MATERION

ADVANCED MATERIALS GROUP

Core Inorganic Chemicals

MATERION

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MATERION OFFERS THREE CONVENIENT WAYS TO PLACE AN ORDER:

1. Call inside sales at 414-289-9800.
2. Submit your order via email: OrderChemicals@Materion.com.
3. Send your order via fax to 414-289-9805.

Please provide the following information with your order.

- Company name, contact name, telephone number and e-mail address.
- Item number along with chemical name and formula, size, purity, quantity, unit of measure and any additional product or packaging specifications, billing and shipping addresses.
- Your Materion customer number.
- Your purchase order number or indication of preferred method of payment.

We currently accept Discover, Visa and MasterCard.

FOR MORE INFORMATION REGARDING PRICES, SHIPPING, TERMS, MSDS, WARRANTY AND RETURNS, PLEASE CONTACT US OR VISIT OUR WEBSITE AT WWW.MATERION.COM/INORGANICCHEMICALSCATALOG

MATERIAL FORMS

- Powders
- Pellets
- Slugs
- Grain
- Shot
- Pieces
- Rods
- Wire
- Premelts
- Starter Sources
- Sputtering Targets

RELATED PRODUCTS & SERVICES

- New Product Development
- Custom Alloys
- Custom Size & Forms
- Crucible Liners
- Backing Plates
- Target Bonding
- Recycle Spent Targets
- Vacuum Chamber Shield Cleaning
- Reclaim & Recycle
- Metals Management

Core Inorganic Chemicals

The Challenge

The importance of finding the exact inorganic chemical compound and form has become a crucial part of today's technologies. The rapidly changing electronic, energy and medical markets are always looking for ways to improve performance. Advances in technology require change. This change might be a chemical property of an existing material or the need for a whole new material. Availability, reliability and a willingness to advance through customization are critical in the markets we serve.

The Solution

From research and development to full production, Materion is your single reliable source for the quality materials you require, custom made to your exact specifications, or selected from our comprehensive inventory of ready-to-ship items.

As your material needs change, contact us. Our technical experts are available to answer your questions and help solve your material challenges.

Since our founding in 1964 as CERAC™ incorporated, our goal has been to be more than a materials supplier. We offer our customers a wealth of knowledge and expertise in synthesizing new compounds. Our manufacturing facility contains the latest processing equipment and our ISO certified labs thoroughly analyze our materials to ensure desired composition, particle size measurements and purity designations. We are your partner for materials that advance the world's technologies.

SPECIALTY MATERIALS

- Thin Film Coating Materials
- Optical Coating Materials
- Wear-Resistant Coating Materials
- High Purity PVD
- Materials for Thin Film Solar
- Specialty Battery Materials
- Heavy Metals
- Radioactive Materials
- Phosphor Precursors

NEW PRODUCT DEVELOPMENT SMALL SCALE BENCH CHEMISTRY

Will partner with research facilities.
Bench-to-full scale production

- Full R&D Department
- Custom Development
- Custom Alloys & Features

MORE THAN A SUPPLIER, WE ARE YOUR R&D TEAM

Materion's primary mission is to assist you in the successful development of your materials and meet your most challenging requirements. To accomplish that, we offer a broad range of chemistries and capabilities. Our industry experts will determine the best manufacturing and analytical processes and select the appropriate chemistry to produce optimal results. Our choice will depend on the combination of material, particle size, final form and specific characteristics to produce your unique product.

Our R&D department can develop a new product, and when you're ready for market, can manufacture and deliver the production quantities you need – when you need them. You can count on your material to be manufactured consistently to your exact specifications whether for a small or high volume run. With our strong network of technical support, we pride ourselves on our ability to be your quality-driven supplier for the life of your product.

MATERIAL EXPERTISE

Materion offers customers expertise in synthesizing new compounds, managing chemicals in controlled atmosphere environments, and meeting their complex particle characteristic requirements.

AIR & MOISTURE SENSITIVE MATERIALS	▪ Controlled Atmospheres ▪ Inert Atmosphere Manufacturing ▪ Specialty & Custom Packaging ▪ Rigorously Monitored Controls ▪ Analysis of Sensitive Materials
SPECIALTY CHEMISTRIES	▪ Phosphor Precursors ▪ High Purity ▪ Stoichiometic & Non-Stoichiometic ▪ Multi Elemental Mixtures ▪ Challenging Chemistry & Phases
HAZARDOUS MATERIALS	▪ Heavy Metals ▪ Radioactive Materials – Thorium Based ▪ Cadmium, Arsenic, Lead ▪ Comprehensive Safety Controls ▪ Responsible Environmental Partner

- **50+ YEARS EXPERIENCE IN CORE INORGANIC CHEMICALS**
- **FORMERLY KNOWN AS CERAC INC.**
- **100+ YEARS EXPERIENCE WITH PRECIOUS METALS**

CHEMICAL PROCESSES

Our expert chemists and engineers use numerous methods, including Wet Chemical Synthesis, Solid State Synthesis and Reactive Gas Processing, to develop new materials and produce established ones.

Wet Chemistry
- Precipitation Reactions
- Bottom-up Chemistry
- Oxidation/Reduction Reactions
- Purification Processes
- Doping Reactions

Reactive Gas Processes
- Halides, Nitrides, Oxides
- Sublimation
- Anion Exchange
- Solid/Gas Phase Reactions

High Temperature Synthesis
- Binary & Ternary Compounds
- Heavy Metal Capabilities (Cd, As, Pb, Sb)
- Sulfide, Selenide, Telluride Compounds
- Borides, Carbides, Oxides, Silicides, Fluorides
- Calcinations
- Combustion Synthesis
- Arc Fusion

TECHNICAL SUPPORT

We provide easy access to our technical experts (PhD scientists, chemists and engineers) who encompass a variety of competencies in R&D and prototype production. Vertical integration allows us to meet the accelerated pace of technical innovation in the industries we serve. Our full range of leading edge capabilities within a one-stop shop include:

- Technical Assistance
- Product Improvement
- Process Improvement
- Cycle Time Reduction
- Partnering with customers to assess specific needs

ANALYTICAL CAPABILITIES

Access to broad range of analytical & testing facilities and state-of-the-art ISO-accredited labs. If a capability is not available in-house, we will partner with organizations that can provide it. We rigorously monitor vital characteristics such as purity, density and homogeneity. The Certificate of Analysis provided with each shipment ensures that the final product meets or exceeds our customer's exact specifications

In-house Competencies

- Powder X-Ray Diffraction
- Elemental Analysis
- ICP-MS, ICP-OES, DC Arc & Atomic Absorption
- Classic Quantitative Wet Analytical Techniques
- Combustion Analysis
- TGA/DTA
- Specific Surface Area (BET)
- Particle Size
- Laser Diffraction, Mesh Size Analysis

Analyze for:

- Element/compound concentration in a material
- Trace metal impurities (ppm)
- Oxygen/nitrogen/carbon/sulfur content
- Average particle size, particle size distribution, and mesh size
- Density
- Crystal structure
- Other characteristic tests upon request

Quality Controls

- ISO 9001
- ISO 17025 Lab Accreditation

MATERIAL CUSTOMIZATION AND MANUFACTURING

We combine our extensive manufacturing technology and our employees' wide-ranging knowledge to provide the optimal inorganic chemical product for your application. Materials are available in a wide variety of compositions and forms specialized for our customers' processes. Particle size distributions can be custom tailored to improve material performance for specific applications.

Standard Forms

- Ingots
- Rods
- Chunks
- Pellets
- Pieces
- Powders

Particle Size

- Large Materials to Small Materials
- Small Materials to Larger Materials
- Consolidation – hot press or cold press
- Crushing – jaw & roll
- Grinding/Milling – ball mills, grinding vibro-energy mills, mortar & pestle
- Blending – V-Blender, cone blender, stir blender, ball mills, turbula blender, fluid medium blender
- Sieving – hand screens, vibratory screeners, air classifier

Sputtering Targets & Evaporation Materials

Inorganic Chemicals, Precious Metals, and Non-Precious Metals available in Custom Compounds, Shapes & Sizes.

- Vacuum Melting
- Various Powder Pressing
- Pelletization
- Various Ceramic Technologies
- Air & Vacuum Sinter
- Continuous Casting

Fluorides

The Challenge

Materion Advanced Materials Group, offers high quality fluorides manufactured to your precise specifications. Our integrated technologies allow us to deliver exact compositions, in the exact form you require, exactly where and when you need it!

BENEFITS

We offer the broadest possible range of fluoride coating materials.

- Complete reproducibility assures consistent performance
- Purity levels up to 99.999%
- Variety of forms including granules, pellets & powders
- Pre-melted Fluoride starter sources: YF_3, YbF_3, MgF_2 and more
- Supporting various optical wavelength ranges from UV to Far IR

GLOBAL MANUFACTURING PROCESSES

Custom fluoride compositions to your exact specifications provide high yield and less down time.

