

# Disinfectants: Applications & Dilution Control



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# Cleaners

- Cleaning is the removal of foreign material (i.e., soil, dust, organic matter such as blood, secretions, excretions or microorganisms) from a surface or object.
- Cleaning physically removes rather than kills microorganisms, reducing the organisms load on a surface.
- Key to cleaning is the use of friction or mechanical action to remove microorganisms and debris.

# Disinfectants


- Disinfecting is a process used on inanimate objects and surfaces to kill microorganisms.
- Registered for use in Canada by the Therapeutic Products Directorate (Health Canada)
  - DIN registered – Drug Identification Number

- To obtain a general claim with Health Canada for ...

Health Canada CAN/CGSB-2.161-97		
	Test Method	Organism(s)
Spore	AOAC Method 966.04	<i>Bacillus subtilis</i> <i>Clostridium sporogenes</i>
Bacteria	AOAC Use-dilution Methods 955.14, 9555.15, and 964.02	<i>Salmonella choleraesius</i> <i>Staphylococcus aureus</i> <i>Pseudomonas aeruginosa</i>
Virus	ASTM E 1053	<i>Poliovirus, Type 1</i> (Sabin) ATCC VR-192
Fungus	AOAC Method 955.17	<i>Trichophyton mentagrophytes</i>
TB	AOAC Method 965.12	<i>Mycobacterium bovis</i>




# Choosing a disinfectant

- 
- Health Canada DIN registered
  - nature of the item to be disinfected
  - resistance of the expected microorganism
  - the amount of organic soil present
  - type and concentration of disinfectant used
  - contact time
  - other specific indications and direction use
  - occupational health considerations
  - environmental protection

# Types of hospital-grade disinfectants

- Alcohols (60-90% ethyl or isopropyl alcohols)
- Chlorine (sodium or calcium hypochlorite)
- Phenolics
- Quaternary Ammonium Compounds ("Quats")
- Iodophors
- Accelerated Hydrogen Peroxide (AHP)

# Using disinfectants

- 
- Important that item or surface be free from visible soil and items that may interfere with the action of disinfection.
  - Use hospital-grade disinfectant on hard surfaces and equipment that only touches intact skin (non-critical).
  - Follow manufacturer's instructions for dilution and contact time.
  - Minimize the contamination of the disinfectant solution and equipment (no double-dipping).
  - Quality monitoring system in place to ensure efficacy of the disinfectant over time.
  - Appropriate PPE used.

# Disinfectant formats

## RTU liquids:

- Use disinfectant solution as is with a mechanical tool (i.e., cloth or mop).

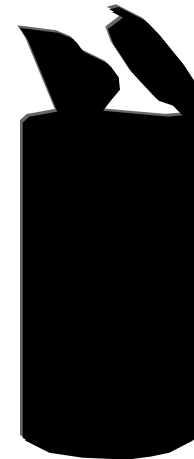


## Concentrate liquids:

- Dilute disinfectant concentrate according to manufacturer label instructions to produce RTU solutions.
- Dilution methods:
  - Manual
  - Chemical Management

## Wipes w RTU liquids:

- Use disinfectant wipes as is.



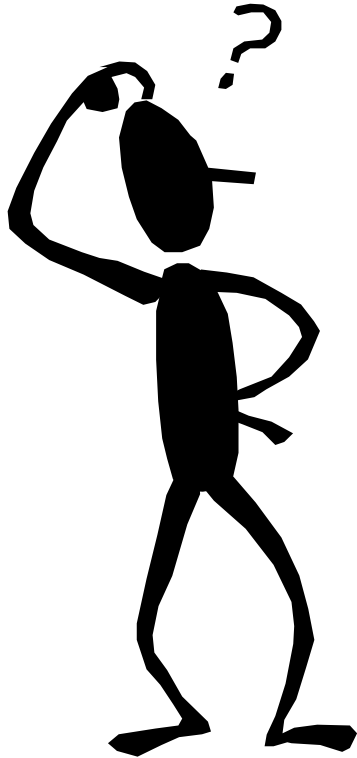
# Why Chemical Management?

