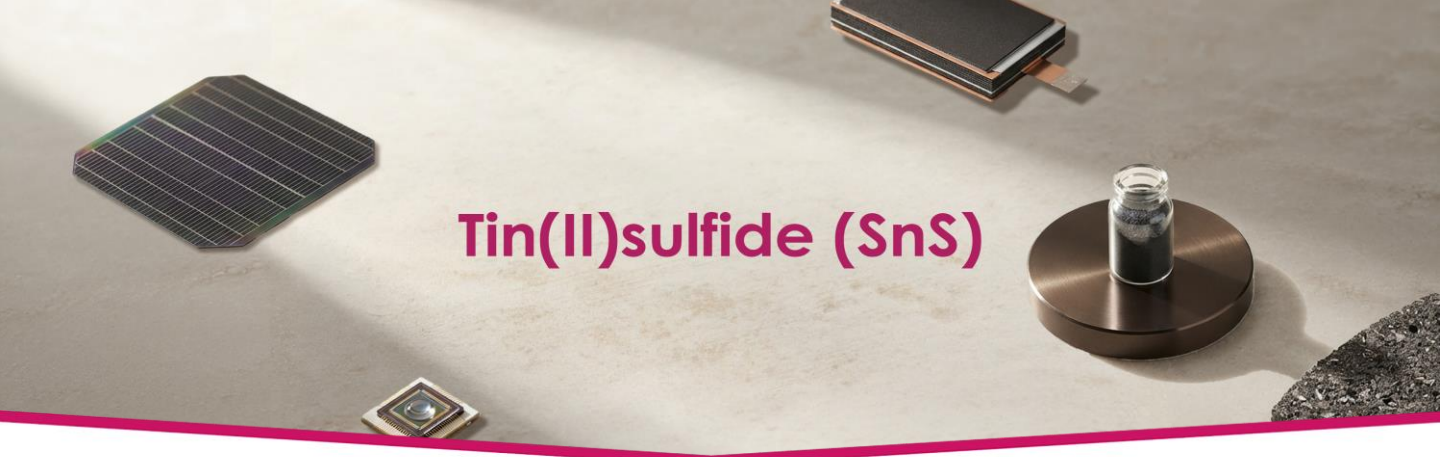




Tin(II)sulfide (SnS)

PRODUCT IN FOCUS



Tin(II) sulfide

INTRODUCTION

Tin(II) sulfide (SnS) has emerged as a safe and sustainable semiconductor owing to its non-toxicity, low cost, and natural abundance. It has attracted significant interest for solar energy conversion in thin-film photovoltaic devices because of its suitable band gap, which is approximately 1.3 eV in the orthorhombic phase and 1.5-1.7 eV in the cubic phase. In addition to photovoltaic applications, SnS is used in solid-state lubricants, near-infrared detectors, Lithium-ion batteries, and various sensing devices.

MANUFACTURE

SnS materials can be synthesized as single crystals, polycrystalline materials, powders, and thin films using chemical, mechanical, and physical methods. Bulk materials are commonly prepared by wet chemical, mechanochemical, melt-growth, and melt-mixing techniques, while thin films are deposited by chemical precipitation, dip-coating, electrochemical deposition, and chemical vapor deposition (CVD).

Synonyms	Stannous sulfide, tin monosulfide, tin sulfide
CAS no.	1314-95-0
EINECS no.	215-248-7
Molecular formula	SnS
Molecular weight	150.78 g/mol
Structure	$\text{Sn}=\text{S}$

APPLICATIONS

SnS semiconductor is a potentially useful material for a variety of applications due to its unique properties.

☒ Photovoltaic and Solar cells:

- It is a potential candidate for the development of solar cell devices due to its narrow band gap and high absorption coefficient. It easily absorbs sunlight to generate electricity.

☒ Counter electrode (CE):

- SnS has been used as a counter electrode (CE) in iodide/triiodide (I^-/I_3^-)-based liquid junction dye-sensitised solar cells (DSSCs), as an alternative to expensive platinum.

☒ Friction material:

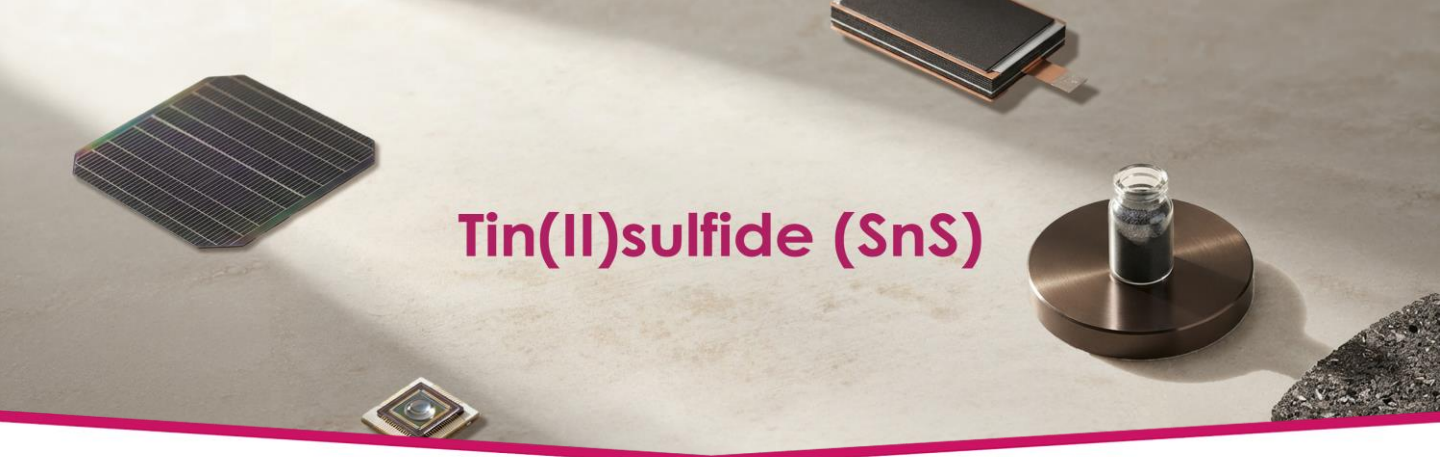
- Because of its unique layer structure it is commonly used as an additive in automotive break systems.
- It stabilize the coefficient of friction across different temperatures, reducing brake noise, vibration, and pad wear

☒ Energy storage:

- Its layered structure allows for the easy insertion and extraction of ions. This makes SnS an excellent anode candidate for rechargeable Lithium and Sodium-ion batteries designed for high energy density.

☒ Optoelectronics and sensors:

- Due to its excellent light absorption property nanostructured SnS is used in sensors and optical switches.
- It is woven into smart sponges or materials to act as a highly sensitive pressure sensor.



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SPECIFICATIONS

Test	Unit	Specification	
Apparent density	-	0.90 – 1.80	
Mesh analysis - ASTM	µm		
+ 200 (<74 µm)	-	NIL	
- 200 + 325 (<44 µm)	-	Balance	
- 325 (<44 µm)	%	>95	
Density	g/cm ³	4.5 – 5.3	
Chemical analysis (By XRF)	%	Tin (Sn) Sulfur (S)	70 – 80 18 - 30

STORAGE & PRECAUTION

Store in dry place. Reseal container immediately after use. Store away from food and beverages.

PACKING

25 Kg UN approved paper bag.

REACH STATUS

Not registered

ExSyn offers SnS on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality and service will make ExSyn your supplier of choice! If you need any additional information or SDS, please contact us.