

# Classification of Disinfectant

Process to remove infection  
↓  
Reducing or kill  
no. of micro

## Mode of Action of Disinfectant

↓ which are used for Purpose Disinfection

Not necessarily eliminates all Microorg., but it can reduce the number of Microorg. to such a limit that they can not cause any infection.

⇒ It is Not complete or 100% removal of Microbial

⇒ It has very less effect on spores.

**Antiseptic** ⇒ ऐसे disinfectant है which are applied on skin or any living tissue & the process is known as Antisepsis.

## # Classification of Disinfectant

### Based On Consistency

→ Based on / Mean Phys form

Liq.  
- Alcohol  
- Phenol  
- Aldehyde

- Halogen  
- Acid & ester

→ Sol  
- Propyl  
- acetone

Gases

- HCHO vapours  
- Ethylene di-oxide  
- Bromine oxide

according to effectiveness on bacterial cell, viruses & spores.

## Classification → Based on Spectrum of Activity.

### Low level

- Quaternary Ammonium Compound.

- Iodophores.

- Phenols.

⇒ This chemical kill vegetative microbial cell

- Some fungi

- Few viruses.

- No effect on spore

### Intermediate level.

- Alcohol.

- Chlorine

- Phenols.

⇒ Kill vegetative cell.

- All fungi

- Some viruses.

- No effect on spore

### High Level.

- H<sub>2</sub>O<sub>2</sub>

- ClO<sub>2</sub>

- Glutaraldehyde

⇒ Kill vegetative Microorg.

- All fungi

- All viruses In active vegetative

- No effect against spore

## # Based on Mode of Action ⇒

- This classific. divide the disinfect. on their Mechanism of action to destroy the microbial cells.

⇒ Act on Cytoplasmic Membr<sup>o</sup> → Quaternary Ammonium Compounds, Phenol, Alcohol.

⇒ Denaturation of Cellular Protein → Aldehyde, Halogens.

⇒ Oxidation of Cellular Content → H<sub>2</sub>O<sub>2</sub>, Ethylene Di-oxide

⇒ Alkylation of Cellular Content → HCHO, Glutaraldehyde

<u>Disinfectant</u>	<u>Mode of Action</u>	<u>Example.</u>
① Alcohol	Membr damage, Protein denaturation Cell lysis.	Ethanol, Propyl alcohol, Benzyl alcohol, Chlorobutanol.
② Aldehyde	React with Amino acid (Transcription & Translation)	HCHO, Glutaraldehyde
③ Biguanides	Rupture Cell Membr <sup>o</sup> & Change the cell permeability	Chlorhexidine

④ Halogens	- Interaction with thiol Amino group lead to Denaturo of Protein.	Hypochlorite, Iodine, Isophores.
⑤ Oxidizing agent	- Oxidization of Cellular Component	- $H_2O_2$
⑥ Quaternary Ammonium Comp.	- Cell Membr. damage - Loss of Cytoplasm. - At High Concn Cause Cell Coagulation.	- Benzethon Chloride ion - Cetrimide
⑦ Organic Acid ester	- Cause → Cell lysis ↓ Cytoplasmic damage Leakage.	- Methyl - Ethyl - Propyl - Butyl. - Parabens.