- Accurate Dilution
- Easy to Train and Use
- Cost Control
- Safety
- Versatility
- Reduced Storage Space & Waste





# So many dilution systems.....

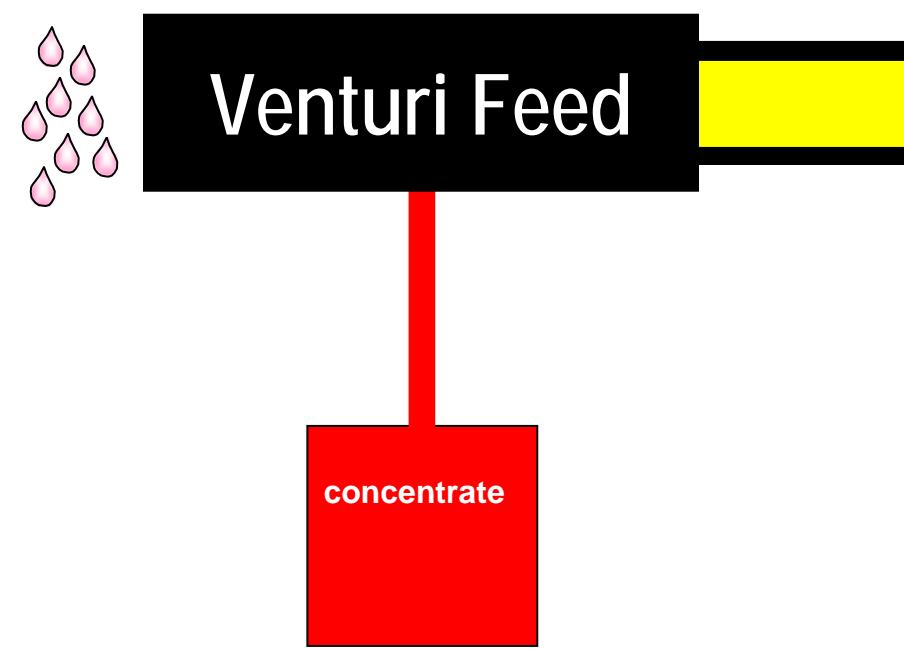
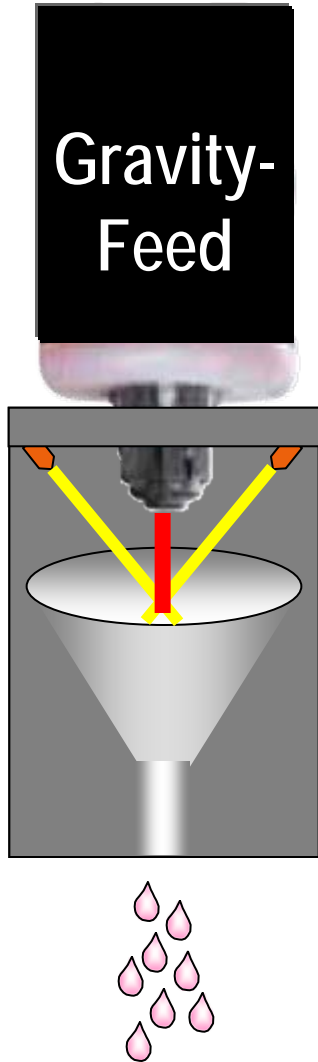


How are they different?



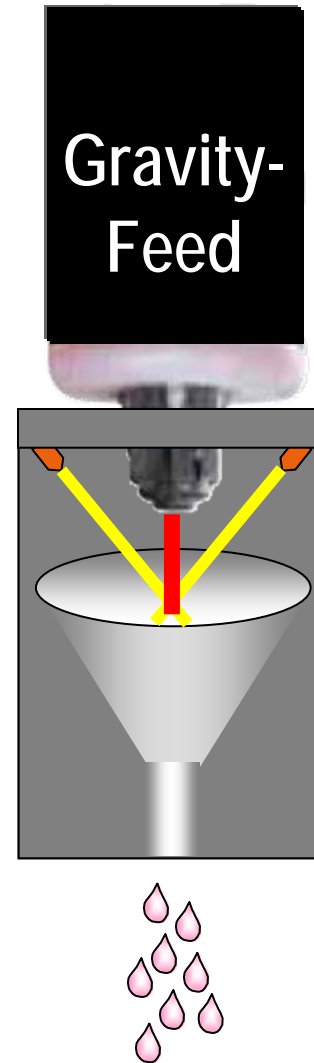
What system is best for me?

