INORGANIC INSECTICIDE
Inorganic insecticides

1. Paris green, an arsenical compound was first used in 1867 for the control of Colorado potato beetle.

2. Paris green is a mixture of Copper acetate and Copper arsenate.

3. Mercuric chloride is used in book binding. Ants are repelled by ant tapes containing mercuric chloride.

4. Cryolite is Sodium fluoaluminate.

5. Coalter is an adhesive for the control of grasshoppers.

6. Pentachlorophenol is used as a repellent against termites.

7. Formaldehyde is used in poison bait of houseflies.

8. Phosphorous is used as poison bait for cockroaches.

9. Thallium sulphate is used in poison bait of ants.

10. Drie-die is a finely divided silica gel which abrades the insect cuticle.

11. Metaldehyde is a molluscicide.

12. Elemental sulphur is used for the control of mites.

13. Bordeaux mixture is a mixture of Copper sulphate, lime and water (1:1:100)

14. First inorganic systemic insecticide is Sodium selenate.
Arsenic compounds:

- Stomach poisons
- The water solubility of arsenic may result in entering the foliage and causing burning injury to plants, and hence water insoluble compounds are preferred for insect control
- Arsenates are more stable and safe for application on plants than arsenites. Arsenites are mainly used in poison baits since they are phyto-toxic.
- Causes regurgitation, torpor (sluggishness) and quiescence
- Disintegration of epithelial cells of the mid-gut.
- Clumping of the chromatin of the nuclei
- Slow decrease in oxygen consumption due to the inhibition of respiratory enzymes
- Water soluble arsenic causes wilting followed by browning and shriveling of the tissue.
- **Paris green** is a mixture of Copper acetate and Copper arsenate

<table>
<thead>
<tr>
<th>Character</th>
<th>Calcium Arsenate</th>
<th>Lead Arsenate</th>
<th>Arsenite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common name</td>
<td>-</td>
<td>-</td>
<td>Paris green</td>
</tr>
<tr>
<td>Usage</td>
<td>Dust or spray</td>
<td>Spray or Bait</td>
<td>Bait</td>
</tr>
<tr>
<td>LD50-mg/kg</td>
<td>35-100</td>
<td>10-100</td>
<td>22</td>
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<tr>
<td>Dosage</td>
<td>0.675 to 1.350 kg with equal quantity of slaked lime in 450 litres of water</td>
<td>0.45 to 1.8 kg of load arsenate is diluted with 200-240 litres of water</td>
<td>-</td>
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<tr>
<td>Pest</td>
<td>Leaf eating pests</td>
<td>Gypsy moth</td>
<td>Colorado potato beetle</td>
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</table>
Flourine Compounds:
- Stomach poisons and slightly contact poisons.
- The kill is more rapid than that of arsenicals
- Toxicity is related to the fluorine content and solubility in the digestive juices of insect.
- Produces spasms, regurgitation, flaccid paralysis and death
- **Sodium fluoride:** 93 to 99% purity in commercial products.
- Highly phyto-toxic and used in poison baits
- Used exclusively against cockroaches, earwigs, cutworms, grasshoppers etc.

**Other inorganic compounds**

1. **Sulphur:** Primarily fungicide and acaricide
   - Formulated as fine dust (90 to 95% a.i. with 10% inert material)
   - Also formulated as wettable powders.
   - Effectiveness increases with fineness of sulphur particles
2. **Lime Sulphur:** Aqueous solution of calcium poly-sulphide
   - Prepared by sulphur solution in calcium hydroxide suspension
   - Used against scales, mites, aphids besides powdery mildew

**Properties:**
1. Affect nervous system causing paralysis at higher concentration
2. Not phytotoxic
3. Leave no harmful side effects
4. Highly toxic to mammals
5. No residue problem
   - So can be used safely before harvest of the produce