- Fluoride Synthesis
- Controlled Atmosphere Handling
- Chemical Analysis
- Custom Particle Sizing
- Specialized Packaging

FLUORIDE MATERIALS FOR OPTICAL COATING DEPOSITION

- Aluminum Fluoride, AlF_3
- Barium Fluoride, BaF_2
- Cadmium Fluoride, CdF_2
- Calcium Fluoride, CaF_2
- Cerium Fluoride, CeF_2
- Dysprosium Fluoride, DyF_3
- Erbium Fluoride, EuF_3
- Europium Fluoride, ErF_3
- Gadolinium Fluoride, GdF_3
- Hafnium Fluoride, HfF_4
- Lanthanum Fluoride, LaF_3
- Lead Fluoride, PbF_2
- Lithium Fluoride, LiF
- Magnesium Fluoride, MgF_2
- Neodymium Fluoride, NdF_3
- Potassium Fluoride , KF
- Praseodymium Fluoride, PrF_3
- Samarium Fluoride, SmF_3
- Sodium Aluminum Fluoride (Cryolite), Na_3AlF_6
- Sodium Fluoride, NaF
- Terbium Fluoride, TbF_3
- Thorium Fluoride, ThF_4
- Ytterbium Fluoride, YbF_3
- Yttrium Fluoride, YF_3

Materion … Materials to Advance the World's Technologies

For additional product data and ordering information, see our website www.materion.com/InorganicChemicalsCatalog

Oxides

The Challenge

Materion Advanced Materials Group, offers complete reproducibility to assure consistent high performance of all oxide compounds. Our integrated technologies and manufacturing capabilities allow us to deliver exact compositions, in the exact form you require, exactly where and when you need it!

BENEFITS

We offer a full range of inorganic oxide optical coating materials whatever your application.

- Variety of forms including granules, pellets & powders
- Purity levels up to 99.999%
- Supporting various optical wavelength ranges from UV to Far IR

GLOBAL MANUFACTURING PROCESSES

Custom oxide compositions to your exact specifications provide high yield and less down time.

- Oxide Synthesis
- Controlled Atmosphere Handling
- Chemical Analysis
- Custom Particle Sizing

OXIDE MATERIALS FOR OPTICAL COATING DEPOSITION

- Aluminum Oxide, Al_2O_3
- Antimony Oxide, Sb_2O_3
- Barium Titanate, $BaTiO_3$
- Bismuth Oxide, Bi_2O_3
- Boron Oxide, B_2O_3
- Cadmium Oxide, CdO
- Calcium Oxide, CaO
- Cerium Oxide, CeO_2
- Chromium Oxide, Cr_2O_3
- Dysprosium Oxide, Dy_2O_3
- Erbium Oxide, Er_2O_3
- Europium Oxide, Eu_2O_3
- Gadolinium Oxide, Gd_2O_3
- Gallium Oxide, Ga_2O_3
- Germanium Oxide, GeO_2
- Hafnium Oxide, HfO_2
- Indium Oxide, In_2O_3
- Indium-Tin Oxide, $90In_2O_3$-$10SnO_2$ (mol%)
- Iron Oxide, Fe_2O_3
- Lanthanum Oxide, La_2O_3
- Lead Titanate, $PbTiO_3$
- Lutetium Oxide, Lu_2O_3
- Lithium Manganese Oxide, $LiMn_2O_4$
- Magnesium-Aluminum Oxide (spinel)
- Magnesium-Aluminum-Zirconium Oxide (spinel)
- Magnesium Oxide, MgO
- Molybdenum Oxide, MoO_3
- Neodymium Oxide, Nd_2O_3
- Niobium Oxide, Nb_2O_5
- Praseodymium Oxide, Pr_2O_3
- Rare Earth Oxides
- Samarium Oxide, Sm_2O_3
- Scandium Oxide, Sc_2O_3
- Silicon Dioxide, SiO_2
- Silicon Monoxide, SiO
- Strontium Oxide, SrO
- Tantalum Oxide, Ta_2O_5
- Terbium Oxide, Tb_4O_7
- Thorium Oxide, ThO_2
- Thulium Oxide, Tm_2O_3
- Tin Oxide, SnO_2
- Titanium Dioxide, TiO_2
- Titanium Monoxide, TiO
- Titanium Sesquioxide, Ti_2O_3
- Tungsten Oxide, WO_3
- Ytterbium Oxide, Yb_2O_3
- Yttrium Oxide, Y_2O_3
- Zinc Oxide, ZnO
- Zirconium Oxide, ZrO_2
- Zirconium Oxide-Magnesium Oxide, ZrO_2-xMgO
- Zirconium Oxide-Titanium Oxide, ZrO_2-xTiO_2

Battery Materials

The Challenge

As diverse technologies emerge that push the boundaries of energy storage, a wide range of specialized battery chemistries are needed to meet the challenge. Few companies have the capabilities to develop, customize and produce the materials necessary for a wide variety of battery anode, cathode and electrolyte applications. It can also prove difficult to locate a firm with the ability to scale laboratory sample sizes to full production quantities.

The Solution

Materion Advanced Materials provides a broad variety of materials and key production capabilities to meet these challenges and help you bring the next breakthrough in inorganic battery material to market.

- Customized manufacturing: synthesis, processing & analysis
- Expertise to produce challenging, custom materials
- Particle size, purity and packaging to meet most stringent requirements
- Reactive gas processing
- Ceramic manufacturing capabilites for PVD materials
- Air and moisture sensitive material manufacturing & processing
- Scaling processes from R&D samples to full production quantities
- Comprehensive chemical & physical characterization
  - Xray Diffraction
  - ICP-OES/ICP-MS/AA/GDMS spectroscopies
  - O, N, C, S Combustion Analysis
  - BET Surface Area
  - Laser Diffraction Particle Size Analysis
  - Ion Selective Electrode
  - TGA/DTA
  - Wet Chemical Analyses

BENEFITS

- Customized materials & particle size
- Batch to batch consistency
- Highly reliable products
- Specialized packaging
- Manufactured to most stringent material requirements

MATERIAL OFFERINGS

High Purity Metals

- Ag, Be, Cu, Co, Fe, Li, etc.

Oxides

- Silver Oxide, Ag_2O
- Aluminum Oxide gamma, Al_2O_3-γ
- Lanthanum Oxide, La_2O_3
- Lanthanum Carbonate, $La_2(CO_3)_3$
- Lithium Oxide, Li_2O
- Lithium Carbonate, Li_2CO_3
- Lithium Cobalt Oxide, $LiCoO_2$
- Lithium Manganese Oxide, $LiMn_2O_4$
- Lithium Phosphate, Li_3PO_4
- Manganese Oxide, MnO_2
- Vanadium Oxide, V_2O_5
- Zirconium Oxide, ZrO_2

Fluorides

- Aluminum Fluoride, AlF_3
- Copper Fluoride, CuF_2
- Iron Fluoride, FeF_2 and FeF_3
- Lithium Fluoride, LiF
- Nickel Fluoride, NiF_2

Sulfides

- Arsenic Sulfide, As_2S_3 and As_2S_5
- Cobalt Sulfide, CoS_2
- Copper Sulfide, CuS and Cu_2S
- Iron Sulfide, FeS_2
- Nickel Sulfide, NiS_2
- Titanium Sulfide, TiS_2

MARKETS/APPLICATIONS

- High reliability medical batteries
- Military/defense
- Aerospace
- Large capacity storage
- Primary / Secondary lithium ion
- Conversion
- Solid state electrolytes

Particle Size

Proper particle characteristics are critical for optimum performance. We have developed numerous manufacturing, screening and measurement processes to assure the proper sizes and shapes of our powdered materials. Our fully equipped sizing departments' equipment includes crushers, grinders, ball mills, jet mills and air classifiers. Measurement capability includes screen analysis, laser diffraction, Fisher sub-sieve sizer (FSSS), Scott flow test, bulk and tap density, and surface area.

The chart shows our mesh size and equivalent standard measurements for your reference.

MESH SIZE	INCHES	MILLIMETERS
1"	1.000	25.4
7/8"	0.875	22.6
3/4"	0.750	19.0
5/8"	0.625	16.0
0.530"	0.530	13.5
1/2"	0.500	12.7
7/16"	0.438	11.2
3/8"	0.375	9.51
5/16"	0.312	8.00
0.265"	0.265	6.73
1/4"	0.250	6.35
3.5	0.223	5.66
4	0.187	4.76
5	0.157	4.00
6	0.132	3.36
7	0.111	2.83
8	0.0937	2.38
10	0.0787	2.00
12	0.0661	1.68
14	0.0555	1.41
16	0.0469	1.19
18	0.0394	1.00
20	0.0331	841
25	0.0278	707
30	0.0234	595
35	0.0197	500
40	0.0165	420
45	0.0139	354
50	0.0117	297
60	0.0098	250
70	0.0083	210
80	0.0070	177
100	0.0059	149
120	0.0049	125
140	0.0041	105
170	0.0035	88

Particle size can be custom tailored to optimize material performance for specific applications.

Purity

The following represent typical manufacturing capabilities and tolerances for Materion Advanced Materials Group's products. All items will be inspected to the tolerances listed below unless further tolerances have been agreed to during the quotation process, or prior to order placement.

Purity Designation and Tolerances

TYPICAL PURITY – METALS BASIS

All of Materion's products (with the exception of the rare earths as noted, or in some cases their precursors) are analyzed using one or more of the following Spectroscopic techniques: DC-Arc Emission, Laser Ablation ICP-MS, ICP-OES or AAS. The typical purities listed are obtained by subtracting from 100% the sum of all trace metals which are detected. Carbon, gaseous elements, other non-metallic elements (e.g. sulfur, phosphorus, etc.) and elements specifically disclaimed in the product listing are not considered in arriving at the typical purity value.

