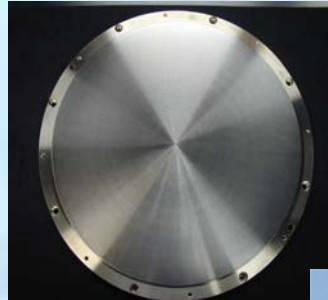




KOJUNDO CHEMICAL LABORATORY CO.,LTD



Solar Cell Materials

KOJUNDO CHEMICAL LABORATORY CO.,LTD

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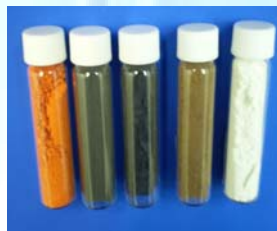
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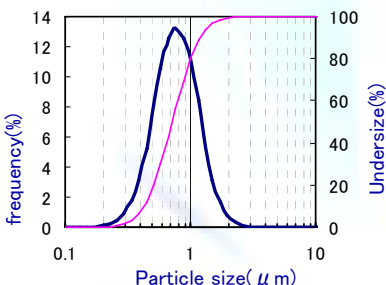
URL : <http://www.kojundo.co.jp>
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Sulfides, Selenides

Most compounds can be supplied in various forms such as: powders, tablets and sputtering targets. Also, fine component control is available.



CuInGaSe₂-powder
Particle size distribution



Product example

	CAT#	Product name	Purity
Sulfides	CUI04PB	Cu ₂ S	2N~4N
	GAI08PB	Ga ₂ S ₃	4N
	INI08PB	In ₂ S ₃	4N
	NAI03XB	Na ₂ S	2N
	-	CuGaS ₂	4N
	-	CuInGaS ₂	4N
	-	CuInS ₂	4N
Selenides	-	CuSe	3N
	-	CuInSe ₂	3N
	-	CuInGaSe ₂	3N
	-	CuGaSe ₂	3N

Anhydrous halogenides, Salts

Most compounds are supplied in bottles or in glass ampoules.

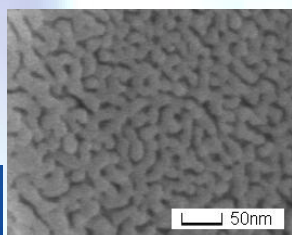


Product example

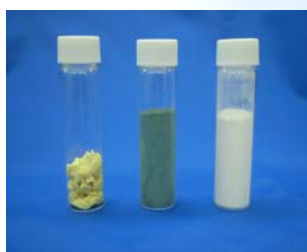
	CAT#	Product name	Purity
Iodides	CUH18XB	CuI	4N
	GAH05XB	GaI ₃	4N
	INH07XB	InI ₃	4N
Chloride	CUH10XB	CuCl ₂	4N
	GAH03XB	GaCl ₃	3N
	INH03XB	InCl ₃	5N
Bromides	CUH02XB	CuBr ₂	3N
	GAH01XB	GaBr ₃	5N
	INH01XB	InBr ₃	4N
Nitrates	CUH19XB	Cu(NO ₃) ₂ .nH ₂ O	3N
	GAH06XB	Ga(NO ₃) ₃ . nH ₂ O	3N
	GAH07XB	Ga(NO ₃) ₃ . nH ₂ O	5N
	INH08XB	In(NO ₃) ₃ .nH ₂ O	4N

Metals , Oxide powders

Many kinds of production methods to manufacturing oxide powders are available such as: Gas phase, Solid phase and Liquid phase including coprecipitation, compound precipitation, hydrolysis and alcoholate decomposition.



TiO₂(Brookite)



Product example

Product name	Purity	Shape
In ₂ O ₃	~4N	Powder/Grains
In ₂ O ₃ -SnO ₂	~4N	Powder/Grains/Lumps
InGaZnO ₄	~4N	Powder/Grains
SnO ₂	~4N	Powder/Grains
TiO ₂ (Brookite)	~4N	Powder

Metal processing example

Product	Purity	Shape
Cu	~4N	Powder/Grains/Tablets/Chips etc.
In	~4N	Powder/Shots/Sheets/Ingot etc.
Ga	~5N	Powder/Grains/Ingot etc.

Sputtering targets

Sophisticated technical advantages enables us to manufacture CuInGaSe and CuInGaS sputtering target which is utilized for absorber layer of solar cells.

Most sputtering targets are available in a wide range of shapes and sizes.

