CA900
Sulfide (H2S) Analyzer

ELECTRO-CHEMICAL DEVICES

What is the Sulfide ?

❖**Sulfide:**

is an inorganic anion of sulfur with the chemical formula S^{2-} or a compound containing one or more S^{2-} ions. Solutions of sulfide salts are corrosive. *Sulfide* also refers to large families of inorganic and organic compounds, e.g. lead sulfide and dimethyl sulfide. Hydrogen sulfide (H_2S) and bisulfide (HS^-) are the conjugate acids of sulfide.

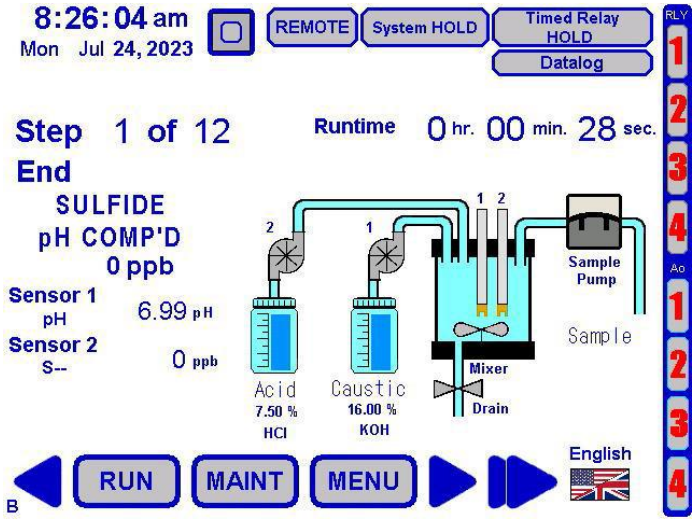
What is H2S

❖H2S:

Hydrogen sulfide (H2S) is a gas that dissolves in water and gives it that “rotten egg” odor. H2S exists in acidic water as a dissolved gas, at pH values above pH 7 bisulfide ions (HS-) are the predominate form and at very high pH values, > pH13, sulfide ions (S-2) predominate.

Why choose the CA900 Sulfide Analyzer?

- Simple
  - Easy Installation
  - Touch Screen Interface
  - User Friendly Menu Structure
  - Easy Process Configuration
- Reliable
  - Rugged Polycarbonate Cabinet
  - Separate Liquid and Electronics compartments
  - Low Reagent Alarms
- Cost Effective
  - Low Maintenance
  - Easily Adjustable cycle times to minimize reagent use.

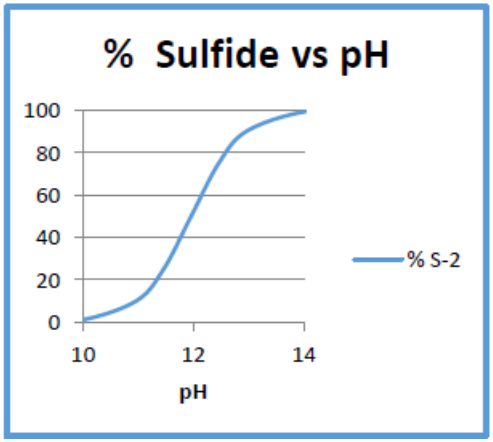


How does it Work?