TYPICAL PURITY – RARE EARTH OXIDE BASIS

For all rare earth metals and some oxides, the typical purities listed are based on total rare earth oxide (REO) impurities and are so indicated in the product listing by the notation "(REO basis)".

PHASE PURITY

Every substance we produce, with the exception of metals and liquids, is characterized by X-ray powder diffraction. The resultant diffraction pattern is compared with the standard patterns established by the JCPDS (Joint Committee for Powder Diffraction Standards) of the International Centre for Diffraction Data. We strive to produce compounds which are 100% phase pure wherever practical. The formulas listed represent the major resulting phase, but no guarantee is made that traces of other phases will not be observed with other methods of analysis. When repeated syntheses indicate that more than a single major phase results, or that lesser amounts of additional phases may be consistently observed, we have listed these findings in the formula column. Please inquire before ordering if phase purity is critical to your needs.

ELEMENTAL COMPOSITION AND TRACE IMPURITY ANALYSES

The elemental composition of our products is determined by appropriate, established methods which may include classical gravimetric or titrimetric procedures, Atomic Absorption Spectroscopy (AAS), and Inductively Coupled Plasma (ICP) Spectroscopy. Trace impurities are determined, or their emission spectrographic results more precisely quantified, by the AAS or ICP spectroscopic techniques. Where relevant, the carbon, sulfur, nitrogen and oxygen content of our products are determined by established ignition procedures.

MEASUREMENT	STANDARD
Purity	Typical (not minimum) based on metallic impurities
Particle Size for Powders	Minimum 90% within stated mesh size
Targets	
Dimensional Target Tolerances	+/- 0.020" all dimensions
Compositional Tolerance	+/- 1.00 wt%
Bond Gaps	0.010"
Multi-section Targets	Butt joints
Joints	90 degree butt joints
Density Range	<5%, Reported as a % - actual vs. theoretical g/cc density
Chip Specification	Depth of 25% target thickness, none >1/4" in any direction
Target Analysis	Based on starting material unless otherwise stated

Core Inorganic Chemical List

Item #	Name	Compound	Form	Size	Purity
ALUMINUM					
A-1111	Aluminum chloride	$AlCl_3$	Powder	-10 mesh	99.9%
A-1185	Aluminum chloride	$AlCl_3$	Powder	-10 mesh	99.999%
A-1218	Aluminum fluoride	AlF_3	Pieces	3 - 6 mm	99.5%
A-1115	Aluminum fluoride	AlF_3	Powder	-100 mesh	99.9%
A-2005	Aluminum metal	Al	Granules	2-10 mm	99.9%
A-2001	Aluminum metal	Al	Granules	2-12 mm	99.99%
A-2051	Aluminum metal	Al	Pellets	3 mm dia. x 3 mm thick (melted)	99.999%
A-2049	Aluminum metal	Al	Pellets	6 mm dia. x 6 mm thick (melted)	99.99%
A-1011	Aluminum metal	Al	Pellets	1.6 mm dia. x 0.5 mm thick	99.999%
A-1181	Aluminum metal	Al	Pellets	3.9 mm dia. x 2.5 mm thick	99.999%
A-2010	Aluminum metal	Al	Pellets	6 mm dia. x 6 mm thick	99.999%
A-1000	Aluminum metal	Al	Pellets	9.5 mm dia x 3.2 mm thick	99.999%
A-1208	Aluminum metal	Al	Powder	-100, +200 mesh	99.5%
A-1002	Aluminum metal	Al	Powder	-100, +325 mesh	99.5%
A-1209	Aluminum metal	Al	Powder	-200, +325 mesh	99.5%
A-1189	Aluminum metal	Al	Powder	-325 mesh	99.97%
A-1182	Aluminum metal	Al	Powder	-325 mesh (ave. 10-20 microns)	99.5%
A-2002	Aluminum metal	Al	Powder	ave. <5 microns	99%
A-1119	Aluminum nitride	AlN	Powder	-200 mesh (ave. 10 microns or less)	99% (C = 0.1% max)
A-1120	Aluminum nitride	AlN	Powder	-200 mesh (ave. 10 microns or less)	99.8% (C = 0.08% max)
A-1187	Aluminum oxide	Al_2O_3 (low temp. phase, mix. of gamma, kappa & chino alpha)	Granules	~1 micron (calcined)	99.9%
A-1217	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Pieces	1-3 mm (highly sintered, opaque)	99.8%
A-1220	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Pieces	1-5 mm (clear, single-crystal sapphire)	99.99%
A-1121	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Pieces	3 - 12 mm (highly sintered, opaque)	99.8%
A-1213	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	- 100, +200 mesh (fused)	99.5%
A-1210	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-100, +200 mesh (calcined)	99.2%
A-1122	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-100, +325 mesh (calcined)	99.2%
A-1211	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-140, +325 mesh (calcined)	99.2%
A-1214	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-200, +325 mesh (fused)	99.5%
A-1124	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-325 mesh (calcined, ave. <5 microns)	99.99%
A-1212	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-325 mesh (calcined, ave. 10 microns or less)	99.2%
A-1215	Aluminum oxide	Al_2O_3 (mostly alpha phase)	Powder	-325 mesh, +10 microns (fused)	99.5%
A-1226	Aluminum oxide-silicon oxide	Approx. $3Al_2O_3$- $2SiO_2$	Powder	-140, +325 mesh (fused)	98%

Core Inorganic Chemical List

Item #	Name	Compound	Form	Size	Purity
A-1143	Aluminum sulfide	Al_2S_3	Pieces	6 mm and smaller	98%
A-1135	Aluminum telluride	Al_2Te_3	Pieces	6 mm and smaller	99.5%
A-1113	Aluminum-chromium	15 wt% Al - 85 wt% Cr	Powder	-100 mesh	99.5%
A-2030	Aluminum-copper	98 wt% Al - 2 wt% Cu	Pellets	6 mm dia. x 6 mm thick (melted)	99.999%
A-1131	Aluminum-silicon	88 wt% Al - 12 wt% Si	Powder	-325 mesh	99%
A-2032	Aluminum-silicon	99 wt% Al - 1 wt% Si	Pellets	6 mm dia. x 6 mm thick (melted)	99.999%
AMMONIUM					
A-1017	Ammonium bisulfate	NH_4HSO_4	Powder	-8 mesh	99.9%
A-1034	Ammonium iodide	NH_4I	Powder	-4 mesh	99.9%
ANTIMONY					
A-1146	Antimony chloride	$SbCl_3$	Lumps		99.9%
A-1053	Antimony chloride	$SbCl_3$	Lumps		99.999%
A-1190	Antimony metal	Sb	Pieces	1 - 4 mm	99.9999%
A-1224	Antimony metal	Sb	Pieces	3 - 12 mm	99.5%
A-1142	Antimony metal	Sb	Powder	-200 mesh	99.995%
A-1193	Antimony oxide	Sb_2O_3	Powder	-100 mesh	99.999%
A-1151	Antimony oxide	Sb_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99.9%
A-1221	Antimony sulfide	Sb_2S_3	Pieces	3 - 12 mm (sintered)	99.9%
ARSENIC					
A-1163	Arsenic acid	X-ray matches $H_5As_3O_{10}$ [~3(As_2O_5) - 5H_2O]	Pieces	12 mm and smaller	99.9%
A-2014	Arsenic metal	As	Pieces	4 - 20 mm	99.9999%
A-1202	Arsenic metal	As	Powder	-20 mesh	99%
A-1169	Arsenic oxide	As_2O_3	Powder		99.99% (Sb typ. 100 ppm)
A-1172	Arsenic selenide	As_2Se_2	Pieces	1 - 6 mm (melted)	99.999%
BARIUM					
B-1012	Barium carbonate	$BaCO_3$	Powder	-325 mesh (ave. 10 microns or less)	99.9% (Sr <300 ppm)
B-1105	Barium fluoride	BaF_2	Pieces	3 - 6 mm (melted)	99.9% (Sr <400 ppm)
B-1017	Barium fluoride	BaF_2	Powder	-325 mesh (ave. 10 microns or less)	99% (Sr <1.5%)
B-1019	Barium hydride	BaH_2	Powder	-60 mesh	99.7% (Sr <0.8%)
B-1000	Barium metal	Ba	Pieces	25 mm and smaller (under oil)	99.7% (Sr <0.8%)
B-1024	Barium nitride	Ba_3N_2 (X-ray pat. very similar to Mg_3N_2)	Powder	-20 mesh	99.7% (Sr <0.8%)
B-1025	Barium oxide	BaO	Powder	-100 mesh	99.5% (Sr <400 ppm)
B-1029	Barium selenide	BaSe	Powder	-20 mesh	99.5% (Sr <300 ppm)