Product example

Product name	Purity
In ₂ Se ₃	~4N
GaSe	~4N
Cu-In-Ga-S	~3N
Cu-In-Ga-Se	~3N
Cu-Ga	~4N



Cu-Ga(melting)

Cu-In-Ga-Se

Cu-In-Ga-S

Tables and Targets

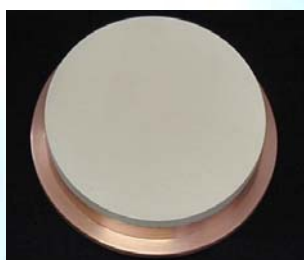
Most sputtering targets and tablets applied for transparent electrode films (ITO, AZO, IZO, IGZO) and antireflection films (SnO₂, NbO_x, TiO₂, MgF₂, ZnS) have a wide range of shapes and sizes.

Product example

Product name	Purity
In ₂ O ₃ -SnO ₂	~4N
Al-doped ZnO	~4N
InGaZnO ₄	~4N
SnO ₂	~4N
NbO _x	3N
TiO ₂	~4N
MgF ₂	3N
ZnS	~4N



InGaZnO₄



SnO₂



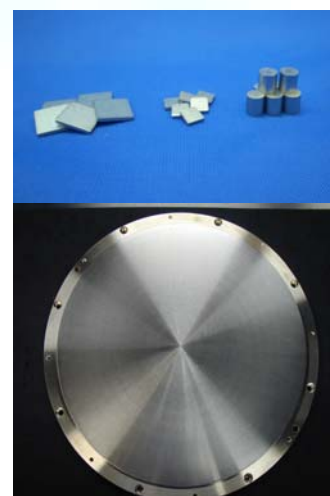
NbO_x

Ag,Al,Mo for electrode

Product example

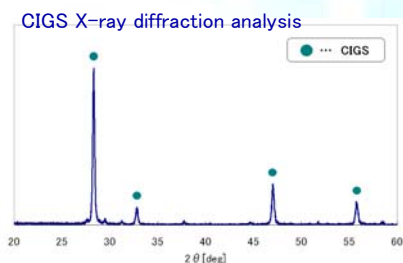
Classification		Shape
Sputtering targets		25.4 φ ~ 304.8 φ
Chips		10x10x1
		5x5x1
Tablets	Turncated cones	10 φ × t5
		20 φ × t5
		55 φ × 20t
		58 φ × 35t
	Column	48 φ × 40 φ × 20t
		31 φ × 23 φ × 15t

Material	Purity
Ag	2N~4N
Al	2N5~6N
Mo	3N~4N



Coating solutions (Metal Organic Decomposition)

MOD solution can make thin films on wafers relatively easily by the method of Dipping or Spin-on-Coating and also has a variety of applications in mixture of it.



Application:
Treating in CS₂
atmosphere after making
Cu,In,Ga thin layer

Product example

Class	CAT#	Product	Composition	Concentration
MOD	GAK01LB	Ga-03	Ga ₂ O ₃	3%
	INK01LB	In-05	In ₂ O ₃	5%
	MKG01LB	Mg-03	MgO	3%
	SNK01LB	Sn-05	SnO ₂	5%
	TIK01LB	Ti-03	TiO ₂	3%
	ZNK01LB	Zn-05	ZnO	5%
	INK02LB	ITO-05C	In ₂ O ₃ -SnO ₂	5%
EMOD	INS01LB	SYM-IN02	In ₂ O ₃	0.2mol/L
	MGS01LB	SYM-MG05	MgO	0.5mol/L
	SNS01LB	SYM-SN05	SnO ₂	0.5mol/L
	TIS01LB	SYM-TI05	TiO ₂	0.5mol/L
	ZNS01LB	SYM-ZN20	ZnO	2.0mol/L

EMOD produced under license from Symetrix Corporation

Metal organic compounds

Alkoxides are composition of metal and alcohol and utilized for manufacturing metallic oxides by Sol-Gel method.

Product example

CAT#	Product name	Purity	Condition	b.p.
GAR06GB	Ga(O-i-C ₃ H ₇) ₃	3N	White colored solid	120°C/0.13kPa
INR03GB	approx. In(O-i-C ₃ H ₇) ₃	3N	Yellow colored solid	nonvolatility
MGR02GB	Mg(OC ₂ H ₅) ₂	3N	White colored solid	nonvolatility
SNR05GB	approx. Sn(O-i-C ₃ H ₇) ₄	3N	solid	nonvolatility
TIR03LB	Ti(O-i-C ₃ H ₇) ₄	2N	Colorless liquid	116°C/1.33kPa
ZNR02GB	Zn(OC ₂ H ₅) ₂	4N	White colored solid	nonvolatility



Established since 1962, KOJUNDO CHEMICAL LABORATORY CO.,LTD has been supplying a wide variety of high purity chemicals to Semiconductors, Electronics, Optics and R&D fields.

We can accommodate any customer's requirements you may have.

KOJUNDO CHEMICAL LABORATORY on the web.

The web site www.kojundo.co.jp provides you with a well-structured information platform, where you will find everything you need to know.