CIP THEORY

OBJECTIVES

- Define CIP
- Explain the importance of CIP
- List the chemicals used in CIP
- List the different phases of a CIP cy

Define Clean-in-place

1) Process which allows the sanitization of equipment w/o disassembly by using
   - Acid washes
   - Base washes
   - PW/WFI rinses

2) CIP removes product residue from:

* portable/fixed tanks

* Fixed in line filter housings

* Transfer lines

Why is CIP important?

IT IS THE LAW!

CFR 211.67 (a):

- Prevent contamination
- Prevent malfunction

That may alter:

- Safety
- Identity
- Strength
- Quality
- Purity

CFR 211.67 (b):

- Written procedures shall be established and followed for cleaning and maintenance of equipment…

Example of written procedures:

- SOP
- Equipment Use log
- Batch Record
- Label

CIP ensures:

- Safe
- Pure
- Effective products

CIP Chemicals

Potassium Hydroxide
Caustic

Phosphoric Acid
Acid

CAUTION!

- **Corrosive chemicals**
- **Always wear PPE**
- **Follow SOP**

Basic CIP Sequence

Set-up tank per SOP
supply
return

Activate PLC

1. Pre-rinse/DIW
2. Caustic Wash/CIP 100
3. Post Caustic Rinse/DIW
4. Acid Wash/CIP 200
5. Post Acid Rinse/DIW
6. Final Rinse/PW or WFI
7. Air Purge or Vacuum

CIP Cycle

Safely breakdown tank per SOP

Key Points

- Follow SOPs
- Use appropriate PPE
- Check your connections/valves
- Upon completion vent lines
- Ensure proper DOCUMENTATION

REVIEW

1. CIP =
2. List three reasons why CIP is important.
3. What chemical are the chemicals?
4. List the different phases of the CIP cycle.