❖ **Working principle: Titration using pH Electrode**

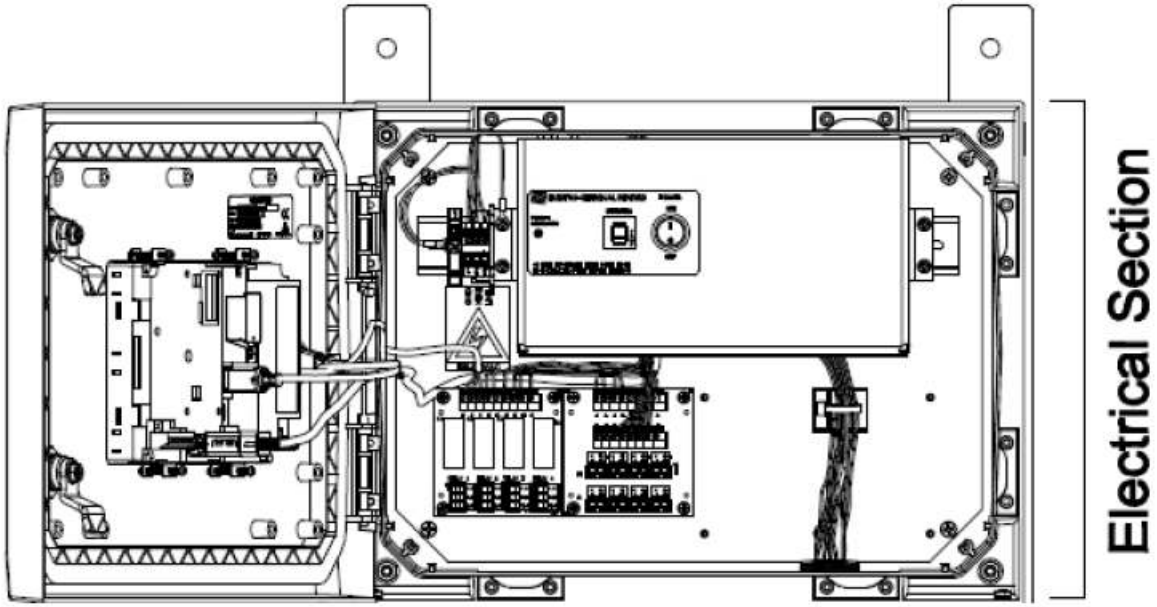
The CA900 Sulfide Analyzer uses a sulfide ion selective electrode (ISE) to measure the total amount of sulfide present in the sample. The measurement must be made at high pH levels where S-2 exists. Potassium hydroxide (KOH) is added to raise the pH of the sample to around pH 12.9 and a pH electrode measures the actual pH. Sulfide and bisulfide exist in a pH dependent equilibrium with the ratio dependent on the pH. The sulfide ISE measures the sulfide present in the sample and the pH measurement infers what percentage of the total sulfide was measured. The CA900 Sulfide Analyzer calculates and displays the Total sulfide present in the sample.

The highly caustic sample is then neutralized with HCl and the pH is measured and displayed to verify the neutralization. The KOH is neutralized with HCl producing potassium chloride salt (KCl) and water. The neutralized sample can be disposed of as waste or returned to the water supply. Each cycle uses about 1 ml of caustic and 1 ml of acid.