# Two basic dispensing systems



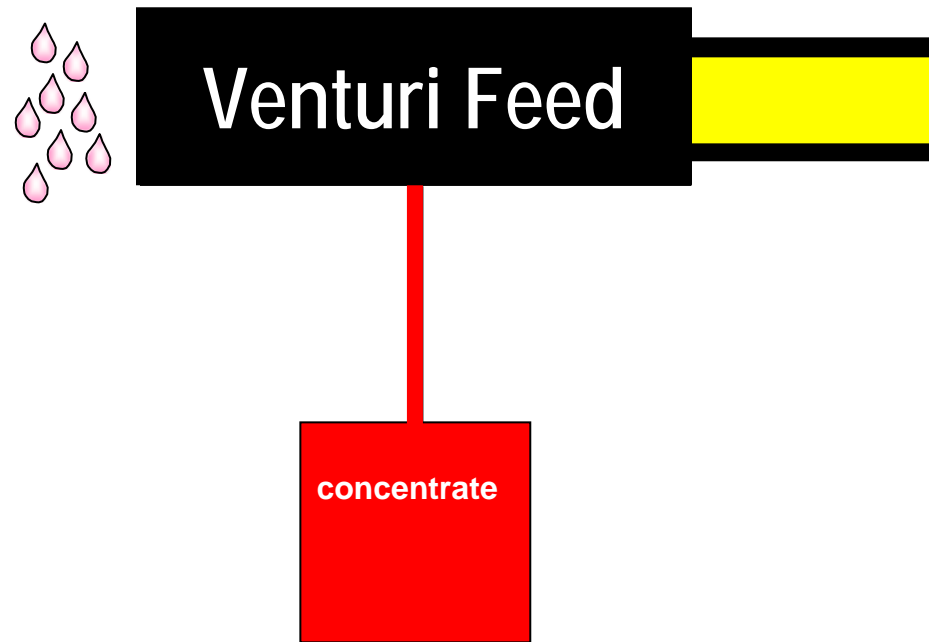
# Gravity Feed Systems

- Gravity-feed for concentrate
- Special flow washers control water flow
  - Dilution does not vary with water pressure
- Accurate dilutions
- No metering tips or hoses to maintain



