Storagetech
STORAGE TANK EQUIPMENT

CO_2 ABSORBER

Case Study

Case Study

Äager

CO2 ABSORBER

Demineralized water, which is produced and prepared for use in an expensive and difficult way, is in contact with the air in the tanks where they are stored. The reaction that occurs as a result of this contact, carbon dioxide gas dissolves in water and becomes an ion with a reversible reaction. Ions change the quality of the water by affecting the pH and conductivity values of the neutralized demineralized water.

Changing water quality, on the other hand, causes the process flow to be prolonged and long-term water rehabilitation to be done again. This situation can cause serious time and financial loss for the business.

Storagetech, an Aager brand, manufactures absorber units that will absorb carbon dioxide from the air entering the tank in order to maintain the quality of demineralized water.

Problem

Our customer needed an absorber system that would prevent carbon dioxide flow to 5850 m3 demineralized water storage tanks at an ambient temperature of -24,6°C - 55°C.

Action:

• Experiments were carried out considering the system inlet/outlet flow rates, operating/ambient temperatures, chemical and physical properties of CO2 gas.

• As a result of the experiments carried out with various absorbents, the one with the highest carbon dioxide absorption rate was selected.

• The amount of absorbent and the life of the absorbent were calculated by considering the CO2 pollution rate.

• The dimensions of the unit were determined by making an internal design that will allow the CO2 gas that will enter the absorber unit to spread homogeneously on the absorber.

• In the region where cold weather conditions are effective, heat tracing process was applied to prevent the absorbent from losing its absorption ability by freezing.

• Air inlets and outlets have been made safe with the pressure vacuum relief valve.

• Control equipment and installation conditions were determined.

• Thus, the quality of the demineralized water was preserved by preventing the entry of carbon dioxide gas into the demineralized water tank.

Advantages of absorber units:

- Protection of water quality
- Keeping the pH and conductivity stable.
- Preventing the business from using more water
- Securing the process flow
- Long-lasting use thanks to specially developed materials.
- Easy monitoring of the usage life of the absorbent material and easy replacement with the cartridge system.

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