

Force Main Treatment



Force main treatment with ozone and oxygen is an on-site, chemical-free method to control corrosion and odors in pressurized wastewater pipelines (force mains) and lift stations by targeting the root cause: anaerobic sulfate-reducing bacteria (SRB) and their byproduct hydrogen sulfide (H₂S).



TREATMENT TECHNOLOGY

Oxygen is generated on-site with an oxygen concentrator from ambient air using pressure swing adsorption (PSA) technology. Ozone is generated from oxygen under pressure using a corona discharge ozone generator. Ozone and oxygen are bubbled into a lift-station basin, and/or injected into a pressurized force main to dissolve ozone and oxygen into wastewater. Ozone oxidized H₂S into SO₄²⁻ + H₂O + O₂. The balance oxygen maintains an aerobic environment to prevent downstream H₂S production by promoting an aerobic state.

BENEFITS

- Lower operating costs by reducing chemical usage
- Reduce H₂S and other SRB's for lower odors and lower corrosion
- Eliminate or reduce odor at the source and down-stream vents
- Ozone is highly reactive and soluble into wastewater
- Can reduce color in wastewater

APPLICATIONS

- Wastewater Odor
- Force Main
- Lift Station
- Digester

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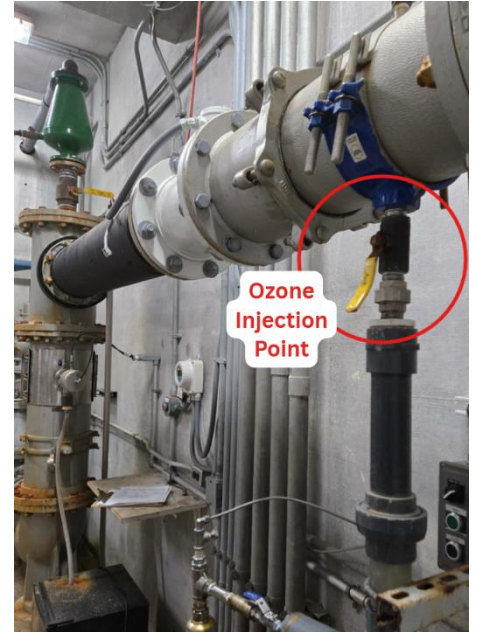
REPLACE CHEMICAL COSTS AND STORAGE

- No handling with ozone
- Lower operation cost
- Ozone reacts back into oxygen
- True green solution

OZONE ELIMINATES ODOR THROUGH OXIDATION

Introducing oxygen into the environment helps prevent odor and corrosion by stopping the growth of sulfate-reducing bacteria (SRBs) and creating an aerobic rather than anaerobic condition. Adding ozone directly oxidizes H_2S while destroying bacteria and eliminating odors through powerful oxidation. Ozone readily dissolves into wastewater without the need for mechanical mixing.

After ozone (O_3) has dissolved into water and either oxidized odor-causing compounds or killed sulfate-reducing bacteria and reverted to $O_2 + CO$, there may still be oxygen (O_2) available for further reaction or to help prevent the return of anaerobic conditions. Ozone truly is the 1 + 2 Punch.



RENTAL SYSTEMS FOR SHORT TERM OR PILOT TESTS AVAILABLE

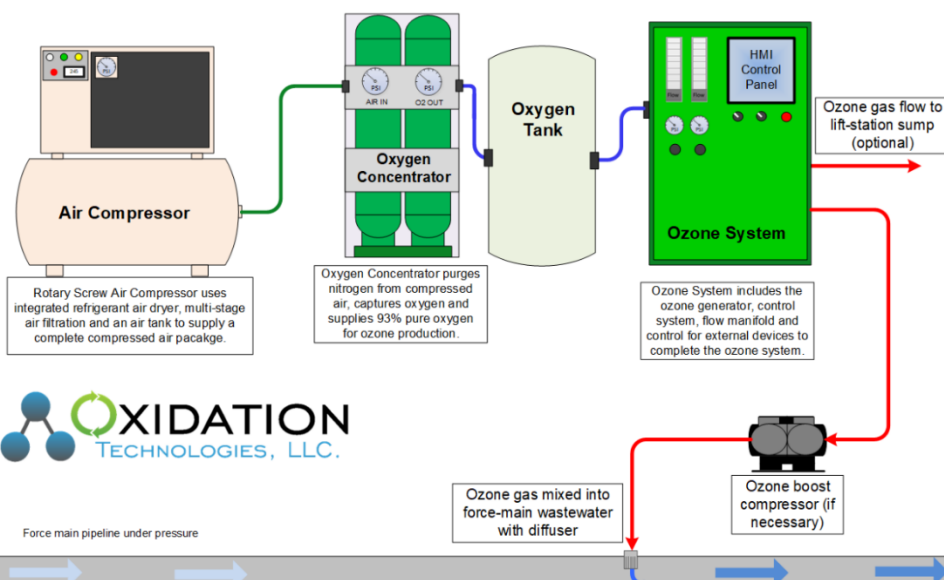
Oxidation Technologies has rental trailers available for on-site applications to fit your needs. Ozone and oxygen gas can be introduced directly into pressurized force-mains and lift stations with a turnkey, ready-to-use system.

IMPLEMENTATION:

- Direct Injection
 - Ozone/oxygen gas are injected directly into force Main under pressure
- Bubble Diffuser
 - Ozone/oxygen gas are bubbled into the lift-station to reduce odors at the lift station and provide downstream benefits

Main ozone system components

Main components of an ozone system for force main ozone injection



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