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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** 1910.1018 App B
- **Title:** Substance technical guidelines

ARSENIC, ARSENIC TRIOXIDE, ARSENIC TRICHLORIDE (THREE EXAMPLES)

I. Physical and chemical properties

A. Arsenic (metal).

1. Formula: As.
2. Appearance: Gray metal.
3. Melting point: Sublimes without melting at 613C.
4. Specific Gravity: (H2O=1):5.73.
5. Solubility in water: Insoluble.

B. Arsenic Trioxide.

1. Formula: As2O3, (As4O6).
2. Appearance: White powder.
3. Melting point: 315C.
4. Specific Gravity (H2O=1):3.74.
5. Solubility in water: 3.7 grams in 100cc of water at 20c.

C. Arsenic Trichloride (liquid).

1. Formula: AsCl3.
2. Appearance: Colorless or pale yellow liquid.
3. Melting point: 8.5C.
4. Boiling point: 130.2C.
5. Specific Gravity (H2O=1):2.16 at 20C.
6. Vapor Pressure: 10mm Hg at 23.5C.
7. Solubility in Water: Decomposes in water.

II. Fire, explosion and reactivity data.

A. Fire: Arsenic, arsenic Trioxide and Arsenic Trichloride are nonflammable.

B. Reactivity:

1. Conditions Contributing to instability: Heat.
2. Incompatibility: Hydrogen gas can react with inorganic arsenic to form the highly toxic gas arsine.

III. Monitoring and Measurement Procedures

Samples collected should be full shift (at least 7-hour) samples. Sampling should be done using a personal sampling pump at a flow rate of 2 liters per minute. Samples should be collected on 0.8 micrometer pore size membrane filter (37mm diameter). Volatile arsenicals such as arsenic trichloride can be most easily collected in a midjet bubbler filled with 15 ml. of 0.1 N NaOH.

The method of sampling and analysis should have an accuracy of not less than + or - 25 percent (with a confidence limit of 95 percent) for 10 micrograms per cubic meter of air (10 ug/m(3)) and + or - 35 percent (with a confidence limit of 95 percent) for concentrations of inorganic arsenic between 5 and 10 ug/m(3).

[↻ Next Standard \(1910.1018 App C\)](#)

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