



Safety in a small chemical business during the pandemic

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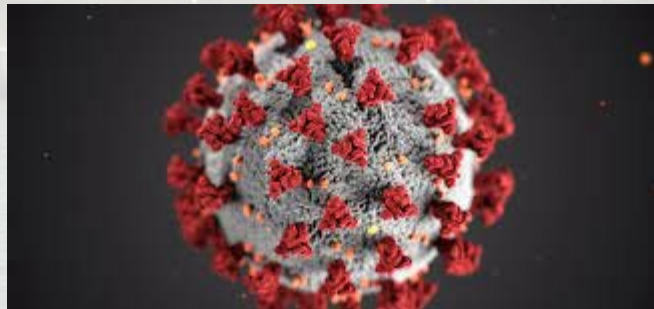
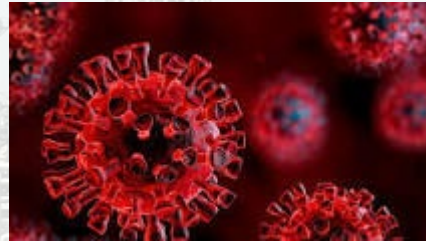
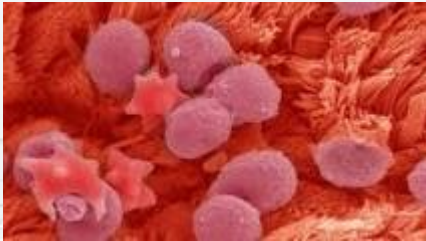
ACS Fall National Meeting

Atlanta, GA

24 August 2021

In a time of pandemic

- A unique challenge

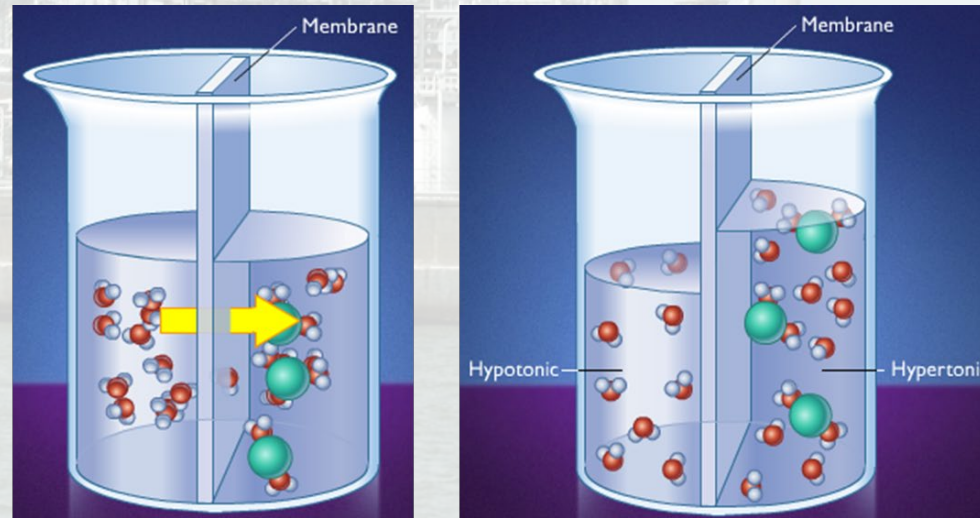


In a time of pandemic

- Chemical companies designated as “essential”
 - Work from home not possible in production sector
 - Work from home doable for non-production
 - Productivity
 - Ergonomics
 - Communications

