Question 1: What Disinfectants are Effective on my Organism?

Classify your organism:

- Is it a bacteria, virus, fungus, protozoa, or prion?
- Does it form spores?
- If it's a virus, is it enveloped or non-enveloped?
- Pure cultures are easy to identify, but for animal, human, or environmental samples, consider what organisms are likely to be present

Determine organism susceptibility or resistance to disinfection:

- Bacteria and enveloped viruses are generally more susceptible
- Spore formers are more resistant
- Other organisms can vary
- Consult the General Effectiveness Chart below
- Bleach is effective against most organisms at the appropriate concentration and contact time

Question 2: What is my Application?

Liquid waste decontamination:

- Add concentrated household bleach (5% or greater concentration of sodium hypochlorite) until a 10% final concentration is reached
- Clorox regular or Clorox germicidal bleach is recommended
- Do not use laundry bleach
- Please contact Biosafety for other options if bleach cannot be used

Spill cleanup:

- Make a fresh dilution of 10% final concentration of household bleach (5% or greater concentration of sodium hypochlorite)
- Bleach must be fresh as dilute bleach loses effectiveness after 1 – 2 weeks
- Clorox regular or Clorox germicidal bleach is recommended

Surface decontamination or tool/equipment decontamination:

- Consider contact time. A shorter contact time would be recommended
- Consider the type of material you're decontaminating. Some products like bleach are corrosive and may require a rinse or flush step when used on certain surfaces (such as the stainless steel surfaces of a biosafety cabinet)

Work with human materials:

- OSHA requires a disinfectant that is effective against HIV and Hepatitis B.
- 70% ethanol is NOT appropriate for surface decontamination.
- Most products recommended on this website are appropriate
- EPA registration numbers will confirm whether the product is appropriate. Please see the Human Material subsection below.

Question 3: What else should I consider?

Contact Time:

- Contact time will vary depending on the product and the organism targeted.
- Some products require 10 minutes contact (20 minute for spill/splash or equipment decontamination)
- Newer Quaternary Ammonium products and some Activate Hydrogen Peroxide products are effective in 5 minutes or less.
- Alcohols can evaporate too quickly to achieve sufficient contact time.

Product safety/toxicity:

- Some aldehydes, phenolics, and activated hydrogen peroxide/acid products (Peridox) require special Personal Protective Equipment (PPE)
- Always consult the product label and SDS prior to using a disinfectant
- If possible, select a less hazardous product
- Most of these products are used to inactivate bacterial spores

Product Cost:

- Concentrated products generally cost less than ready-to-use products but require more preparation time
- Ready-to-use products are more expensive but do not require valuable research time in measuring and diluting
- Buying in bulk can reduce cost (but is not always the best option)

Residue or odor:

- Bleach and some quaternary ammonium products can leave residue
- Iodophors can stain
- Phenolics have a strong, unpleasant odor
- Activated hydrogen peroxide and alcohols leave no residue

Product expiration/shelf life:

- Shelf life can vary greatly by product
- Concentrated products that require dilution generally lose effectiveness quicker once dilutes as compared to ready-to-use products
- Ready-to-use products include stabilizers and generally remain effective longer
- Always check product labels and be aware of the expiration date of your disinfectant

Concentrated or Ready-to-use products:

- Concentrated products can be more cost effective up front but require more preparation time
- Disinfectants diluted from a concentrate must be replaced more frequently and require more monitoring to avoid using expired dilutions
- Ready-to-use products can be more expensive up front, but require no preparation time and tend to last longer.
- Consider your individual needs.