully automated design



Layne's Advanced Amberpack™ Municipal Ion Exchange Systems offer water users a low waste, high efficiency and high rate treatment solution for the removal of nitrate from groundwater supplies. With the continual emphasis on minimizing the environmental impact and cost of treatment and disposal of waste residuals, Advanced Amberpack Municipal (AAM) provides an innovative and commercially proven solution.

AAM Systems utilize a packed bed countercurrent ion exchange process that incorporates a "state of the art" patented Fractal Distribution Technology.

Advanced Amberpack enables the treatment of large volumes of water while producing minimal quantities of waste requiring disposal or further treatment (typically only 0.3-0.5% of the water treated).

The use of fractal distributors incorporated in a unique vessel design provides for highly efficient contact between the contaminants and the media in the service cycle while enabling near perfect separation and reduction of waste fractions in the regeneration mode.

Modular, space saving, fully integrated skid-mounted and automated systems provide significant capital and operating cost savings over conventional ion exchange processes as a result of significant waste minimization, and reduced regenerant costs. This makes Advanced Amberpack Municipal the best solution for nitrate removal to provide healthy water and keep plants running smoothly and cost-effectively.



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Layne Christensen Company

Water Technologies:
Define
Develop
Deliver