

# Gallium Trichloride

## Material and Packaging Options

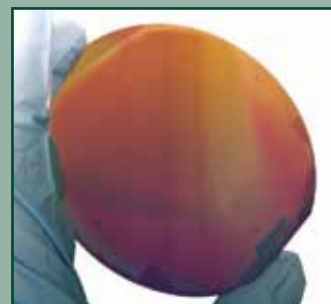
- Consistent and reliable product to benefit the customer process
- Packaged to make best use of cost, manpower, and run times
- Tracked and checked packaging for security and safety
- Technical support available



LED



Batteries



Semiconductor



Flat-Panel Display



**From One Engineer  
To Another®**

# Gallium Trichloride, Anhydrous

- Available in 4N5 and 5N purity
- Solid or granulated material
- Low moisture
- Low Si content for organometallic manufacturing purposes

<b>Synonyms</b>	Gallium Chloride, Gallium (III) Chloride
<b>CAS Number</b>	13450-90-3
<b>EC (EINECS/ELINCS) Number</b>	236-610-0
<b>RTECS</b>	LW9100000
<b>Purity</b>	99.995 to 99.999% GaCl <sub>3</sub>
<b>Appearance</b>	Clear or White, Needle-shaped Crystals; Deliquescent; Fumes in Air
<b>Form</b>	Solid Polycrystalline or Free-Flowing Granule
<b>Formula Weight</b>	176.08 g/mol
<b>Theoretical Gallium Content</b>	39.596%
<b>Density:</b> Solid Liquid	2.47 g/cm <sup>3</sup> 2.05 g/cm <sup>3</sup> at mp
<b>Melting Point</b>	77.9°C
<b>Boiling Point</b>	201.3°C at 760 torr
<b>Vapor Pressure</b>	48°C = 1 torr 78°C = 10 torr
<b>Solubility</b>	Soluble in Water, Ammonia, Benzene, Ethers, Carbon Disulfide, Carbon Tetrachloride

<b>Impurities (99.999%)</b>	<b>Typical (ppm)</b>	<b>Maximum (ppm)</b>
<b>Aluminum (Al)</b>	< 1	5.0
<b>Copper (Cu)</b>	< 1	3.0
<b>Iron (Fe)</b>	< 1	4.0
<b>Germanium (Ge)</b>	< 1	5.0
<b>Indium (In)</b>	< 1	5.0
<b>Sodium (Na)</b>	< 1	5.0
<b>Nickel (Ni)</b>	< 1	1.0
<b>Lead (Pb)</b>	< 1	5.0
<b>Tin (Sn)</b>	< 1	5.0
<b>Zinc (Zn)</b>	< 1	5.0
<b>Total Combined Metals</b>	< 3	10.0

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

## Shipping Classification

- Corrosive solid acid inorganic n.o.s.  
Class 8 UN 3260, II
- Packaging compliant to UN/DOT, IATA, IMDG
- Passenger air cargo maximum: 5kg per container
- Larger quantities by sea

## Storage and Shelf Life

Gallium trichloride is highly deliquescent and the solid crystals will liquefy quickly in humid environments. The container should be kept tightly sealed, and any overpack should contain a desiccant. Gallium trichloride has a shelf life of 6 months due to the deliquescent nature of the chemical.

## Packaging Options

Teflon/FEP/PFA	Pyrex®	Overpack	Stainless Steel/Hastelloy®
<p>← Tubes and Valves ← FEP/PFA Bung</p>	<p>← "Top Hat" Lid - Glass ← S/S Metal Screw Clamp ← Pyrex® Bottle</p>	<p>← Steel Drum ← Bottle ← Cardboard Drum ← Polystyrene Chips ← Packing</p>	<p>← Protective Skirt ← Lid with Access Ports ← Custom Stainless Steel Cylinder</p>
up to 5kg GaCl <sub>3</sub>	1kg - 18kg solid	typ. 14kg	5kg - 200kg

## Connections and Fittings

- Fittings are suitable for connection to customer production equipment
- Commonly used fittings: FEP or PFA tubing and valves, Swagelok® stainless steel
- Fittings are also available for glass containers

## Stainless Steel/Hastelloy®

- Stainless Steel T316L or Hastelloy C-276 pressure vessel to ASME section viii-01, div1
- Larger sizes available, up to 200kg per vessel
- Advantages include: steady and reliable process state, less risk of contamination, less man hours, potential for yield gains, and increased safety



## Access Port Options

Photographs ©2012 Swagelok Company



## Container Operations

- Superior engineering – TIG/orbital welded, electro-polished piping, VCR valves/seals minimize oxygen permeation and provide a leak-tight seal
- Individual container tracking
- Rigid cleaning, inspection, and leak testing procedures before each container filling
- User-friendly fittings to match customer process method
- Monitoring equipment available, thermowell and heat jackets

# Supply Security with Indium Corporation

- Gallium metal security with competitive pricing
- Security and safety of highly regulated, authorized, and audited process systems
- Financial strength to ensure continuity of bulk supplies
- Forward planning to work closely with customers to achieve best service results

## Product, Technical, and Sales Support



### EUROPE:

Malcom Harrower  
European Sales Manager - Metals,  
Compounds, and Solar Products  
+44 7585-792-759  
mharrower@indium.com



### US:

Mike Murphy  
Sr. Technical Service Manager -  
Metals and Compounds  
+1 614-871-0849  
mmurphy@indium.com



### KOREA:

Young-Rib Yoon  
Chief Marketing Officer - Korea  
+82 10-5249-9480  
yryoon@indium.com



### ASIA:

Kirk Johnson  
Business Development Manager  
+60 17-628-3775  
kjohnson@indium.com

## Our Goal

Increase our customers' productivity and profitability through premium design, application, and service using advanced materials.



Form No. 98793 (A4) R0

ISO 9001  
REGISTERED

[www.indium.com](http://www.indium.com)

[askus@indium.com](mailto:askus@indium.com)

ASIA: Singapore, Cheongju: +65 6268 8678  
CHINA: Suzhou, Shenzhen, Liuzhou: +86 (0)512 628 34900  
EUROPE: Milton Keynes, Torino: +44 (0)1908 580400  
USA: Utica, Clinton, Chicago: +1 315 853 4900



©2012 Indium Corporation