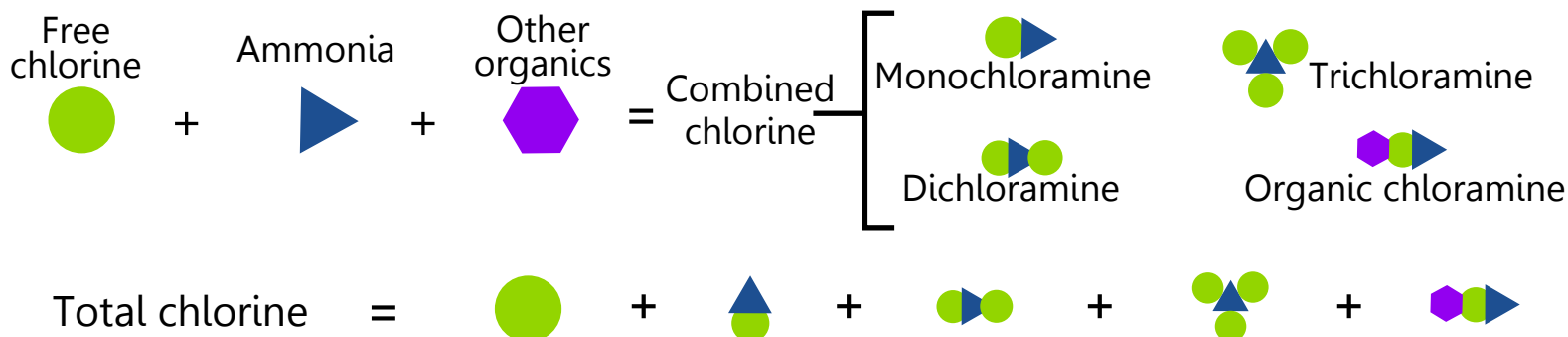


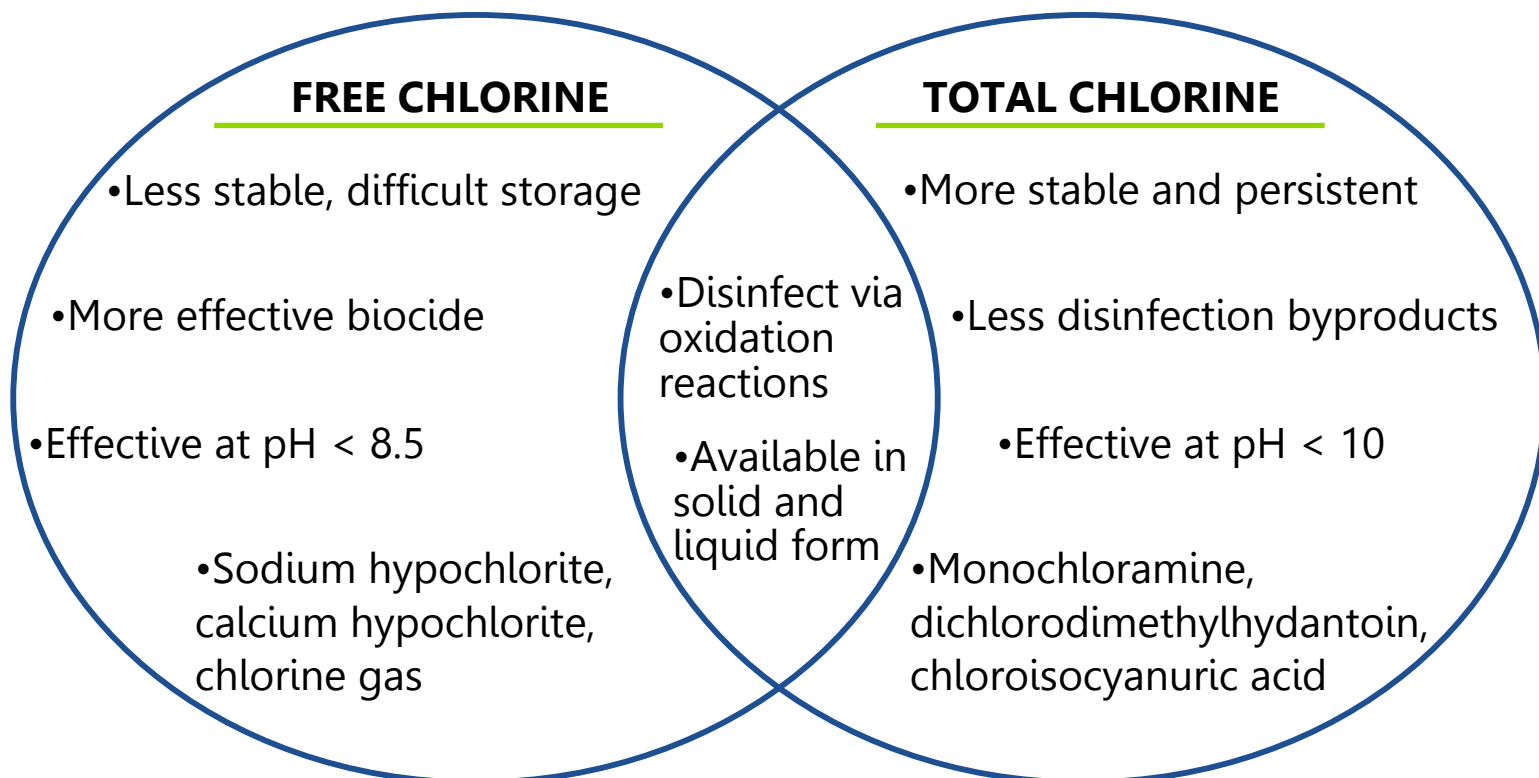
Free vs Total Chlorine

Total Chlorine = Free Chlorine + Combined Chlorine

- **Free chlorine:** the sum of molecular chlorine (Cl_2), hypochlorous acid (HOCl), and hypochlorite ion (OCl^-) in a solution
- **Combined chlorine:** formed when an amine-containing molecule (e.g. ammonia) is added to free chlorine (see reaction below)
- **Total chlorine:** the sum of free and combined chlorine in a solution



Total chlorine = Free chlorine + Combined chlorine





Zirkon® DIS Sensor
Free chlorine



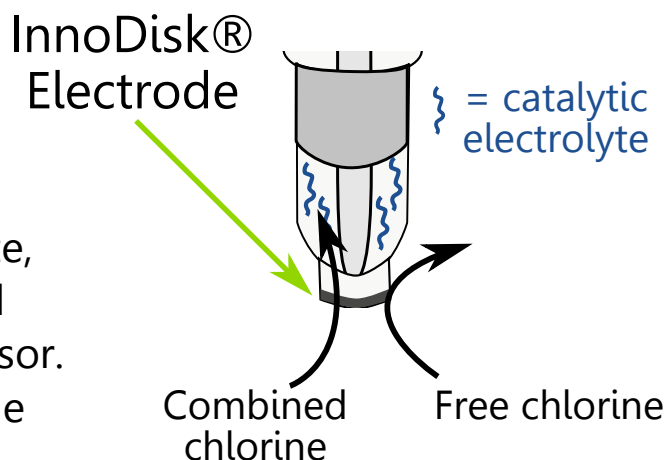
Zirkon® DIS Total Sensor
Total chlorine

Choosing the Correct Measurement

- For applications that contain **no ammonia** (e.g. municipal drinking water), use a free chlorine measurement.
- For applications where ammonia or chloramines may be present (e.g. municipal wastewater), use a total chlorine measurement.

KUNTZE TECH HIGHLIGHT: Zirkon® DIS Total Sensor

- Kuntze's Zirkon® DIS Total sensor (shown above) measures total chlorine.
- The tip of the sensor features Kuntze's patented InnoDisk® electrode (right), which measures the reduction of HOCl and OCl⁻.
- The sensor is filled with a catalytic electrolyte, which reacts with chloramines and combined chlorine so they can be measured by the sensor.
- The resulting measurement is a total chlorine measurement.



Kuntze Academy – CHEM102

- Want more help on this topic? Scan this QR code to learn more.



CHEM102:
Introduction to Total
Chlorine

Kuntze Support Center

- More questions? Check out the Kuntze Support Center.



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