Item #	Name	Compound	Form	Size	Purity
B-1033	Barium sulfide	BaS	Powder	-200 mesh	99.9% (Sr <600 ppm)
B-2005	Barium titanate	$BaTiO_3$	Powder	-325 mesh (ave. 5 - 10 microns)	99% (Sr <1%)
B-1039	Barium tungstate	$BaWO_4$	Powder	-200 mesh	99.9% (Sr <200 ppm)
BISMUTH					
B-1122	Bismuth metal	Bi	Pieces	1 - 12 mm	99.999%
B-1125	Bismuth oxide	Bi_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
B-1067	Bismuth oxide	Bi_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99.9%
B-1068	Bismuth selenide	Bi_2Se_3	Pieces	1 - 6 mm (melted)	99.999%
B-1071	Bismuth telluride	Bi_2Te_3	Pieces	1 - 6 mm (melted)	99.999%
B-1118	Bismuth telluride	Bi_2Te_3	Powder	-325 mesh (ave. 10 microns or less)	99.99%
B-1095	Bismuth titanate	$Bi_4Ti_3O_{12}$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
B-2010	Bismuth titanate	$Bi_{12}TiO_{20}$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
B-1073	Bismuth tungstate	Bi_2O_3 - $3WO_3$ by X-Ray: Major: $Bi_2W_2O_9$ Minor: WO_3	Powder	-200 mesh	99.9%
BORON					
B-1082	Boron carbide	B_4C	Powder	-270 mesh	99.5%
B-1102	Boron carbide	B_4C	Powder	-280 mesh	99.5%
B-1078	Boron metal	B	Pieces	3 - 8 mm (crystalline)	99.5%
B-1121	Boron metal	B	Powder	-325 mesh (ave. 15 microns or less, crystalline)	99%
B-1103	Boron metal	B	Powder	-8 mesh, +20 mesh (0.8 - 2.5 mm, crystalline)	99.999%
B-1076	Boron metal	B	Powder	ave. 5 microns or less (essentially amorphous)	90-92% (Mg = 5-8%, bal. oxygen)
B-1077	Boron metal	B	Powder	ave. 5 microns or less (essentially amorphous)	94-96%(Mg = 1% max, bal. oxygen)
B-1084	Boron nitride	BN(hexagonal form)	Powder	ave. 1 micron or less	99.5%
SP-108	Boron nitride	BN	Spray	12 oz. aerosol can (12 cans/case)	
B-1086	Boron oxide	B_2O_3	Powder	-40 mesh	99.9%
B-1089	Boron silicide	B_6Si (+ possible traces of Si & other B-Si phases)	Powder	-200 mesh	98%
CADMIUM					
C-1005	Cadmium arsenide	Cd_3As_2	Pieces	6 mm and smaller	99.999%
C-1000	Cadmium metal	Cd	Powder	-325 mesh (ave. 20 microns or less)	99.5%
C-1001	Cadmium metal	Cd	Shot	3 mm	99.999%
C-1013	Cadmium oxide	CdO	Powder	-200 mesh	99.95%
C-1014	Cadmium phosphide	Cd_3P_2 (+ possible traces of other Cd-P phases)	Powder	-100 mesh	99.5%

Core Inorganic Chemical List

Item #	Name	Compound	Form	Size	Purity
C-1016	Cadmium selenide	CdSe	Powder	-40 mesh (~50% is -325 mesh)	99.995%
C-2026	Cadmium stannate	Cd_2SnO_4	Powder	-200 mesh	99.5%
C-2027	Cadmium sulfide	CdS	Powder	-325 mesh (ave. 10 microns or less)	99.5% excluding Zn
C-1018	Cadmium sulfide	CdS	Powder	ave. 10 microns or less	99.99%
C-1023	Cadmium telluride	CdTe	Pieces	3 - 6 mm (melted)	99.999%
C-1197	Cadmium telluride	CdTe	Powder	-325 mesh (ave. 10 microns or less)	99.999%
CALCIUM					
C-2040	Calcium carbonate	$CaCO_3$	Powder	-325 mesh (ave. 10 microns or less)	99% (Mg <1%)
C-1213	Calcium carbonate	$CaCO_3$	Powder	-325 mesh (ave. 10 microns or less)	99.95% (Mg <400 ppm)
C-1193	Calcium fluoride	CaF_2	Pieces	3 - 6 mm (melted)	99.95% (Mg <500 ppm)
C-1033	Calcium fluoride	CaF_2	Powder	-325 mesh (ave. 10 microns or less)	99.95% (Mg <500 ppm)
C-2028	Calcium lanthanum sulfide	$CaLa_2S_4$	Powder	-200 mesh	99.9% (Mg <10 ppm)
C-1037	Calcium nitride	Ca_3N_2	Pieces	12 mm and smaller	99% (Mg <0.5%)
C-1271	Calcium nitride	Ca_3N_2	Powder	-200 mesh	99% (Mg <0.5%)
C-1247	Calcium silicate	$CaSiO_3$	Powder	-200 mesh	99% (Mg <0.5%)
C-1044	Calcium silicide	$CaSi_2$	Pieces	3 mm and smaller	99.5% (C <1%, Mg <0.25%)
C-1047	Calcium sulfide	CaS	Powder	-325 mesh (ave. 10 microns or less)	99.99% (Sr <500 ppm, Mg <150 ppm)
CERIUM					
C-1056	Cerium boride	CeB_6	Powder	-325 mesh (ave. 10 microns or less)	99.5%
C-2105	Cerium fluoride	CeF_3	Pieces	3 - 6 mm	99.9%
C-1250	Cerium fluoride	CeF_3	Powder	-325 mesh	99.9%
C-1055	Cerium metal	Ce	Pieces	12 mm and smaller (under oil)	99.9 (REO basis)% pure
C-1202	Cerium metal	Ce	Powder	~-40 mesh (under argon)	99.9 (REO basis)% pure
C-1065	Cerium oxide	CeO_2	Pieces	3 - 6 mm (fused)	99.9%
C-1066	Cerium oxide	$Ce2O_3$	Powder	-100 mesh (gold-green color)	99.9% (+ possible 0.5% W for stability)
C-1217	Cerium oxide	CeO_2	Powder	-325 mesh (ave. 10 microns or less, fused)	99.5%
C-1064	Cerium oxide	CeO_2	Powder	-325 mesh (ave. 5 microns or less, calcined)	99.9 (REO basis)% pure
C-1069	Cerium silicide	$CeSi_2$	Pieces	6 mm and smaller	99.9%

Item #	Name	Compound	Form	Size	Purity
CESIUM					
C-1165	Cesium carbonate	Cs_2CO_3	Powder	-20 mesh	99.9%
C-2012	Cesium carbonate	Cs_2CO_3	Powder	-20 mesh	99.996%
C-1174	Cesium molybdate	Cs_2MoO_4	Powder	-200 mesh	99.9%
C-2044	Cesium nitrate	$CsNO_3$	Powder	-4 mesh	99.999%
C-1189	Cesium vanadate	$CsVO_3$	Powder	-100 mesh	99.9%
CHROMIUM					
C-1089	Chromium boride	CrB_2	Powder	-325 mesh (ave. 10 microns or less)	99.5%
C-1092	Chromium carbide	Cr_3C_2	Powder	-325 mesh	99.5%
C-1095	Chromium chloride	$CrCl_3$	Flakes		99.9%
C-1078	Chromium metal	Cr	Pieces	0.15 - 2 mm	99.99%
C-1079	Chromium metal	Cr	Pieces	0.8 - 3 mm	99.2%
C-2013	Chromium metal	Cr	Pieces	1 - 6 mm	99.998% (02 <400ppm)
C-1079-5	Chromium metal	Cr	Pieces	1.5 - 3 mm	99.2%
C-1231	Chromium metal	Cr	Pieces	2 - 4.7 mm	99.99%
C-1218	Chromium metal	Cr	Pieces	25 mm and smaller	99.99%
C-1232	Chromium metal	Cr	Pieces	3 - 12 mm	99.2%
C-1263	Chromium metal	Cr	Pieces	3 - 6 mm	99.99%
C-1219	Chromium metal	Cr	Powder	-100, +200 mesh	99.2%
C-1082	Chromium metal	Cr	Powder	-200 mesh (ave. 25 microns or less)	99.95%
C-1081	Chromium metal	Cr	Powder	-325 mesh (ave. 10 microns or less)	99.6%
C-1223	Chromium oxide	Cr_2O_3	Powder	ave. 5 microns or less (precipitated)	99.5%
C-1103	Chromium selenide	CrSe (+ possible traces of other Cr-Se phases)	Powder	-325 mesh (ave. 10 microns or less)	99.5%
C-1105	Chromium silicide	$CrSi_2$	Powder	-325 mesh (ave. 10 microns or less)	99.5%
C-2018	Chromium silicide	$CrSi_2$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
C-1107	Chromium-silicon monoxide	60 wt% Cr - 40 wt% SiO	Pieces	1 - 3 mm (sintered)	99.9%
CIROM-IRX™					
I-3000	Cirom - irx™	CeF_3 - $xBaF_2$	Pieces	1 - 3 mm (melted)	99.9%
I-3001	Cirom - irx™	CeF_3 - $xBaF_2$	Pieces	3 - 6 mm (melted)	99.9%
COBALT					
C-1115	Cobalt bromide	$CoBr_2$	Powder	-80 mesh	99.9% (Ni <1000 ppm)
C-1264	Cobalt carbonate	$CoCO_3$	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Ni <2000 ppm)
C-2046	Cobalt metal	Co	Pellets	6 mm dia. x 6 mm thick (melted)	99.95% (Ni <400 ppm)
C-1111	Cobalt metal	Co	Powder	-325 mesh (ave. 10 microns or less)	99.8% (Ni <1500 ppm)