In a time of pandemic

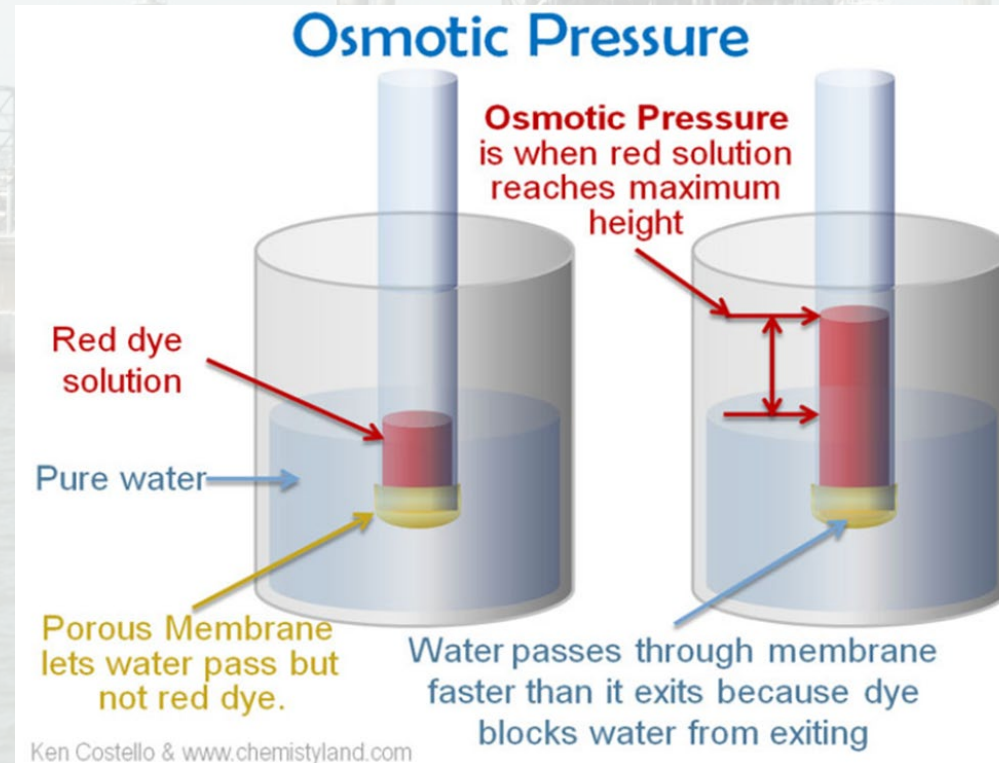
- The Company
 - Supplier of specialty chemicals to the Reverse Osmosis membrane industry.



Osmosis: The tendency of a fluid to pass through a semi-permeable membrane into a solution of higher concentration in order to equalize the solution strength on both sides of the membrane.

In a time of pandemic

- Osmotic Pressure:
 - The pressure needed to stop the flow of water through a semi-permeable membrane



