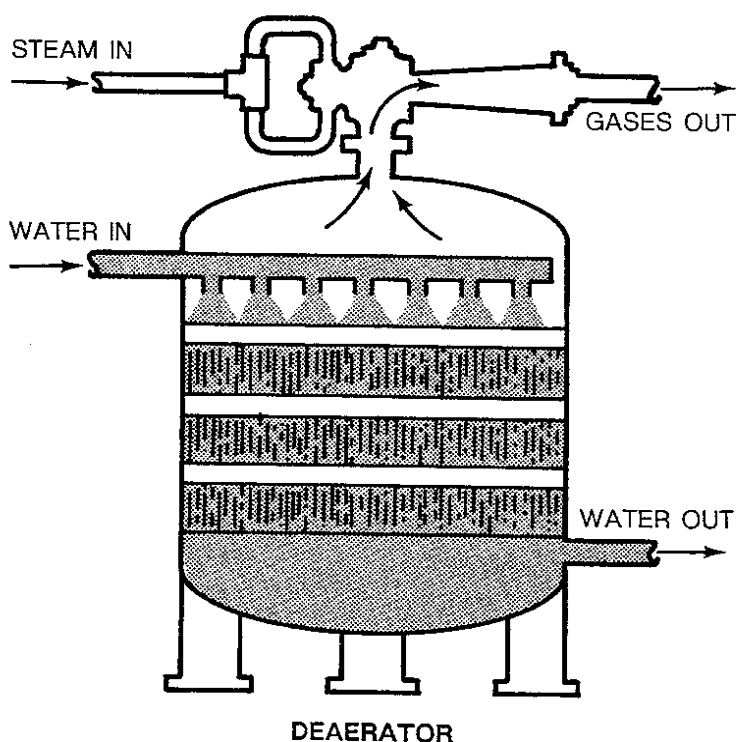


OXYGEN CONTROL

313. As you recall, oxygen is very corrosive in the presence of _____ .
314. If oxygen does get into the system, it can be removed by "scavenging". This is a chemical means to remove _____ .
315. Chemicals, such as sodium sulfite or hydrazine, reduce the available oxygen content in the _____ .
316. These chemicals react with the oxygen and form another product. This (increases / decreases) the amount of oxygen that is available to react with the water.
317. So, scavenging chemicals actually reduces the amount of corrosive _____ in the system.
318. There are also mechanical ways of removing oxygen from a system. Two ways are by vacuum deaeration and gas stripping.

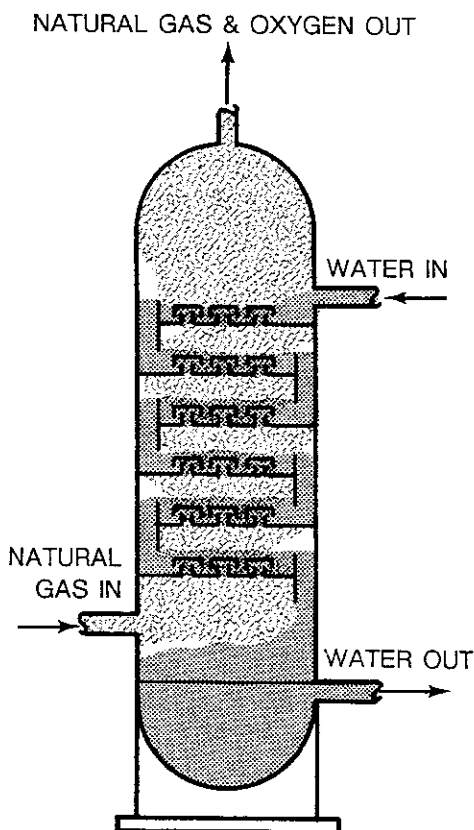
Vacuum deaeration works on the principle that gases are less soluble at reduced pressures.



Therefore, in a high vacuum, pressure is very low and the water or liquid holds (little / much) dissolved gas.

319. The undissolved gas (is forced out of / stays in) the system.

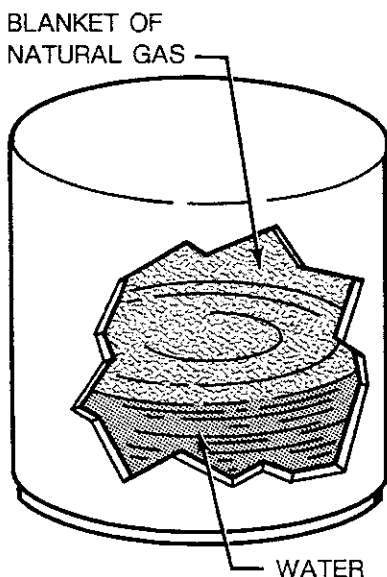
320. Another way to remove oxygen is by gas-stripping or degasification.



In this system, an “oxygen-free” gas is injected. This gas, such as a natural gas or steam, contains (little / much) oxygen.

321. So, when water enters a degasifier and contacts the oxygen-free gas, the water will “release” its _____ into the gas.
322. The oxygen that the water releases (remains in / is vented out of) the system.
323. The best way to eliminate an oxygen corrosion problem is to _____ oxygen from entering the system in the first place.
324. There are several ways to control the amount of oxygen that enters the system.
- One obvious way is to make sure any hatches or valves that allow air into the system are kept (open / closed).
325. It is also possible for air to enter through the casing annulus. Therefore, it is important to keep this annulus _____ .
326. Air may enter at the well head and into the annulus.
- If air in the annulus comes into contact with the moisture in the well, it would become a (passive / corrosive) combination.

327. Therefore, keeping well head valves closed will keep this corrosive mixture _____ .
328. Another way to prevent oxygen entry into a structure, such as a water tank, is by applying a gas blanket.



- According to the diagram, natural gas is put into the tank to fill the space above the oxygen-free _____ .
329. Therefore, by not allowing oxygen to contact the water, it is (prevented from entering / allowed to enter) the rest of the system.

PROTECTIVE COATINGS

330. Protective coatings have been proven to be an effective way to control corrosion.
- A coating is applied to a structure or metal to separate the corrosive environment from the _____ to be protected.
331. But, as you recall, if this coating is broken, a _____ cell can form.
332. A corrosion cell can also form due to holidays. Holidays occur when an imperfection is present in the coating. Thin coatings or holes in the coating are called _____ .
333. Protective coatings can be classified as either metallic or nonmetallic.
- Some metallic coatings, such as galvanized pipe, are considered "sacrificial" because they are made of a metal that does (resist / not resist) corrosion.
334. Therefore, the protective coating is made to corrode and the metal beneath it will (also corrode / be protected) .

335. Some common nonmetallic coatings are cements and thermo-plastics. But, there are some limitations to their use.
For example, cement linings cannot be used if acids are present.

Therefore, you could not use a cement lining in a system with scale problems. Acids would be used to remove the scale and _____ the cement lining.

336. Also, plastic coatings may not be used if any hot substance will be passing through it because the heat may cause damage to the coating, causing it to _____ .
337. If one holiday occurs in the non-metallic coating, a corrosion cell should not form because the coating (does carry / does not carry) an electric current.
338. However, if the holiday is large or if a second holiday occurs, an anodic and cathodic area will form creating a _____ .
339. If you happen to see pieces of coating floating within the system, you should report it so the problem can be _____ .