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Item #	Name	Compound	Form	Size	Purity
C-1227	Cobalt metal	Co	Powder	ave. 3 microns or less	99.8% (Ni <1000 ppm)
C-1121	Cobalt oxide	Co_3O_4	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Ni <2000 ppm)
C-1122	Cobalt phosphide	Co_2P (+ possible traces of other Co-P phases)	Powder	-100 mesh	99% (Ni <1500 ppm)
C-1124	Cobalt silicide	$CoSi_2$	Powder	-325 mesh (ave. 10 microns or less)	99% (Ni <800 ppm)
C-1126	Cobalt sulfide	CoS_2 (+ possible traces of other Co-S phases)	Powder	-200 mesh	99.5% (Ni <2000 ppm)
COPPER					
C-2034	Copper acetate	$Cu(C_2H_3O_2)_2 - H_2O$	Powder	-4 mesh	99.9%
C-2035	Copper aluminate	$CuAl_2O_4$	Powder	-325 mesh (ave. 10 microns or less)	99.5%
C-1261	Copper indium selenide	$CuInSe_2$	Pieces	6 mm and smaller	99.999%
C-2083-1	Copper indium selenide	$CuInSe_2$	Powder	-325 mesh	99.9%
C-2073	Copper metal	Cu	Pellets	3 mm dia. x 3 mm thick (melted)	99.99%
C-2033	Copper metal	Cu	Pellets	6 mm dia. x 6 mm thick (melted)	99.99%
C-1260	Copper metal	Cu	Powder	-20, +50 mesh (0.3-0.8 mm)	99.95%
C-1133	Copper metal	Cu	Powder	-325 mesh (ave. 10 microns or less, irregular shape)	99.5%
C-1229	Copper metal	Cu	Powder	ave. 2-5 microns (spherical, under argon)	99%
C-1132	Copper metal	Cu	Shot	2 - 6 mm	99.9%
C-1131	Copper metal	Cu	Shot	2 - 6 mm	99.999%
C-1207	Copper oxide	CuO	Powder	-20 mesh	99.999%
C-1144	Copper oxide	Cu_2O	Powder	-200 mesh	99%
C-1151	Copper silicide	Cu_5Si	Pieces	6 mm and smaller	99.5%
C-1152	Copper sulfide	Cu_2S (may be $Cu_{1.8}$ - 2S)	Powder	-200 mesh	99.5%
C-1153	Copper sulfide	CuS	Powder	-200 mesh	99.5%
C-2001	Copper sulfide	CuS	Powder	-325 mesh	99.5%
C-1156	Copper telluride	Cu_2Te	Pieces	6 mm and smaller	99.5%
C-1155	Copper telluride	CuTe (generally $Cu_{1.4}Te$)	Powder	-60 mesh	99.5%
C-1159	Copper tungstate	$CuWO_4$	Powder	-200 mesh	99.5%
DYSPROSIUM					
D-1024	Dysprosium fluoride	DyF_3	Pieces	3 - 12 mm (melted)	99.9%
D-1023	Dysprosium metal	Dy	Pieces	12 mm and smaller	99.9 (REO basis)% pure (all rare earths <0.1% total, Ta <0.5%

Item #	Name	Compound	Form	Size	Purity
ERBIUM					
E-1043	Erbium metal	Er	Pieces	12 mm and smaller	99.9 (REO basis)% pure (all rare earths <0.1% total, Ta <0.5%)
EUROPIUM					
E-1049	Europium fluoride	EuF_3	Powder	-325 mesh (precipitated)	99.9%
E-1031	Europium fluoride	EuF_3	Powder	-60 mesh (melted)	99.9%
E-1021	Europium metal	Eu	Powder	~-40 mesh	99.9 (REO basis)% pure
E-1035	Europium nitride	EuN	Powder	-60 mesh	99.9%
E-1051	Europium oxide	Eu_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
E-1036	Europium oxide	Eu_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure
E-1040	Europium sulfide	EuS	Powder	-200 mesh	99.9%
GADOLINIUM					
G-1008	Gadolinium chloride	$GdCl_3 \cdot xH_2O (x\sim6)$	Powder	-4 mesh	99.9%
G-1072	Gadolinium fluoride	GdF_3	Pieces	3 - 6 mm (melted)	99.9%
G-1075	Gadolinium fluoride	GdF_3	Powder	-325 mesh (precipitated)	99.9%
G-1071	Gadolinium metal	Gd	Pieces	12 mm and smaller	99.9 (REO basis)% pure
G-1000	Gadolinium metal	Gd	Powder	~-40 mesh	99.9 (REO basis)% pure
G-1076	Gadolinium oxide	Gd_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
GALLIUM					
G-1026	Gallium chloride	$GaCl_3$	Ingot	sealed in glass (m.p. 77.9 °C)	99.999%
G-1022	Gallium metal	Ga	Shot	3 mm	99.999%
G-2007	Gallium metal	Ga	Shot	3 mm	99.999%
G-1077	Gallium oxide	Ga_2O_3	Pieces	3 - 12 mm (sintered)	99.995%
G-1031	Gallium oxide	Ga_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.995%
G-1034	Gallium selenide	Ga_2Se_3	Pieces	6 mm and smaller	99.999%
G-1036	Gallium telluride	GaTe	Pieces	6 mm and smaller	99.999%
G-1037	Gallium telluride	Ga_2Te_3	Pieces	6 mm and smaller	99.999%
GERMANIUM					
G-1038	Germanium metal	Ge	Pieces	3 - 6 mm	>99.999%
GOLD					
G-1065	Gold metal	Au	Pieces	ave. 2 - 8 mm	99.999%

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Item #	Name	Compound	Form	Size	Purity
GRAPHITE - CARBON					
G-1060	Graphite	C	Powder	-200 mesh	Typ. 99.999% pure (spectro grade)
G-1059	Graphite	C	Powder	-325 mesh (ave. 10 microns or less)	99.5%
HAFNIUM					
H-1002	Hafnium boride	HfB_2	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Zr <2%)
H-1004	Hafnium carbide	HfC	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Zr <2%)
H-1007	Hafnium fluoride	HfF_4	Powder	-60 mesh (precipitated)	99.9% (Zr <0.5%)
H-1060	Hafnium metal	Hf	Pieces	3 - 12 mm	99.9% (Zr <2%)
H-1001	Hafnium metal	Hf	Powder	-325 mesh (ave. 10 microns or less)	99.8% (Zr <3%)
H-1048-2	Hafnium oxide	HfO_2	Pieces	1 - 3 mm (white, sintered)	99.9% (Zr <0.5%)
H-1048	Hafnium oxide	HfO_2	Pieces	3 - 12 mm (white, sintered)	99.9% (Zr <0.5%)
H-1011	Hafnium oxide	HfO_2	Powder	-325 mesh (ave. 10 microns or less)	99.95% (Zr <0.5%)
H-1059	Hafnium oxide	HfO_2	Tablets	~10-12 mm dia. x 4-5 mm thick (~3g each, white, sintered)	99.9% (Zr <0.5%)
H-2002-1	Hafnium oxide	HfO_2	Tablets	~17-18 mm dia. x 5-6 mm thick (~10g each, white, sintered)	99.9% (Zr <0.5%)
H-1055	Hafnium oxide- yttria stabilized	HfO_2 - 10-15 wt% Y_2O_3	Powder	-325 mesh, +10 microns	99% (Zr <2%)
INDIUM					
I-1000	Indium metal	In	Shot	3 mm	99.999%
I-2002	Indium metal	In	Shot	3 mm	99.9999%
I-1075	Indium metal	In	Shot	3 mm	99.99%
I-1010	Indium nitride	InN	Powder	-100 mesh	99.9%
I-1076	Indium oxide	In_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99.99%
I-1013	Indium selenide	In_2Se_3	Pieces	6 mm and smaller (melted)	99.999%
I-1066	Indium selenide	In_2Se_3	Powder	-325 mesh (ave. 10 microns or less)	99.99%
I-2039	Indium-tin oxide	90 wt% In_2O_3 - 10 wt% SnO_2	Pieces	1 - 3 mm	99.99%
I-2009	Indium-tin oxide	90 wt% In_2O_3 - 10 wt% SnO_2	Pieces	3 - 12 mm (sintered)	99.99%
I-2019	Indium-tin oxide	91 mol% In_2O_3 - 9 mol% SnO_2	Pieces	3 - 12 mm (sintered)	99.99%
IRIDIUM					
I-2000	Iridium metal	Ir	Powder	-325 mesh	99.9%
IRON					
I-1025	Iron arsenide	Fe_2As	Pieces	6 mm and smaller	99.5%
I-1026	Iron arsenide	Fe_2As	Pieces	6 mm and smaller	99.5%
I-1027	Iron arsenide	$FeAs_2$	Pieces	6 mm and smaller	99.5%
I-1029	Iron boride	Fe_2B	Powder	-35 mesh	99%

