

## Copper(II) sulfide Nanoparticles CSN104

### Description:

Copper(II) sulfide (CuS), commonly known as covellite, is a binary inorganic compound composed of copper in the +2 oxidation state and sulfide ions. It is typically a dark-blue to black solid with a hexagonal crystal structure. CuS is a p-type semiconductor with a narrow band gap (typically 1.2–2.0 eV, depending on morphology and synthesis route). CuS nanoparticles exhibit strong localized surface plasmon resonance (LSPR) in the near-infrared (NIR) region due to the presence of copper vacancies.

Characterization	
CAS	1317-40-4
Stock No.	CSN104
Molecular formula	CuS
Molecular weight (g/mol)	95.611
Form	Powder
Color	Black
Morphology	Spherical
Crystal structure	hexagonal
Size range (nm)	50-60
Total impurity (%)	<0.5
Melting point (°C)	above 500 °C (decomposes)
Density (g/cm <sup>3</sup> )	4.76
Solubility	Insoluble



Image of copper(II) sulfide nanopowder (CSN104)

**Note:** product specifications are subject to amendment and may change over time.

### Applications (but not limited to the following):

optoelectronics, catalysis, energy storage, and sensors.

### Safety:

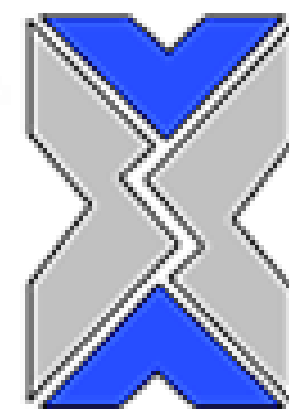
Avoid breathing dust.

Always use protective gloves and safety glasses.

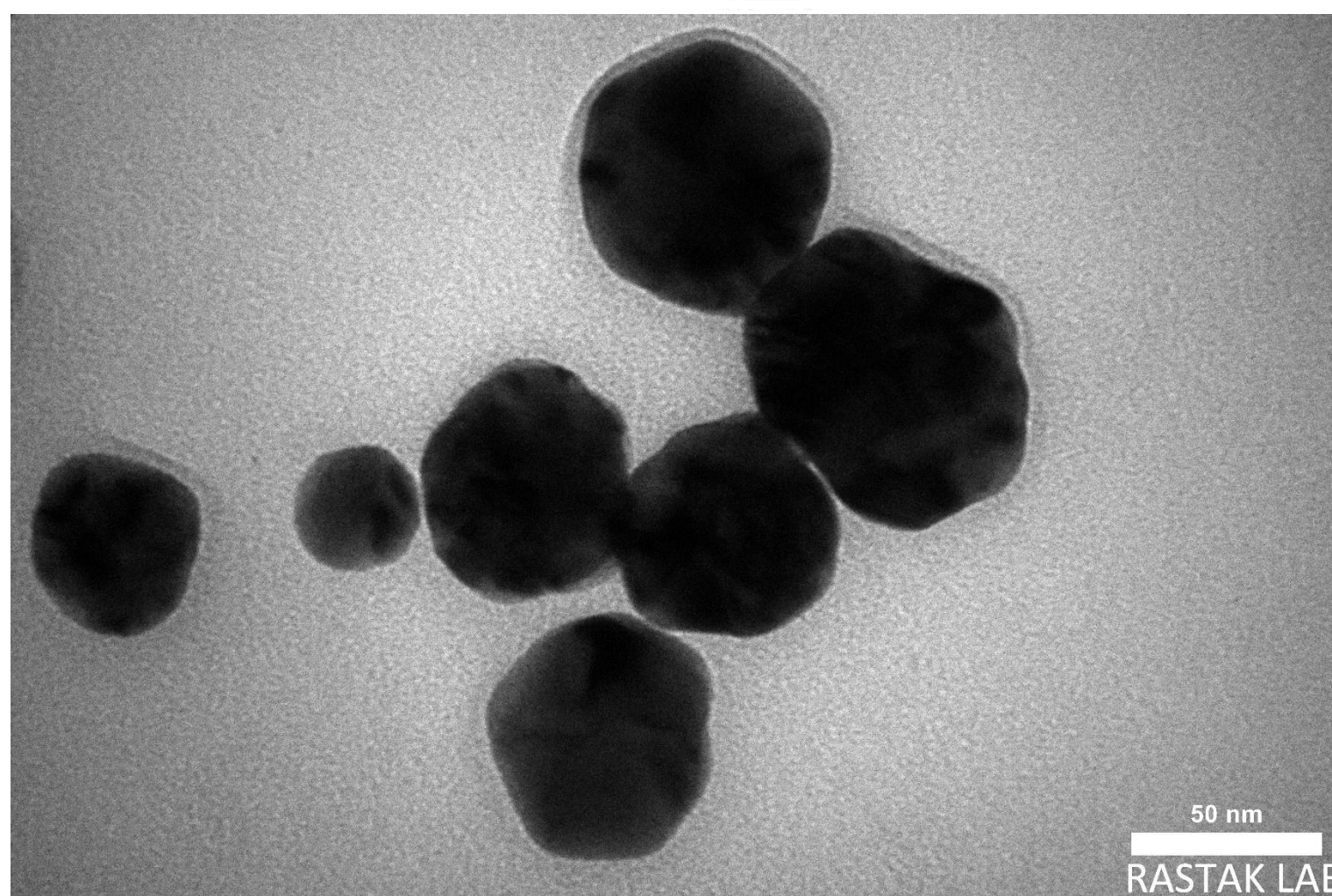
Wash with soap and water after exposure.