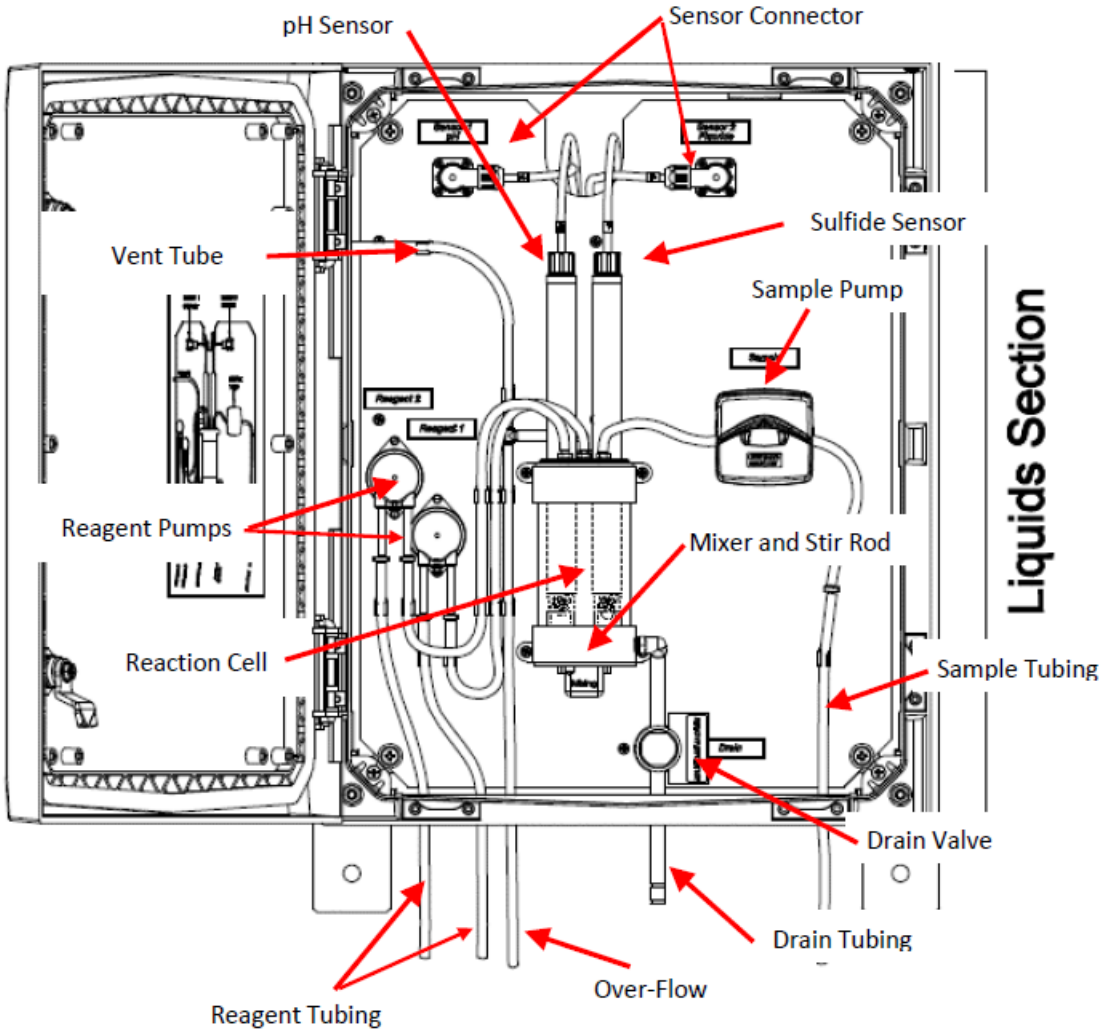


CA900 Dry Section

The CA900 is separated from the electrical compartment and liquid section. This ensure minimum damage and easier maintenance.