# Venturi Feed Systems

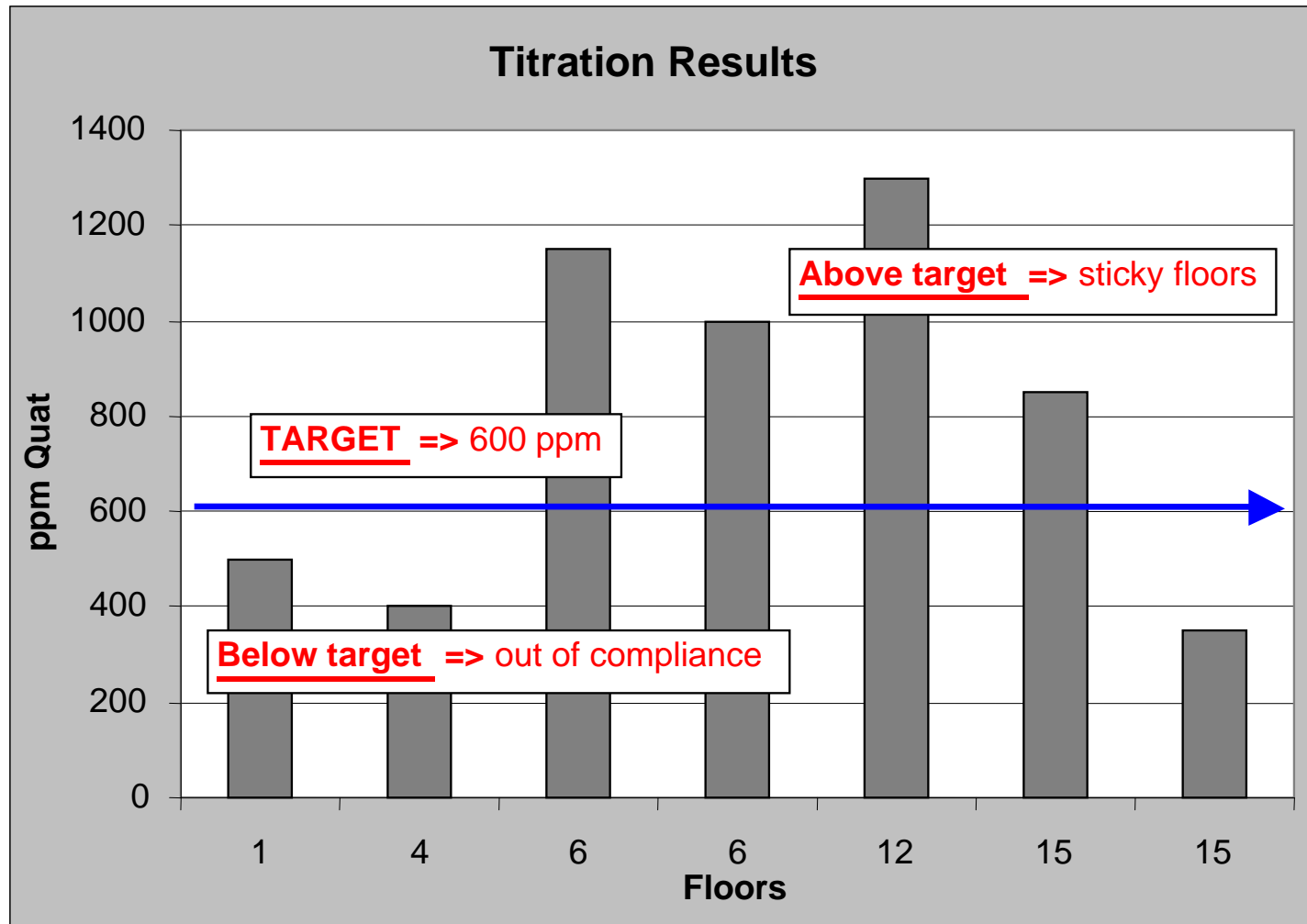
- Most chemical management dilution systems are Venturi or Proportioning Systems
- Rely on water pressure to suction chemical
- Hoses & metering tips must be maintained



# Venturi Feed Systems

- Proper installation & maintenance
  - Metering tips – Must replace periodically
  - Hoses – Must clean and change
- Prime needed to suction chemical
- Water Pressure – if too high or too low, dilution can be altered.
- Dispensers are typically permanently attached to a set of chemicals
- Changing the chemicals may be difficult.

# Example: Hospital Customer



# What does this mean for you?

- Correct dilutions of disinfectants must be used
  - For disinfectants to work properly
  - To comply with regulations
- Routine check chemical management systems for leakage and/or breakage.
  - Venturi Systems:
    - Metering tips – must replace periodically
    - Hoses – must clean and change
  - Gravity-Feed Systems:
    - Check for water leaks

## What does this mean for you?

- Routine check and measure active percent in ready-to-use disinfectant solutions produced by chemical management systems?
  - Check disinfectant level after dilution to verify accuracy of system
  - Check disinfectant level in ready-to-use container to verify correct concentration is maintained during surface application
- Use practices to maintain disinfectant levels and prevent contamination
  - Use new cleaning cloths and mops for each patient room
  - Follow the shelf life information for ready-to-use products
  - Do not contaminate the disinfectant
  - Avoid dipping dirty cleaning cloths into basins of disinfectant
  - Do not rinse and wring out mop heads in the bucket of disinfectant



Thank you for your time



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