Item #	Name	Compound	Form	Size	Purity
I-2027	Iron metal	Fe	Pellets	3 mm dia. x 3 mm thick (melted)	99.95%
I-1078	Iron metal	Fe	Pieces	3 - 12 mm	99.95%
I-1020-1	Iron metal	Fe	Powder	-100 mesh	99.9%
I-1021	Iron metal	Fe	Powder	-325 mesh (ave. <15 microns)	99.9%
I-1068	Iron metal	Fe	Powder	ave. 5 microns or less (carbonyl)	99.9%
I-1038	Iron nitride	Fe_xN (x = 2 - 4)	Powder	-325 mesh (ave. 10 microns or less)	99.9%
I-1074	Iron oxide	Fe_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
I- 1060	Iron oxide	FeO (+possible traces of other Fe-O phases)	Powder	-10 mesh	99.50%
I-1061	Iron oxide	Fe_3O_4	Powder	ave. 5 microns or less	98%
I-1042	Iron phosphide	FeP	Powder	200 mesh	99.5%
I-1040	Iron phosphide	Fe_2P	Powder	-40 mesh	99.5%
I-1041	Iron phosphide	Fe_3P	Powder	-40 mesh	99.5%
I-1045	Iron silicide	$FeSi_2$	Powder	-20 mesh	99.9%
I-1046	Iron silicide	FeSi	Powder	-20 mesh	99.9%
I-1047	Iron sulfide	FeS (typ. Fe0.9S)	Powder	-100 mesh	99.9%
I-1064	Iron sulfide	FeS_2 (+ possible traces of FeS)	Powder	-100 mesh	99.9%
I-1056	Iron titanate	$FeTiO_3$(+ possible traces of other Fe-Ti-O phases)	Powder	-100 mesh	99.9%
LANTHANUM					
L-1128	Lanthanum boride	LaB_6	Powder	-325 mesh (ave. 5 - 10 microns)	99.5% (hot-pressing grade)
L-1009	Lanthanum chloride	$LaCl_3$	Powder	-20 mesh	99.9%
L-1149	Lanthanum chromite	$LaCrO_3$	Powder	-200 mesh	99.9%
L-1114	Lanthanum fluoride	LaF_3	Pieces	3 - 6 mm (melted)	99.9%
L-1152	Lanthanum fluoride	LaF_3	Powder	-325 mesh (precipitated)	99.9%
L-1126	Lanthanum metal	La	Pieces	12 mm and smaller (under oil)	99.9 (REO basis)% pure
L-1000	Lanthanum metal	La	Powder	~-40 mesh	99.9 (REO basis)% pure
L-2000	Lanthanum nickel	$LaNi_5$	Pieces	12 mm and smaller	99.9%
L-1132	Lanthanum nickel	$LaNi_5$	Powder	-100 mesh	99.5%
L-1014	Lanthanum nitride	LaN	Powder	-60 mesh	99.9%
L-1129	Lanthanum oxide	La_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
L-1015	Lanthanum oxide	La_2O_3	Powder	-200 mesh (ave. 10 microns or less)	99.99 (REO basis)% pure
L-1019	Lanthanum sulfide	La_2S_3	Powder	-200 mesh	99.9%
L-5500	Lanthanum titanate	$LaTiO_3$	Pieces	1 - 4 mm	99.9%

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Item #	Name	Compound	Form	Size	Purity
LEAD					
L-2001	Lead carbonate	~$2PbCO_3$ -$Pb(OH)_2$	Powder	-100 mesh	99.9%
L-1122	Lead chloride	$PbCl_2$	Pieces	0.8 - 3.4 mm (melted)	99.999%
L-1027	Lead chloride	$PbCl_2$	Powder	-80 mesh (precipitated agglomerates)	99.9%
L-1157	Lead chloride	$PbCl_2$	Powder	-80 mesh (precipitated agglomerates)	99.999%
L-1028	Lead fluoride	PbF_2	Pieces	1 - 3 mm (melted, clear to white)	99.9%
L-1115	Lead fluoride	PbF_2	Pieces	3 - 6 mm (melted, clear to white)	99.9%
L-1029	Lead fluoride	PbF_2	Powder	-325 mesh (ave. 10 microns or less)	99.9%
L-1148	Lead metal	Pb	Powder	-140, +325 mesh	99.9%
L-1023	Lead metal	Pb	Powder	-325 mesh (ave. <20 microns)	99.9%
L-1035	Lead oxide	PbO	Powder	-100 mesh	99.99%
L-1034	Lead oxide	PbO	Powder	-325 mesh (ave. 10 microns or less)	99.9%
L-1038	Lead selenide	PbSe	Pieces	3 - 6 mm (melted)	99%
L-1046	Lead telluride	PbTe	Pieces	1 - 3 mm (melted, exact 1:1 composition)	99.999%
L-1049	Lead titanate	$PbTiO_3$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
L-1050	Lead tungstate	$PbWO_4$	Powder	-200 mesh	99.9%
L-1052	Lead zirconate	$PbZrO_3$	Powder	-325 mesh (ave. 10 microns or less)	99.7%
LITHIUM					
L-1113	Lithium carbonate	Li_2CO_3	Powder	-100 mesh	99.9%
L-2009	Lithium cobalt oxide	$LiCoO_2$	Powder	-325 mesh (ave. 10 microns or less)	99.5%(Ni <1000 ppm)
L-1145	Lithium fluoride	LiF	Pieces	3 - 6 mm (melted)	99.9%
L-1065	Lithium fluoride	LiF	Powder	-325 mesh (ave. 10 microns or less)	99.9%
L-2010	Lithium manganese oxide	$LiMn_2O_4$	Powder	-325 mesh (ave. 10 microns or less)	99.5%
L-1053	Lithium metal	Li	Granules	~2.5 mm (under argon)	99%
L-1073	Lithium nitride	Li_3N	Powder	-60 mesh	99.5%
L-1074	Lithium oxide	Li_2O	Powder	-1/4", +100 mesh (0.15 - 6 mm)	99.5% (typ. 95% Li_2O_2 by titration)
L-1143	Lithium oxide	Li_2O	Powder	-100 mesh	99.5% (typ. 95% Li_2O_2 by titration)
L-1110	Lithium peroxide	Li_2O_2	Powder	-100 mesh	99.5% (typ. 95% Li_2O_2 by titration)
L-1088	Lithium zirconate	Li_2ZrO_3	Powder	-80 mesh	99%
LUTETIUM					
L-1155	Lutetium oxide	Lu_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
L-1104	Lutetium oxide	Lu_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure

Item #	Name	Compound	Form	Size	Purity
MAGNESIUM					
M-1128	Magnesium fluoride	MgF_2	Pieces	0.8 - 3 mm (melted)	99.9% (Ca & Na <1% combined)
M-2010	Magnesium fluoride	MgF_2	Pieces	1-4 mm (melted)	99.999% (Ca <100ppm)
M-1113	Magnesium fluoride	MgF_2	Pieces	3 - 6 mm (melted)	99.9% (Ca & Na <1% combined)
M-1010	Magnesium fluoride	MgF_2	Powder	-200 mesh (precipitated)	99.5% (optical grade, Ca & Na <1% combined)
M-1001	Magnesium metal	Mg	Powder	-100, +200 mesh	99.6% (Ca <50 ppm)
M-1002	Magnesium metal	Mg	Powder	-325 mesh	99.6% (Ca <50 ppm)
M-1013	Magnesium niobate	$MgNb_2O_6$	Powder	-200 mesh	99.9% (Ca <10 ppm)
M-1014	Magnesium nitride	Mg_3N_2	Powder	-325 mesh (ave. 10 microns or less)	99.6% (Ca <200 ppm)
M-1131	Magnesium oxide	MgO	Pieces	1 - 3 mm (fused)	99.95% (Ca <750 ppm)
M-1121	Magnesium oxide	MgO	Pieces	3 - 12 mm (fused)	99.95% (Ca <750 ppm)
M-2013	Magnesium oxide	MgO	Pieces	3 - 6 mm (fused)	99.95% (Ca <750 ppm)
M-1138	Magnesium oxide	MgO	Powder	-140, +325 mesh (fused)	95% (for plasma spraying, Ca <1%)
M-1016	Magnesium oxide	MgO	Powder	-325 mesh (ave. 10 microns or less, calcined)	99.5% (Ca <1%)
M-1017	Magnesium oxide	MgO	Powder	-325 mesh (ave. 10 microns or less, calcined)	99.95% (Ca <50 ppm)
M-2004	Magnesium silicate	Mg_2SiO_4	Powder	-325 mesh (ave. 10 microns or less)	99% (Ca <0.6%)
M-1021	Magnesium silicide	Mg_2Si	Powder	-20 mesh	99.5% (C <1%, Ca <100 ppm)
M-1127	Magnesium-aluminum oxide	$MgAl_2O_4$ (spinel, equiv. to $MgO - Al_2O_3$)	Powder	-325 mesh (ave. 10 microns or less, calcined)	99.9% (Ca <25 ppm)
MANGANESE					
M-1047	Manganese chloride	$MnCl_2$	Powder	-80 mesh	99.5%
M-1132	Manganese metal	Mn	Pieces	0.8 - 3 mm	99.95%
M-1034	Manganese metal	Mn	Pieces	3 - 12 mm	99.95%
M-1122	Manganese metal	Mn	Powder	-325 mesh	99.6%
M-1036	Manganese metal	Mn	Powder	-325 mesh	99.95%
M-2016	Manganese oxide	MnO_2	Powder	-325 mesh	99.9%
M-2017	Manganese oxide	Mn_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99.9%