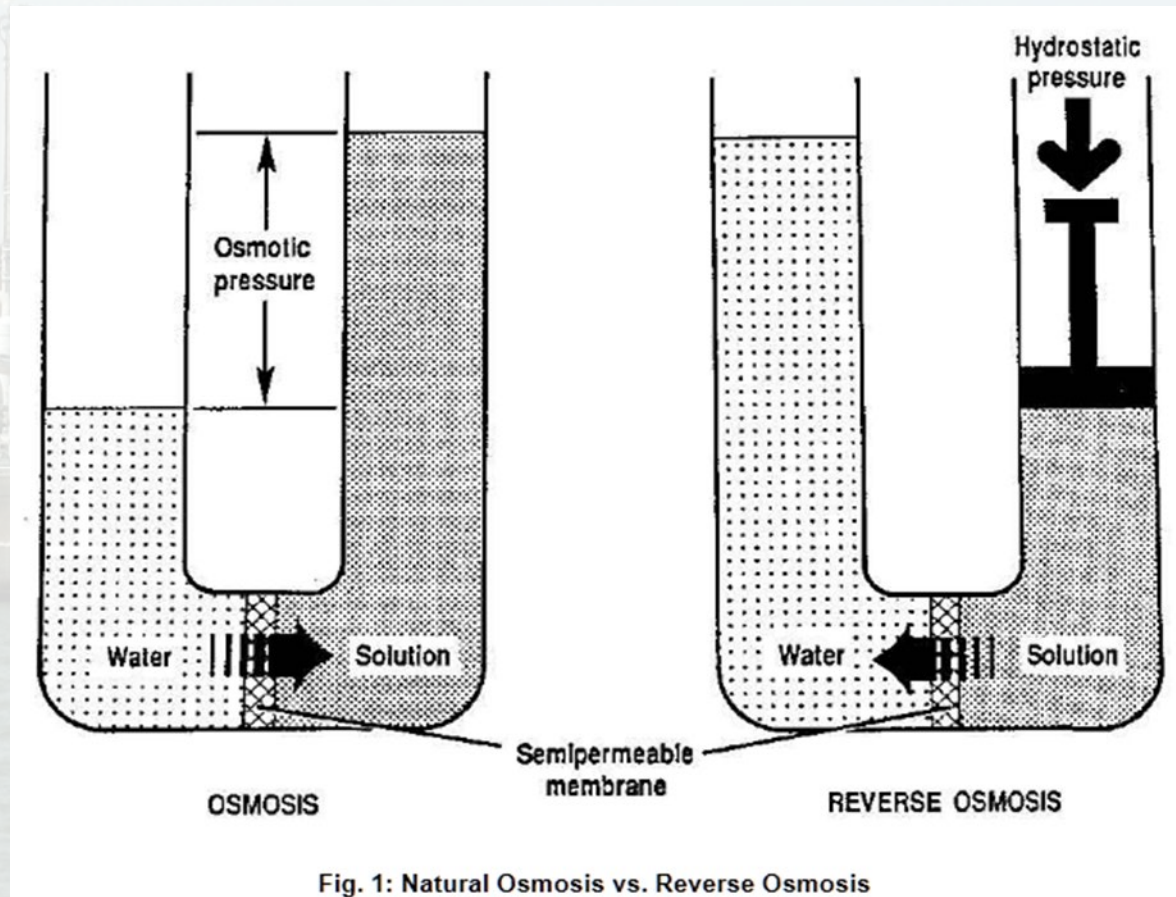
In a time of pandemic

- Osmotic Pressure

Chemical	Concentration (ppm)	Osmotic Pressure (mm Hg)
NaCl	1,000	11.4
NaCl	35,000	398
MgSO4	1,000	3.6
MgSO4	35,000	126
Sucrose	1,000	1.05

In a time of pandemic

- **Reverse Osmosis:**
Applied pressure (in excess of osmotic pressure) is used to reverse the flow and separate salts from liquids across a semi-permeable membrane.



