

PRODUCT DATA SHEET

Indium Sulfide



Introduction

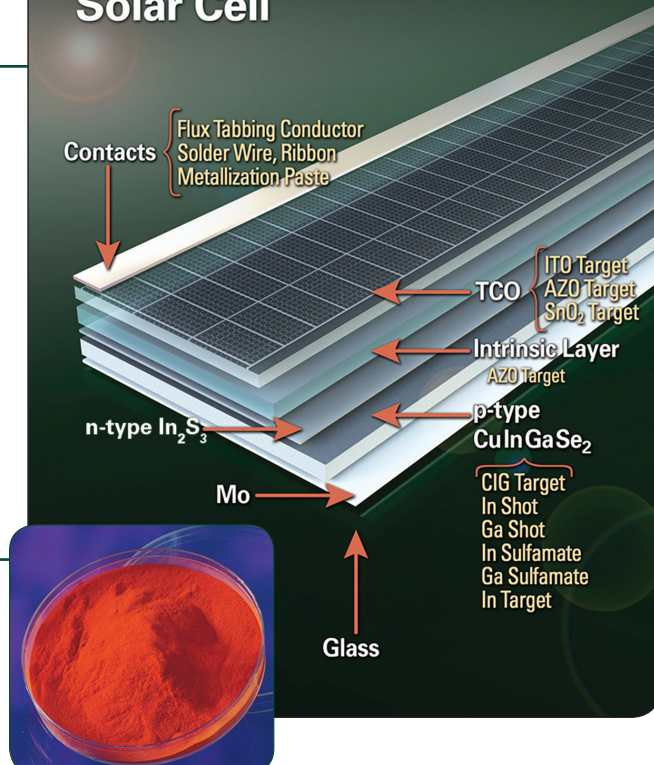
Indium sulfide (In_2S_3) is an orange-red to red-colored chemical with a sulfur odor characteristic of all sulfides. It is insoluble in water and most organic solvents but decomposes in common mineral acids, releasing hydrogen sulfide gas.

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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