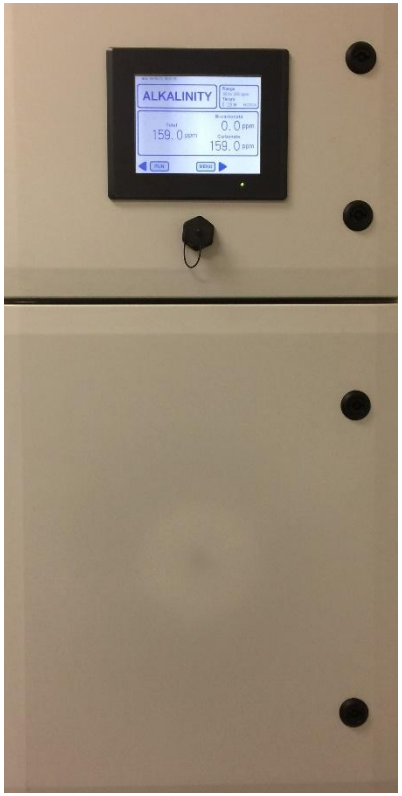
CA900 Liquids Section



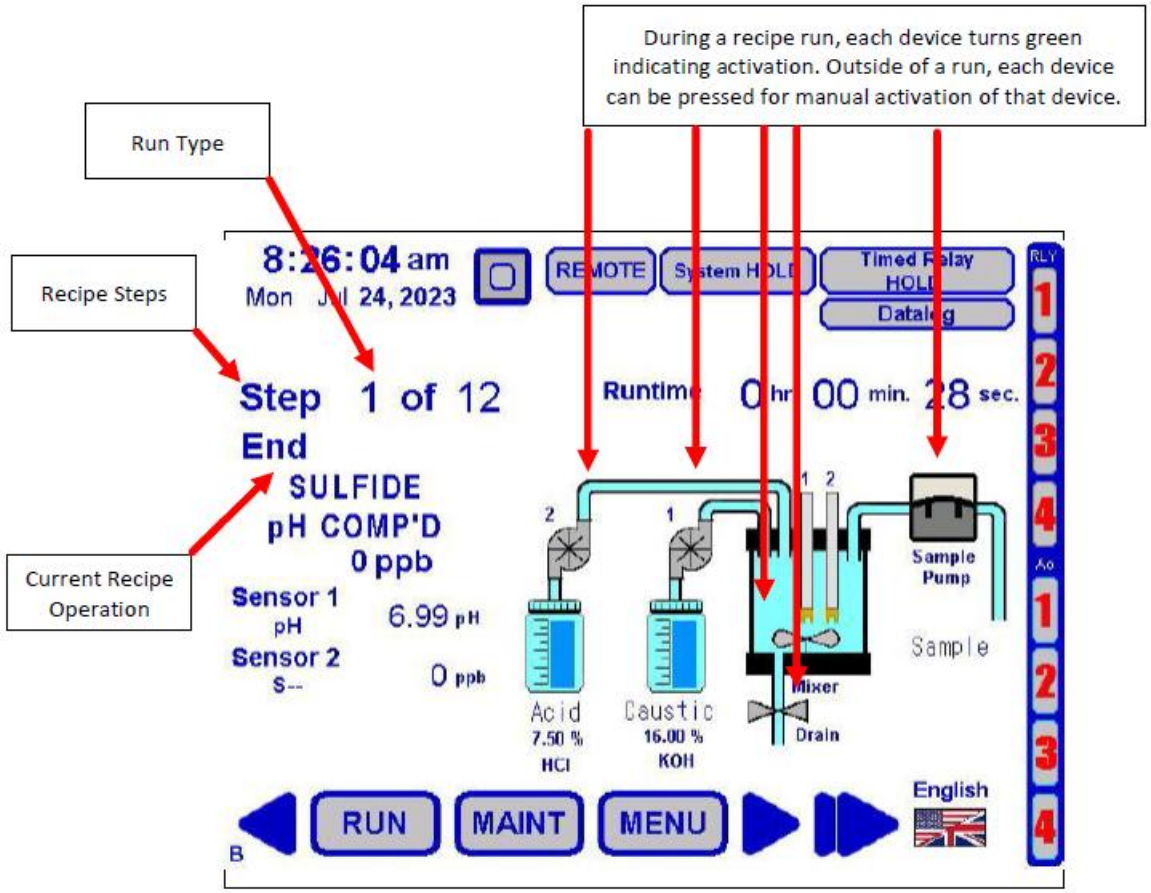
CA900 Color Touchscreen

Specifications

- Method
  - Titration using pH sensor
- Measuring Range
  - Alkalinity, 0-200ppm (other range are available)
- Response Time
  - 10 minute cycle plus any user enter wait time
- Repeatability
  - +/- 2 %
- Drift
  - +/- 2% per month
- Operating Temperature
  - -5° - 50 ° C (20 ° - 120 ° F)
- Outputs
  - (4) 4-20 mA
  - (4) Alarm Relays
  - Data logger (USB download)

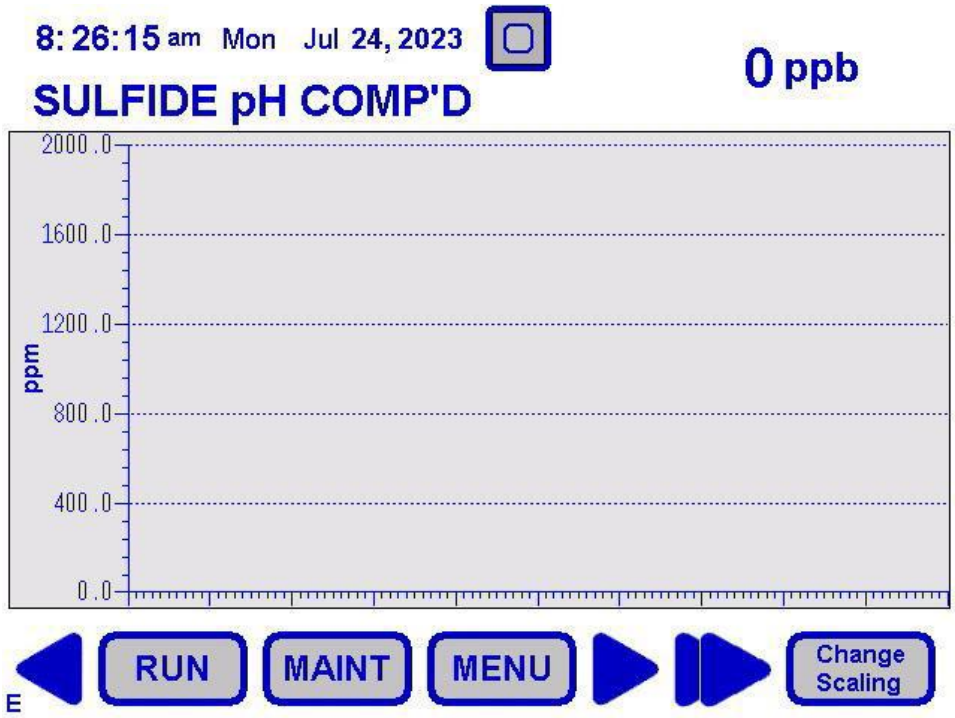


Real Time Functions Display



Data Logging

Data logging in real time. Extract data, Holds more then 365 days of data.



