

NEUTRA™ Water Treatment Process.

Neutralization of alkaline wastewater with carbon dioxide.



NEUTRA™ diffusion hose

General

Due to stricter environmental requirements, today wastewater may only be discharged into the sewage pipelines or outlet channels if it is within a narrow pH range around the neutral point. The NEUTRA water treatment method and installations employ the

environmentally friendly gas carbon dioxide (CO₂) in order to neutralize alkaline waters. When dissolved in water, carbon dioxide forms carbonic acid and reduces the pH value to the appropriate level.

Advantages

Compared with mineral acids, carbon dioxide and carbonic acid offer many advantages:

- Carbon dioxide is not categorized as a substance that is harmful to water
- No additional salt formation in the water as chlorides, sulphates etc. and therefore no increased salt load in the infeed to wastewater plants
- No over-acidification of the wastewater due to the flat neutralization curve
- No corrosion of the system components
- Safe and simple storage and use of the carbon dioxide
- The best economical and ecological alternative



NEUTRA inline injector



NEUTRA reactor

Areas of use

The carbon dioxide can easily be used in most industrial areas in which alkaline wastewater occurs, for example in:

- Beverage industry
- Dairies and butcheries
- Bakery and confectionery industry
- Electroplating industry
- Cement and concrete industry
- Paper and cellulose industry
- Leather industry
- Textile industry
- Laundries and dye works
- Photo-chemical industry

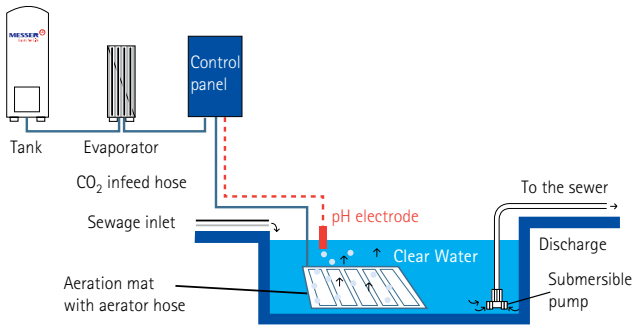
The addition method

The gaseous carbon dioxide is added to the wastewater using the NEUTRA water treatment methods and installations developed by Messer:

- NEUTRA diffusion hose method:
Carbon dioxide enters via finely perforated aeration hoses
- NEUTRA inline injector method:
Carbon dioxide enters via ball head nozzles
- NEUTRA reactor method:
Carbon dioxide enters via special reactors

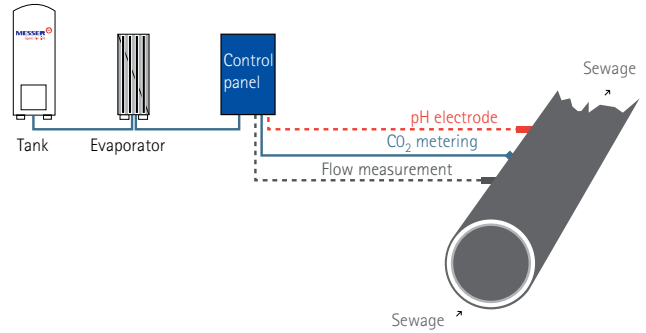
NEUTRA diffusion hose method

CO₂ ingress via aeration hoses made of elastic and resistant plastic installed on the bottom of the tank.



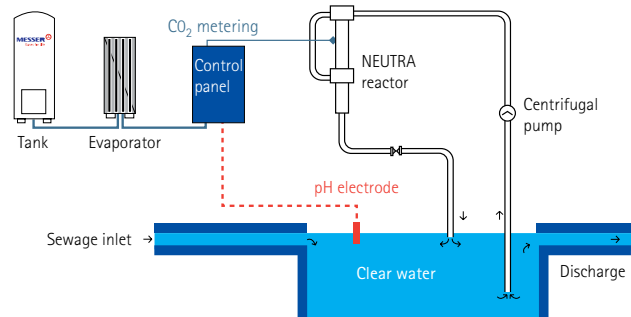
NEUTRA inline injector method

CO₂ ingress via ballhead nozzles directly into the sewage pipe.



NEUTRA reactor method

CO₂ ingress via reactors connected in the main flow or the secondary flow.



Why Messer

Messer is a world leading industrial gas organization that offers a variety of gas products, services and technologies that improve quality and enhance environmental performance. Messer tailors solutions to meet the unique needs of each customer and their facility.



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