In a time of pandemic

- RO Cartridge
 - Polyamide



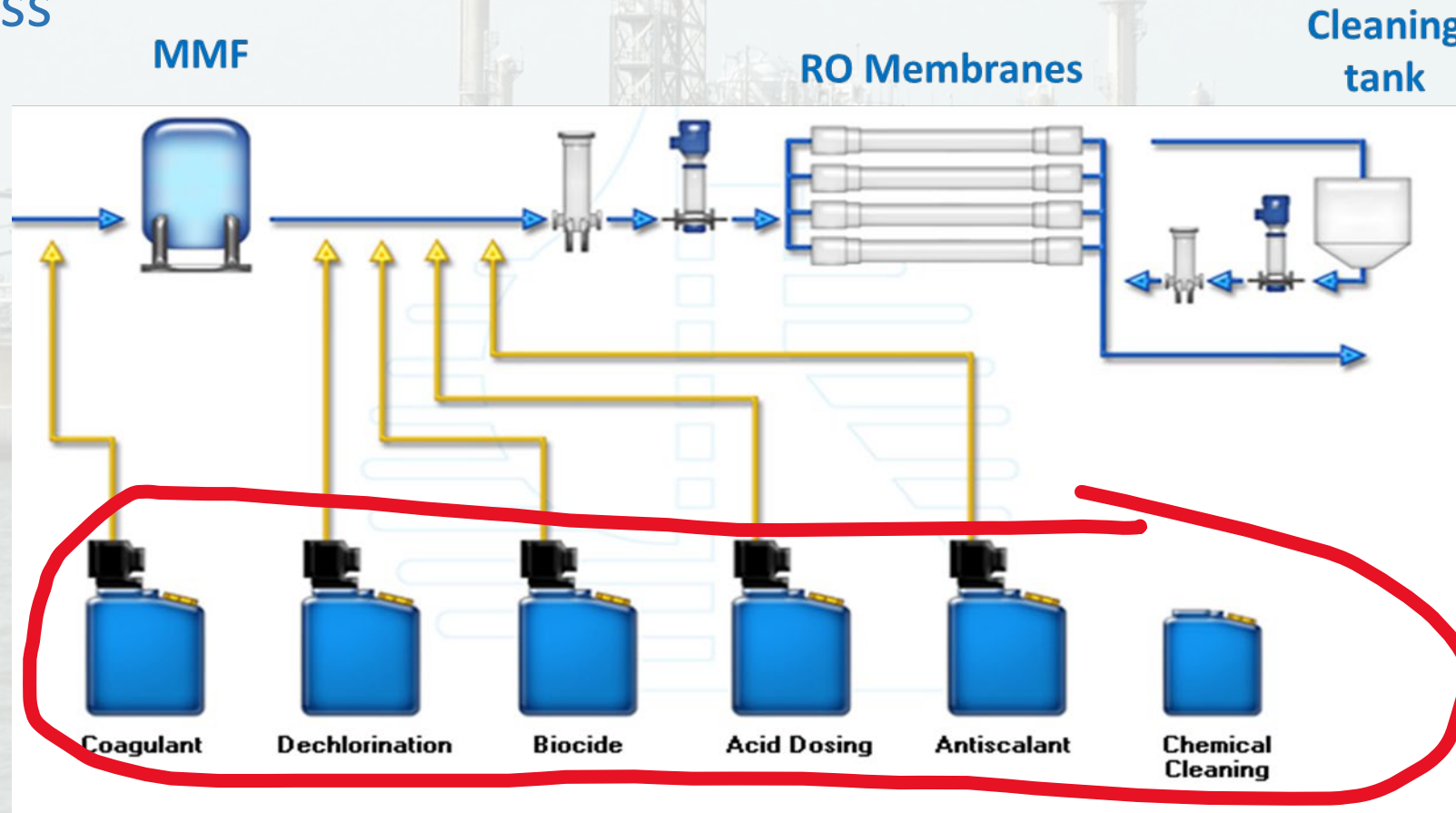
In a time of pandemic

- Reverse Osmosis (RO)
- Systems that range from 20 gallons per minute to 70 million gallons per day
- Systems are used for removal the removal of minerals and organic contaminants for a wide variety of applications and industries.
- Membranes have been used for more than just seawater desalination



In a time of pandemic

- RO Process



In a time of pandemic

- Coming up to speed
 - Decide who must “come to work”
 - Determine protective protocols
 - Specific tasks required at least two employees present
 - Shift rotation imposed burdens
 - How to transition to “work from home” model
- Corporate adoption of MS Teams
 - IT hurdles
 - Technology learning
 - Home-based broadband issues

In a time of pandemic

- Coming up to speed
 - COVID-19 Policy
 - Must wear facial barrier
 - May remove if alone at desk
 - Work from home when possible
 - Complete self-screen before building entry
 - If exposed, stay home 14 days
 - Provide proof of negative test before returning to work

In a time of pandemic

- Coming up to speed
 - Workforce training
 - Via MS Teams
 - Mandatory
 - **Safety**
 - In-building work protocols
 - Work from home safety
 - **Covid-19**
 - Signs, symptoms, and prevention
 - Vaccines and vaccinations
 - Prognosis

In a time of pandemic

- Results
 - Overall response managed by Human Resources
 - EHS guidance followed CDC and local Health Department guidance
 - Employee health and safety major drivers
 - Productivity stayed acceptable
- Two reported cases
 - Both “older” employees
 - Under Cal-OSHA rules, these are recordable workplace illnesses
 - Neither required hospitalization
 - Both recovered w/o sequelae

In a time of pandemic

- LESSONS LEARNED

- Unique stress requires flexibility
- Team effort
- Expect rapid changes in policies and practices
- Listen to everyone
 - Individual needs vary greatly

In a time of pandemic

- Unresolved Questions
 - How does HIPPA affect company policy?
 - **Conservative:** Collect no personal medical information
 - No knowledge of vaccination status of employees
 - **Practical:** Collect vaccination & illness status for planning purposes
 - **Aggressive:** Support and publicize vaccinations. Reward workers for getting vaccinated; include family members.
 - Shall a company require vaccinations?
 - Public policy not clear on this
 - HR was conservative
 - EHS was aggressive
 - Employees ignored HIPPA and talked openly

In the time of **the next** crisis

- Workplace disruptions ARE safety issues
 - Extreme weather
 - Wildfires
 - Health crisis
 - Other????
- EHS must take the lead and learn new skills
- Flexibility is essential
- Company mission must be met - SAFELY

In the time of **the next** crisis

