

PRODUCT DATA SHEET

Indium Sulfide



Introduction

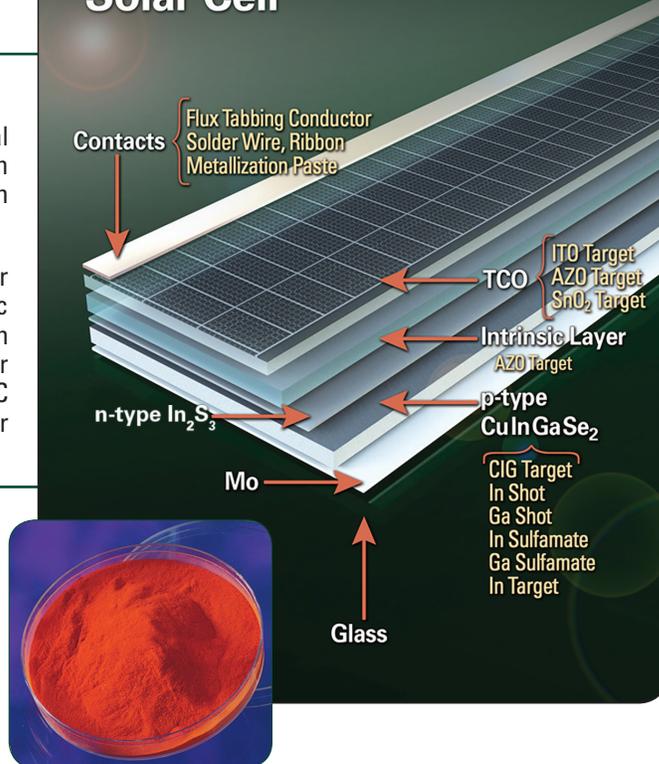
Indium sulfide (In_2S_3) is an orange-red to red-colored chemical with a sulfur odor characteristic of all sulfides. It is insoluble in water and most organic solvents but decomposes in common mineral acids, releasing hydrogen sulfide gas.

Indium sulfide is used primarily as a buffer layer in copper indium-diselenide (CIGS) photovoltaic solar cells, replacing toxic cadmium sulfide. It functions as an n-type semiconductor with an optical band gap of 2.1–2.2 eV. The **indium sulfide** buffer layer can be deposited using vacuum chemical vapor deposition or DC magnetron sputtering. **Indium sulfide** is available in 99.99% or 99.999% purities as a powder or compressed pellets.

Properties

Chemical Formula	In_2S_3
Molecular Weight	325.82
General Description	Orange-red powder with sulfide odor
Uses	Replacement of toxic CdS buffer layer in the manufacture of CIGS thin-film solar cells
Purity Grades Available	4N (99.99%), 5N (99.999%)
Solubility	Insoluble in cold water; soluble in mineral acids
Specific Gravity	4.90g/cc
Melting Point	1,050°C
Boiling Point	Sublimes at 850°C in high vacuum
Theoretical Indium Percentage	70.48
Minimum Indium Percentage	65
Nominal Indium Percentage	68 ± 3.0

Structure of CIGS (Copper Indium Gallium DiSelenide) Solar Cell



Standard Packaging

Quantity*	Container
3.5kg	1-gallon Nalgene™
2.0kg	½-gallon Nalgene™
1.0kg	1-liter Nalgene™
500g	½-liter Nalgene™
100–200g	Plastic jars

*All package sizes contain suitable desiccant. Packaging in other sizes or in glass may be available upon request.

Storage and Shelf Life

Indium sulfide should be kept in a tightly sealed container in a dry, cool place away from mineral acids. The shelf life is 6 months for unopened containers.

Safety Data Sheets

The SDS for this product can be found online at <http://www.indium.com/sds>

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