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Item #	Name	Compound	Form	Size	Purity
M-1058	Manganese phosphide	Mn_3P_2 (mixture of MnP and Mn_2P)	Powder	-100 mesh	99%
M-1062	Manganese silicide	$MnSi_2$ (x-ray may show$Mn_{15}Si_{26}$)	Powder	-325 mesh (ave. 10 microns or less)	99.5%
M-1066	Manganese telluride	$MnTe_2$	Pieces	6 mm and smaller	99.9%
MOLYBDENUM					
M-1085	Molybdenum metal	Mo	Pellets	12 mm dia. x 6 mm	99.95%
M-2036	Molybdenum metal	Mo	Pellets	3 mm dia. x 3 mm thick (melted)	99.95%
M-2035	Molybdenum metal	Mo	Pellets	6 mm dia. x 6 mm thick (melted)	99.95%
M-1109	Molybdenum metal	Mo	Powder	ave. 2-4 microns (from H2 reduced oxide)	99.95%
M-1099	Molybdenum oxide	MoO_3	Powder	-100 mesh	99.95%
M-1100	Molybdenum oxide	MoO_3	Powder	-100 mesh	99.999%
M-1114	Molybdenum oxide	MoO_2	Powder	-200 mesh (brown)	99.9%
M-1102	Molybdenum selenide	$MoSe_2$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
M-1103	Molybdenum silicide	$MoSi_2$	Powder	-325 mesh (ave. 10 microns or less)	99.5%
M-2014	Molybdenum silicide	Mo_5Si_3	Powder	-325 mesh (ave. 10 microns or less)	99.5%
M-1104	Molybdenum sulfide	MoS_2	Granules	~1 micron average	99%
M-1105	Molybdenum telluride	$MoTe_2$	Powder	ave. 10 microns or less	99.9%
NEODYMIUM					
N-1098	Neodymium fluoride	NdF_3	Powder	-325 mesh (precipitated)	99.9%
N-1010	Neodymium fluoride	NdF_3	Powder	-60 mesh (melted)	99.9%
N-1120	Neodymium fluoride	NdF_3	Tablets	~8-9 mm dia. x 5-6 mm thick (~2g each, sintered)	99.9%
N-1087	Neodymium metal	Nd	Pieces	12 mm and smaller	99.9 (REO basis)% pure
N-1101	Neodymium oxide	Nd_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
N-1015	Neodymium oxide	Nd_2O_2	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure
NICKEL					
N-1108	Nickel aluminide	$NiAl_3$	Powder	-20 mesh	99.9% (Co <600 ppm)
N-1031	Nickel boride	Ni_2B	Powder	-35 mesh	99% (Co <1500 ppm)
N-1089	Nickel metal	Ni	Granules	~5 microns ave.	99.9% (Co <100 ppm)
N-2023	Nickel metal	Ni	Pellets	3 mm dia. x 3 mm thick (melted)	99.995% (Co <1 ppm)
N-2002	Nickel metal	Ni	Pellets	6 mm dia. x 6 mm thick (melted)	99.97% (Co <15 ppm)
N-2009	Nickel metal	Ni	Pellets	6 mm dia. x 6 mm thick (melted)	99.995% (Co <1 ppm)

Item #	Name	Compound	Form	Size	Purity
N-1095	Nickel metal	Ni	Powder	-200, +325 mesh	99.9% (Co <1200 ppm)
N-1023	Nickel metal	Ni	Powder	-325 mesh	99.9% (Co <1200 ppm)
N-1022	Nickel metal	Ni	Powder	-80, +200 mesh	99.9% (Co <1200 ppm)
N-1099	Nickel metal	Ni	Spheres	6 - 12 mm dia.	99.9% (Co <10 ppm)
N-1043	Nickel oxide	NiO	Powder	-100 mesh (green)	99.995% (Co <5 ppm)
N-1042	Nickel oxide	NiO	Powder	-325 mesh (ave. 5 microns or less, black)	99% (Co <1000 ppm)
N-1093	Nickel oxide	NiO	Powder	-325 mesh (ave. 5 microns or less, green)	99% (Co <1000 ppm)
N-1044	Nickel phosphide	Ni2P	Powder	-100 mesh	99.5% (Co <800 ppm)
N-1046	Nickel selenide	NiSe	Pieces	6 mm and smaller	99.9% (Co <500 ppm)
N-1050	Nickel sulfide	NiS (approx. $N_{1\text{-}1.5}S$)	Powder	-200 mesh	99.9% (Co <1000 ppm)
N-1105	Nickel-chromium	60 wt% Ni - 40 wt% Cr	Pieces	3 - 12 mm (sintered)	99.9% (Co <600 ppm)
N-1103	Nickel-chromium	80 wt% Ni - 20 wt% Cr	Pieces	3 - 12 mm (sintered)	99.9% (Co <800 ppm)
NIOBIUM					
N-1102	Niobium metal	Nb	Pellets	6 mm dia. x 6 mm thick (melted)	99.9%
N-1060	Niobium metal	Nb	Powder	-325 mesh (ave. 25 microns or less)	99.8%
N-2001	Niobium oxide	Nb_2O_5	Granules	<10 microns ave.	99.998% (optical grade, Ta <100 ppm)
N-1100	Niobium oxide	Nb_2O_5	Pieces	3 - 12 mm (sintered)	99.95% (optical grade)
N-1071	Niobium oxide	NbO	Powder	-100 mesh	99.9%
N-1073	Niobium oxide	Nb_2O_5	Powder	-325 mesh (ave. 10 microns or less)	99.95% (optical grade)
N-1075	Niobium selenide	$NbSe_2$	Powder	ave. 5 microns or less	99.8%
PALLADIUM					
P-2000	Palladium metal	Pd	Pieces	3 - 6 mm (melted)	99.95%
PHOSPHORUS					
P-1089	Phosphorus	P	Pieces	6 mm and smaller (red)	99.999%
P-1000	Phosphorus	P	Powder	-100 mesh (red)	99.5%
P-1010	Phosphorus oxide	P_2O_5	Powder	-100 mesh	99.9%
POTASSIUM					
P-1052	Potassium fluoride	KF	Powder	-60 mesh	99.9%
P-1054	Potassium molybdate	K_2MoO_4	Powder	-200 mesh	99.9%

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Item #	Name	Compound	Form	Size	Purity
PRASEODYMIUM					
P-1074	Praseodymium fluoride	PrF_3	Pieces	3 - 6 mm (melted)	99.9%
P-1087	Praseodymium oxide	Pr_6O_{11}	Pieces	3 - 12 mm (sintered, brown)	99.9%
P-1088	Praseodymium oxide	Pr_2O_3	Pieces	3 - 12 mm (sintered, green)	99.9%
P-1030	Praseodymium oxide	Pr_6O_{11}	Powder	-325 mesh (ave. 5 microns or less, brown)	99.9 (REO basis)% pure
RHENIUM					
R-1007	Rhenium chloride	$ReCl_5$	Powder	-40 mesh	99.9%
R-2000	Rhenium metal	Re	Pieces	3 - 12 mm	99.99%
R-1000	Rhenium metal	Re	Powder	-325 mesh (ave. 5 - 10 microns)	99.99%
RHODIUM					
R-2003	Rhodium metal	Rh	Powder	-325 mesh	99.8%
RUTHENIUM					
R-2002	Ruthenium oxide	RuO_2	Powder	-100 mesh	99.9%
SAMARIUM					
S-1163	Samarium metal	Sm	Pieces	12 mm and smaller	99.9 (REO basis)% pure
S-1016	Samarium oxide	Sm_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure
S-1180	Samarium oxide	Sm_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.995 (REO basis)% pure (non-rare earths <50 ppm)
S-1020	Samarium sulfide	Sm_2S_3	Powder	-200 mesh	99.9%
S-2019	Samarium-cobalt	Sm_2Co_7	Powder	-50 mesh	99.5%
SCANDIUM					
S-1188	Scandium metal	Sc	Pieces	12 mm and smaller	99.9% (distilled, no Ta)
S-1184	Scandium oxide	Sc_2O_3	Pieces	3 - 12 mm (sintered)	99.99%
S-1179	Scandium oxide	Sc_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.99%
SELENIUM					
S-2000	Selenium metal	Se	Powder	-20 mesh	99.6%
S-1167	Selenium metal	Se	Powder	-200 mesh	99.6%
S-1162	Selenium metal	Se	Shot	3 mm	99.99%
S-1037	Selenium metal	Se	Shot	3 mm	99.999%
SILICON					
S-2022	Silicon carbide	SiC	Granules	<1 micron ave. (black)	99.9%
S-1169	Silicon carbide	SiC	Powder	-325 mesh (black)	99%
S-1058	Silicon carbide	SiC	Powder	ave. 7 microns or less (green)	99.5%
S-2032	Silicon dioxide	SiO_2	Pieces	1 - 3 mm	99.97%

