

PRODUCT DATA SHEET

# Indium Oxide (Indium Sesquioxide)

## In<sub>2</sub>O<sub>3</sub>

### Introduction

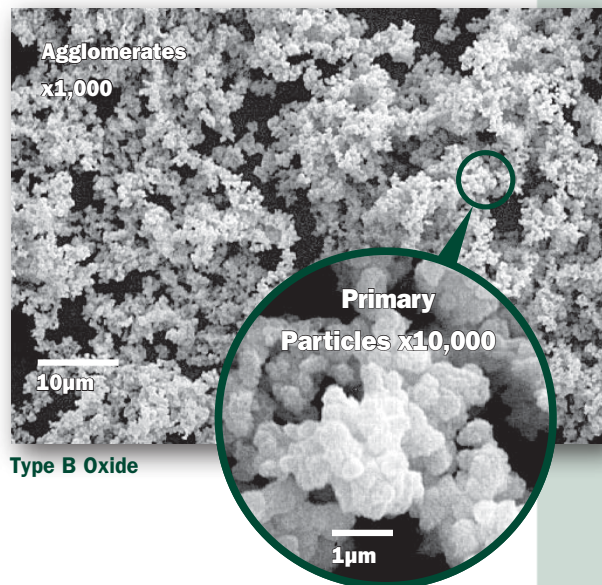
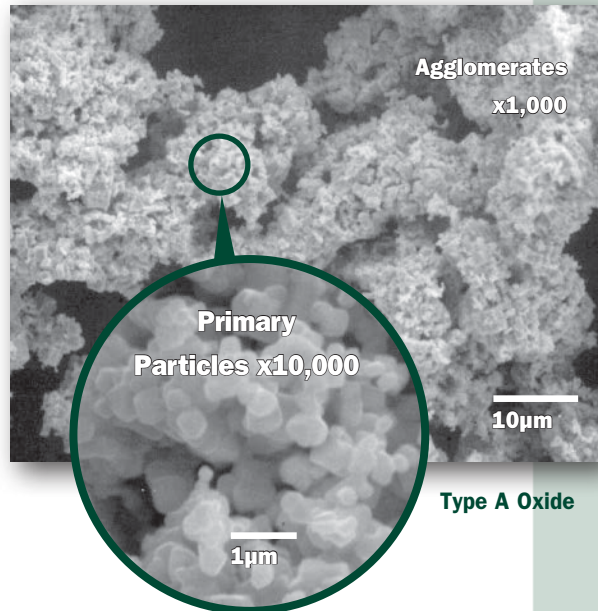
**Indium Oxide (In<sub>2</sub>O<sub>3</sub>)** is a yellow colored powder with a molecular weight of 277.64. It is a stable ceramic-like material, insoluble in water, and volatilizes at 850°C. **Indium Oxide** is a n-type semiconductor and as such is used as a resistive element in integrated circuits and to form heterojunctions with p-InP, n-GaAs and other semiconductors. Other uses include glass coloring, in alkaline batteries to suppress gassing, and as an anti-arcing additive in high current electrical switches and contactors.

When doped with tin dioxide (SnO<sub>2</sub>), thin films of indium tin oxide (ITO) function as a transparent electrical conductor and can reflect a portion of the infrared spectrum. Thin films of ITO are used in LCD, OLED, and plasma flat panel displays, touch screens, electroluminescent lighting, low-E glass, and aircraft windshield and freezer case demisting. The major use of indium oxide is in the manufacture of ITO sputtering targets for thin-film coating by compacting a mixture of indium oxide and tin dioxide powders.

In the manufacture of sputtering targets, 90 weight percent indium oxide is blended with 10 weight percent tin dioxide and compacted to a high density.

**Indium Oxide** is available in two powder morphologies:

- Type A - Crystalline  
The primary particles range from 0.4 to 1.0 µm in diameter; agglomerates up to approximately 30 µm.
- Type B - Fine  
The primary particles range from 0.1 to 1.0 µm in diameter; agglomerates up to approximately 6 µm.



OVER→

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# Indium Oxide (Indium Sesquioxide) In<sub>2</sub>O<sub>3</sub>

## Properties: Type A - Crystalline

Chemical Formula	In <sub>2</sub> O <sub>3</sub>
Molecular Weight	277.64
General Description	Bright yellow powder
Uses	<ul style="list-style-type: none"> <li>Manufacturing of ITO sputtering targets and evaporation charges</li> <li>Coloring ceramics and glasses</li> </ul>
Purity Grades Available	4N (99.99%), 5N (99.999%)
Solubility	Insoluble in water and alcohol
Theoretical Indium Percentage	82.7
Minimum Indium Percentage	81.5
Nominal Indium Percentage	82.4 +/-0.9
d90 Particle Size Distribution	14.0 - 38.0
d50 Particle Size Distribution	6.0 - 23.0
d10 Particle Size Distribution	1.7 - 10.3
BET m <sup>2</sup> /g (typical)	0.424

## Properties: Type B - Fine

Chemical Formula	In <sub>2</sub> O <sub>3</sub>
Molecular Weight	277.64
General Description	Bright yellow powder
Uses	<ul style="list-style-type: none"> <li>Manufacturing of ITO sputtering targets and evaporation charges</li> <li>Coloring ceramics and glasses</li> </ul>
Purity Grades Available	4N (99.99%), 5N (99.999%)
Solubility	Insoluble in water and alcohols
Theoretical Indium Percentage	82.7
Minimum Indium Percentage	81.1
Nominal Indium Percentage	82.3 +/-1.2
d90 Particle Size Distribution	2.1 - 4.3
d50 Particle Size Distribution	1.1 - 2.6
d10 Particle Size Distribution	0.7 - 1.1
BET m <sup>2</sup> /g (typical)	10.6

## Standard Packaging

Quantity	Container**
Up to 1 kg	1.4 liter (3 pint) plastic wide mouth jar
1-10 kg	3.8 liter (1 gallon) plastic wide mouth jar
10-20 kg	18.9 liter (5 gallon) plastic pail
20-30 kg	18.9 - 30.3 liter (5 - 8 gallon) plastic drum
>30 kg	60.6 liter (16 gallon) plastic or steel drum

\*\*Packaging in other sizes or glass may be available upon request.

All information is for reference only. Not to be used as incoming product specifications.

## Storage and Shelf Life

Indium Oxide should be stored at room temperature and the container kept tightly sealed. Indium Oxide has a shelf life of 12 months.

## Safety Data Sheets

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

Indium Corporation is the leading global supplier of bulk indium, high purity indium, indium fabrications, alloys, and compounds. Indium oxide is produced in high volume utilizing state-of-the-art-SPC controlled chemical processing equipment. This, coupled with rigorous quality standards and advanced analytical instrumentation such as ICPMS, ensures consistent product quality.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

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