Do not expose to extreme heat or flame.

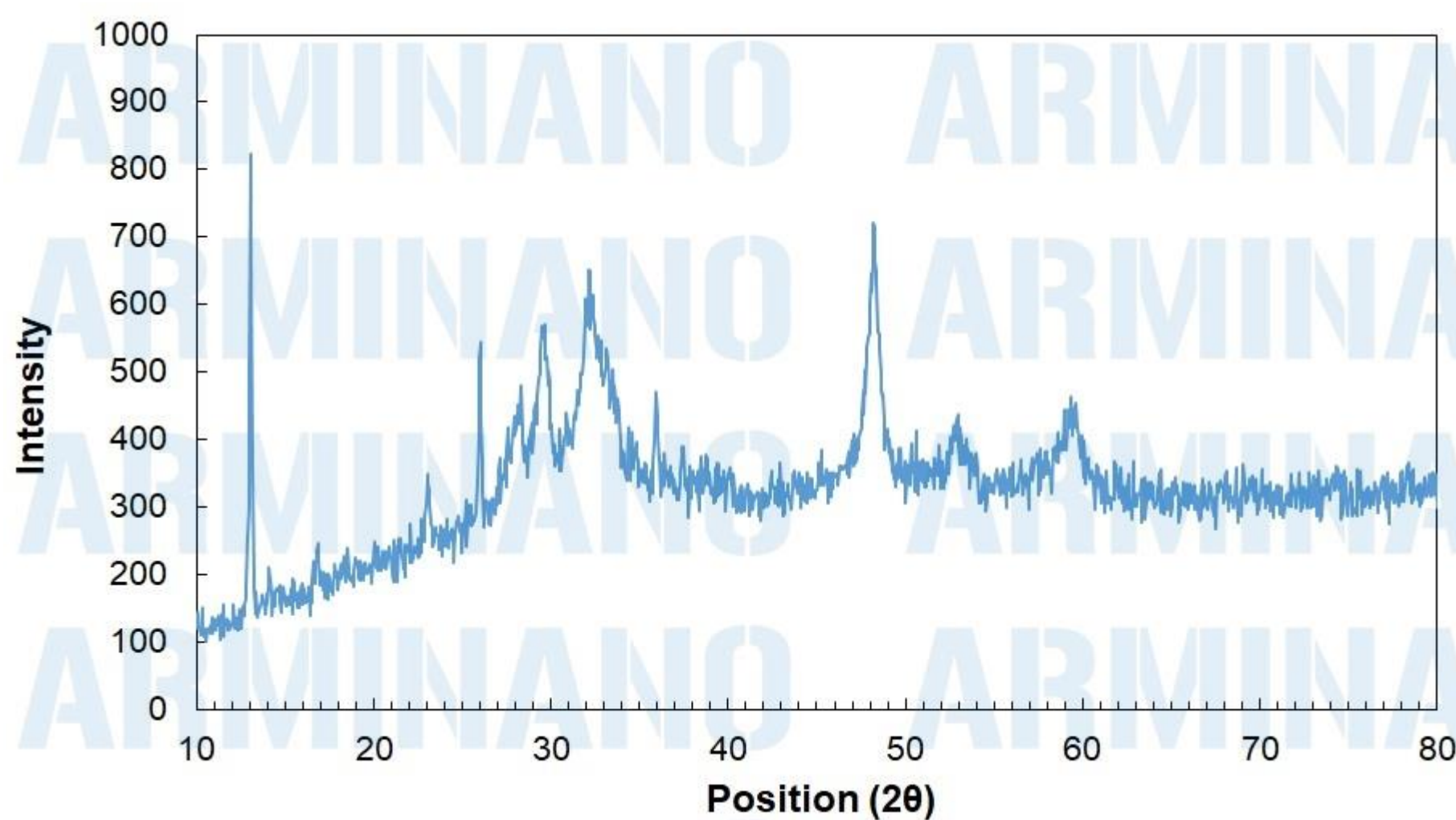
Refer to MSDS prior to handling this material.



## Cupric Sulfide Nanoparticles CSN104



TEM image of CSN104



XRD pattern of CSN104

### Storage:

Keep it in cool dry place.  
Avoid direct sunlight.  
Do not freeze.  
To disperse nanoparticles sonication could be used.

### Shelf life:

When stored as specified the product is stable for at least 6 months.