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**Silicon (Si)** is the second most abundant element in the continental crust. Studies have illustrated that silicon plays a critical role in the biogeochemical silica cycle. This paper details a developed method for the production of a 28Si-30Si SVI (Silicon Isotope Ratio) reference material.

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Studies have illustrated that silicon plays a critical role in the biogeochemical silica cycle. This paper details a developed method for the production of a 28Si-30Si SVI (Silicon Isotope Ratio) reference material.

**Problem:** Silicon (Si) has three isotopes: 28Si, 29Si, and 30Si. Determine the number of p, neutrons, and electrons in each isotope.

- **28Si:**
  - Protons: 14
  - Neutrons: 14
  - Electrons: 14

- **29Si:**
  - Protons: 14
  - Neutrons: 15
  - Electrons: 14

- **30Si:**
  - Protons: 14
  - Neutrons: 16
  - Electrons: 14

**Solution:**

- **28Si:**
  - Protons: 14
  - Neutrons: 14
  - Electrons: 14

- **29Si:**
  - Protons: 14
  - Neutrons: 15
  - Electrons: 14

- **30Si:**
  - Protons: 14
  - Neutrons: 16
  - Electrons: 14

**Notes:**

- **Isotopes:** Isotopes are variants of an element that differ in the number of neutrons. These isotopes are distinguished by their mass numbers, which are written as superscripts to the left of the element's symbol.

- **Protons:** Protons are positively charged particles located in the nucleus of an atom. They determine the atomic number of an element.

- **Neutrons:** Neutrons are neutral particles located in the nucleus of an atom. They determine the mass number of an element.

- **Electrons:** Electrons are negatively charged particles located in the electron cloud surrounding the nucleus. They determine the chemical properties of an element.

**Isotopes of Silicon (Si):**

- **28Si:** Mass number = 28, Protons = 14, Neutrons = 14, Electrons = 14
- **29Si:** Mass number = 29, Protons = 14, Neutrons = 15, Electrons = 14
- **30Si:** Mass number = 30, Protons = 14, Neutrons = 16, Electrons = 14

**References:**