Reagents

The CA900 Sulfide Analyzer uses the following reagents:

Reagent 1 – 16% Potassium Hydroxide a highly caustic reagent and can be purchased in sizes of 500ml, 1L, 2L, 5L, and 20L.
Reagent 2 – 7.5% Hydrochloric Acid a highly acidic reagent and can be purchased in sizes of 500ml, 1L, 2L, 5L, and 20L.

The CA900 Sulfide Analyzer uses any of 2 the following calibration standards and should be selected based on the range of the Analyzer or 100 ppm whichever is lower. For example a range of 0 to 10 ppm should use the full scale standard of 10 ppm and one decade lower of 1 ppm.
Standards are available as follows in 500 mL volumes:
1 ppm, 3 ppm, 5 ppm, 10 ppm, 30 ppm, 50, ppm, 100 ppm
The Analyzer utilizes a pH electrode in addition to the Sulfide sensor. pH 7 and pH 4 Buffer is needed to calibrate the pH sensor.

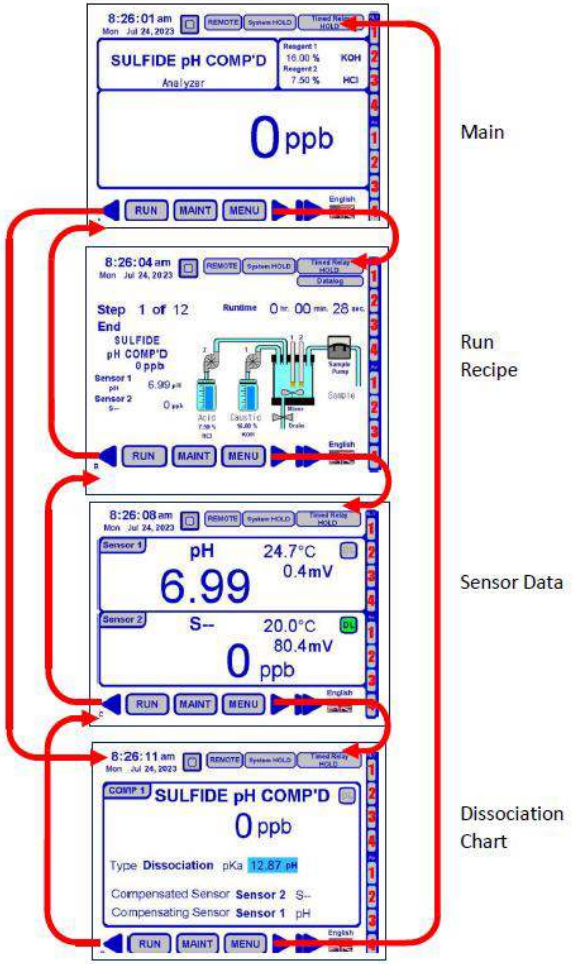
Different Displays

Display to show Sulfide (H2S)

