

Product Data Sheet

OnSpec® CIG Alloy Sputtering Targets Copper-Indium-Gallium

Benefits

- Simple
- Efficient
- Customizable
- High throughput

Simply Efficient

Indium Corporation's OnSpec CIG alloy sputtering targets, made from copper (Cu), indium (In), and gallium (Ga), are used to produce high-efficiency CIGS (Cu/In/Ga/di-selenide) solar cells. CIG targets offer tight control of the final solar cell composition. This is due to our unique process that results in a fully alloyed and completely homogenous CIG alloy as evidenced by the illustration on the back.

OnSpec CIG Alloy Targets have very low levels of impurities, which enable the manufacture of high efficiency solar cells. This is because we can control the impurity levels before and during our manufacturing process.

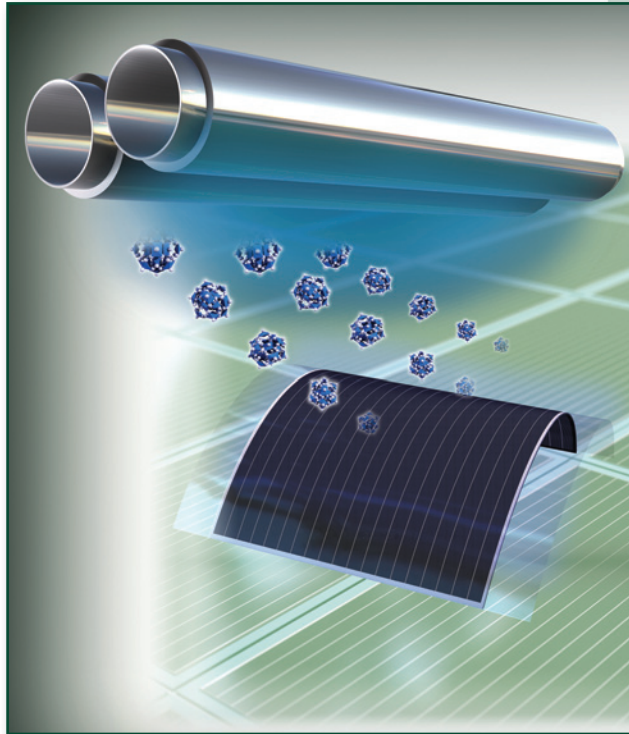
Targets can be used in reactive or non-reactive modes. Using fully-alloyed targets with various Cu/III and Ga/III ratios enable grading of the deposited CIG chemical composition. This replicates the process used for manufacturing high-efficiency solar cells.

Custom Solutions for High Throughput

OnSpec Targets are available in custom shapes, sizes, and alloy composition to suit your unique needs. Consistent, tightly-controlled chemistry throughout the target enable better control on the resulting solar cell chemistry and morphology. In addition, cylindrical, rotatable sputtering targets increase material utilization and system throughput while reducing the total cost of ownership. The cylindrical, rotatable shape offers greater than 70% material utilization with less system downtime and high system throughput.

Other Options

- Absorber layer targets: Cu/Ga, Cu/In, and In
- Other common target materials: In/Sn, In/Sn/O, Sn, Sn/O, and In/Zn
- Custom alloys are also available



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Form No. 98307 R3

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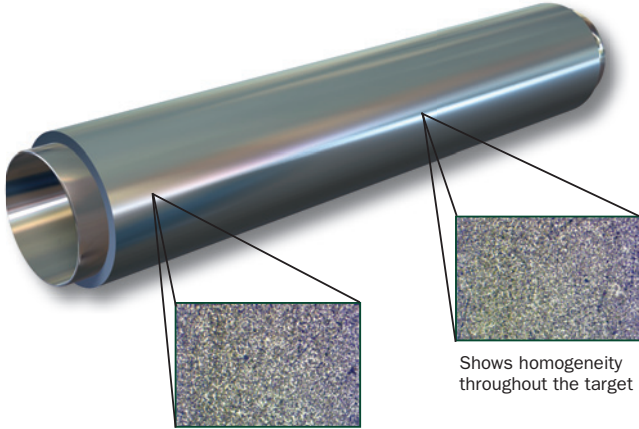
ASIA: Singapore, Cheongju: +65 6268 8678
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USA: Utica, Clinton, Chicago: +1 315 853 4900



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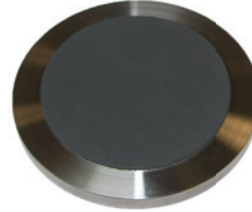
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Standard Shapes and Sizes



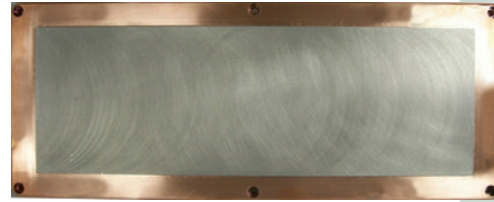
Rotatable Cylindrical:

Length: 304.8 – 1651mm (12 – 65 inches)
Diameter: 76.2 – 152.4mm (3 – 6 inches)
Thickness: 3.175 – 12.7mm (0.125 – 0.5 inches)



Round Planar:

Diameter: 50.38 – 254mm (2 – 10 inches)
Thickness: 9.525mm (0.375 inches)



Rectangular Planar:

Length: up to 1524mm (60 inches)
Width: up to 381mm (15 inches)
Thickness: up to 12.7mm (0.5 inches)

Custom shapes and sizes available on request.

Superior Quality

- Capability to analyze and control impurities to the part per billion levels.
- Tightly controlled Fe, Ni, Zn, Cd, and Hg enable higher solar conversion efficiency.
Hg=10 ppm max*
Fe=25 ppm max*
Ni=25 ppm max*
Zn=25 ppm max*
- Alloys available with Cu/III ratios 0.1 - 0.99 and Ga/III ratios 0.2 – 0.3.
- The targets are securely packed to avoid contamination and damage during shipment. Custom packaging is available on request.

* Typical values. Higher purities are available upon request.

Technical and Customer Support

Indium Corporation sets the industry standard in providing online and onsite technical support to our customers worldwide. Our team of research scientists, application engineers, and technical support engineers work closely with customers to develop custom solutions to their technical problems and increase their productivity.

Material Safety Data Sheet

The MSDS for this product can be found online at
<http://www.indium.com/techlibrary/msds.php>

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.

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