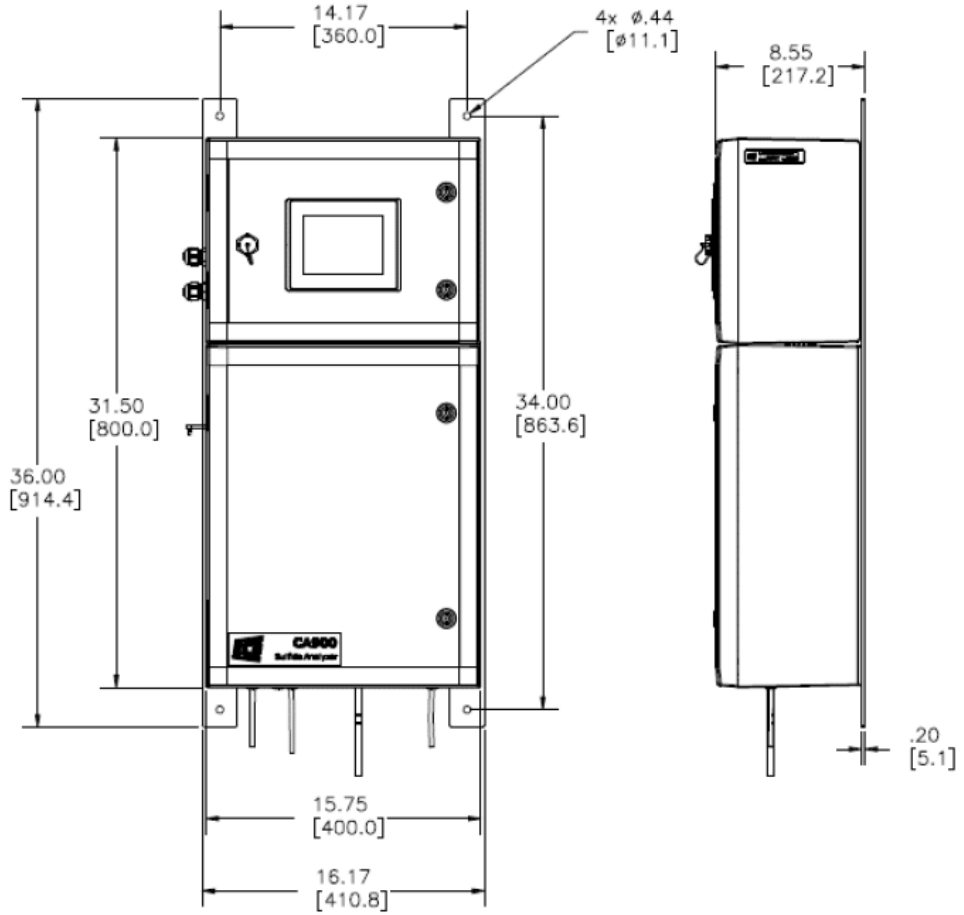
Function display

pH and sulfide display

Dissociation chart display



Dimensions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Specifications

Specifications

Principle of Operation
Sequential sampling, Sulfide Ion Selective Electrode, pH compensated measurement, sample neutralization

Measurement Range
0.02 - 500 mg/l (0.02 - 500 ppm)

Temperature Range
-5˚ - 50˚C (20˚ - 120˚F) Measuring

Cycle Response Time
6, 12 or 30 minutes, user selectable

Accuracy
± 20 ppb or 5 % of reading, whichever is greater

Repeatability
± 2 % of reading

Operating Conditions
Temperature: 10˚- 50˚C
Humidity: 5 to 95% noncondensing humidity

Sample Requirements
Pressure: Sample should be drawn from atmospheric pressure
Flow: greater than 100 ml/minute
Temperature: 10˚- 50˚C

Reagents
16% KOH, Potassium Hydroxide
7.5 % HCl, Hydrochloric Acid, (Muriatic Acid)

Reagent Consumpition:
6 minute cycle time: 7.2 liters/ month, (1.9 gallons) each
12 minute cycle time: 3.6 liters/month, (0.95 gallons) each
30 minute cycle time: 1.5 liters/month., (0.4 gallons) each

Hydraulic Connections
Sample Inlet: 1/8" ID tubing barb fitting
Drain Outlet: 1/4" ID tubing barb Fitting

Power Requirement
100/240 Vac, 50/60 Hz, switch selectable

Data Logging
Configurable Data Recording, Storage, and Output

Analog output
Four 4-20 mA outputs

Alarms
4 configurable relays SPDT 15A 250VAC

Connections
2 x 4-20 mA, Line Neutral and Ground for Power
All connections are to a terminal strip, Access through IP65 1/2" cable glands

Enclosure
Gray hot-molded fiberglass reinforced polyester transparent polycarbonate cover with non-metallic hinges. NEMA 4X, Protection degree IP66-11

Mounting
Wall mounting or with optional bench support

Operating temperature
5-50°C

Cabinet
Non Metallic

Dimensions
17"L x 32"H x 9"D (43cm x 81cm x 23cm)

Weight
Approx. 30 lbs (14 kg)

Electro-Chemical Devices

Thank You,

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