Item #	Name	Compound	Form	Size	Purity
S-2081	Silicon dioxide	SiO_2	Pieces	1 - 3 mm (fused)	99.99%
S-1196	Silicon dioxide	SiO_2	Pieces	1 - 5 mm pieces (fused)	99.97%
S-1060	Silicon dioxide	SiO_2	Pieces	3 - 12 mm (fused)	99.97%
S-1161	Silicon dioxide	SiO_2	Pieces	3 - 12 mm (fused)	99.99%
S-1124	Silicon dioxide	SiO_2	Pieces	3 - 12 mm (fused)	99.99% (<5 ppm OH)
S-1061	Silicon dioxide	SiO_2	Powder	-325 mesh (ave. 2 microns or less)	99.5%
S-1046	Silicon dioxide	SiO_2	Tablets	~20 mm dia. x 8 mm thick (~6g each, fused)	99.99%
S-1050	Silicon metal	Si	Pieces	3 - 6 mm	99.96%
S-1047	Silicon metal	Si	Pieces	3 - 6 mm	99.999%
S-1048	Silicon metal	Si	Powder	-100, +325 mesh	99.999%
S-2020	Silicon metal	Si	Powder	-20 mesh	99.999%
S-1168	Silicon metal	Si	Powder	-200 mesh	98%
S-1053	Silicon metal	Si	Powder	-325 mesh (ave. 10 microns or less)	99.5%
S-1052	Silicon metal	Si	Powder	-325 mesh (ave. 10 microns or less)	99.96%
S-1049	Silicon metal	Si	Powder	-325 mesh (ave. 10 microns or less)	99.999%
S-2077	Silicon monoxide	SiO	Pieces	2 -4 mm	99.9%
S-2075	Silicon monoxide	SiO	Pieces	3 - 6 mm	99.9%
S-1064	Silicon monoxide	SiO	Powder	-325 mesh (ave. 10 microns or less)	99.9%
S-1066	Silicon monoxide	SiO	Powder	-325 mesh (ave. 10 microns or less)	99.97%
S-1177	Silicon nitride	Si_3N_4 (essen. 90% alpha form)	Powder	-325 mesh (ave. 2 microns or less)	99.3%
S-1068	Silicon nitride	Si_3N_4 (essen. 90% alpha form)	Powder	-325 mesh (ave. 2 microns or less)	99.9%
SILVER					
S-1071	Silver metal	Ag	Shot	3 mm	99.99%
S-1084	Silver nitrate	$AgNO_3$	Powder	-10 mesh	99.9%
SODIUM					
S-2023	Sodium aluminum fluoride	$Na_5Al_3F_{14}$ (chiolite)	Pieces	1-4 mm (melted)	99.5%
S-1175	Sodium aluminum fluoride	Na_3AlF_6 (cryolite)	Pieces	3 - 12 mm (melted)	99.5%
S-2039	Sodium carbonate	Na_2CO_3	Powder	-20 mesh	99.9%
S-2002	Sodium chloride	NaCl	Powder	-30 mesh	99.995%
S-1182	Sodium fluoride	NaF	Pieces	3 - 6 mm (melted)	99.9%
S-2030	Sodium fluoride	NaF	Powder	-200 mesh (precipitated)	99.9%
S-1092	Sodium metal	Na	Pieces	3 - 12 mm (in oil)	99.95%
S-1101	Sodium niobate	$NaNbO_3$	Powder	-100 mesh	99.9%
S-1104	Sodium selenide	Na_2Se	Powder	-60 mesh	99.9%
S-1110	Sodium telluride	Na_2Te	Powder	-60 mesh	99.9%
S-1111	Sodium tellurite	Na_2TeO_3	Powder	-100 mesh	99.5%

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Item #	Name	Compound	Form	Size	Purity
STRONTIUM					
S-1119	Strontium aluminate	$SrAl_2O_4$	Powder	-100 mesh	99.5% (Ba <500 ppm)
S-1129	Strontium carbonate	$SrCO_3$	Powder	-100 mesh	99.5% (Ba <500 ppm)
S-1135	Strontium fluoride	SrF_2	Powder	-200 mesh (precipitated)	99.9% (Ba <500 ppm)
S-1136	Strontium hydride	SrH_2	Powder	-60 mesh	99.5% (Ba <1%)
S-2119	Strontium nitride	Sr_3N_2	Powder	-60 mesh	99.5% (Ba <1%)
S-1142	Strontium nitride	Sr_2N	Powder	-60 mesh	99.5% (Ba <1%)
S-1146	Strontium selenide	SrSe	Powder	-20 mesh	99.5% (Ba <500 ppm)
S-1149	Strontium stannate	$SrSnO_3$	Powder	-200 mesh	99.5% (Ba <300 ppm)
S-1150	Strontium sulfide	SrS	Powder	-200 mesh	99.9% (Ba <700 ppm)
S-1156	Strontium tungstate	$SrWO_4$	Powder	-200 mesh	99.9% (Ba <300 ppm)
SULFUR					
S-1159	Sulfur	S	Pieces	6 mm and smaller (soft lumps)	99.999%
TANTALUM					
T-1006	Tantalum carbide	TaC	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1188	Tantalum carbide	Ta_2C	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1009	Tantalum chloride	$TaCl_5$	Powder	-4 mesh	99.99%
T-1239	Tantalum metal	Ta	Pellets	6 mm dia. x 6 mm thick (melted)	99.95%
T-1201	Tantalum metal	Ta	Powder	-140, +325 mesh	99.9%
T-1000	Tantalum metal	Ta	Powder	-325 mesh (ave. 10 microns or less)	99.9%
T-2017	Tantalum metal	Ta	Powder	-325 mesh (ave. 10 microns or less)	99.995% (Nb <25 ppm)
T-1012	Tantalum nitride	TaN	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-2010	Tantalum oxide	Ta_2O_5	Granules	<5 microns ave.	99.997% (optical grade, Nb <10 ppm)
T-1202	Tantalum oxide	Ta_2O_5	Pieces	3 - 12 mm (sintered)	99.95%
T-1013	Tantalum oxide	Ta_2O_5	Powder	-325 mesh	99.99% (optical grade)
T-1186	Tantalum oxide	Ta_2O_5	Tablets	~8-9 mm dia. x 4-5 mm thick (~3g each, sintered)	99.95%
T-2001	Tantalum silicide	$TaSi_2$	Powder	-100 mesh	99.99% (Nb <10 ppm)
TELLURIUM					
T-1024	Tellurium chloride	$TeCl_4$	Powder	-8 mesh	99.9%
T-1020	Tellurium metal	Te	Shot		99.999%

Item #	Name	Compound	Form	Size	Purity
T-1026	Tellurium oxide	TeO_2	Powder	-100 mesh	99.99% (Na 5 ppm)
T-1226	Tellurium oxide	TeO_2	Powder	-100 mesh	99.999%(Na <5 ppm, radioiodine grade)
TERBIUM					
T-1044	Terbium oxide	Tb_4O_7	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure
THORIUM					
T-2117	Thorium fluoride	ThF_4	Pieces	1.7 - 3 mm (melted)	99.99% (for high energy lasers)
T-2116	Thorium fluoride	ThF_4	Pieces	3 - 6 mm (melted)	99.99% (for high energy lasers)
T-2119	Thorium nitratex	$Th(NO_3)_4 - xH_2O$	Granules		99.8%
TIN					
T-1119	Tin metal	Sn	Powder	-200 mesh	99.99%
T-1120	Tin metal	Sn	Powder	-325 mesh	99.8%
T-1212	Tin metal	Sn	Shot	3 mm	99.9%
T-1118	Tin metal	Sn	Shot	3 mm	99.99%
T-1211	Tin metal	Sn	Shot	3 mm	99.999%
T-1137	Tin oxide	SnO_2	Granules	<1 micron ave.	99.9%
T-1218	Tin oxide	SnO_2	Pieces	3 - 12 mm (sintered)	99.9%
T-1141	Tin sulfide	SnS	Powder	-8 mesh	99.5%
T-2125	Tin telluride	SnTe	Pieces	3 - 12 mm	99.99%
TITANIUM					
T-1148	Titanium aluminide	$TiAl_3$	Pieces	6 mm and smaller	99.5%
T-2031	Titanium aluminide	$TiAl_3$	Powder	-325 mesh	99.5%
T-2040	Titanium aluminide	TiAl	Powder	-325 mesh	99.5%
T-1150	Titanium boride	TiB_2	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1222	Titanium carbide	TiC	Powder	-140, +325 mesh	99.5%
T-1227	Titanium carbide	TiC	Powder	ave. 2 microns or less	99.5% (cutting tool grade)
T-1156	Titanium dioxide	TiO_2 (anatase form)	Powder	-325 mesh (ave. 5 - 10 microns)	99.9%
T-1101	Titanium hydride	TiH_2	Powder	-325 mesh (ave. 10 microns or less)	99% (Na < 20ppm)
T-2070	Titanium metal	Ti	Pellets	3 mm dia. x 3 mm thick (melted)	99.995%
T-1145	Titanium metal	Ti	Pellets	6 mm dia. x 6 mm thick (melted)	99.8%
T-2003	Titanium metal	Ti	Pellets	6 mm dia. x 6 mm thick (melted)	99.995%
T-1219	Titanium metal	Ti	Powder	-140, +325 mesh	99.5%
T-1146	Titanium metal	Ti	Powder	-200 mesh	99.5%

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Item #	Name	Compound	Form	Size	Purity
T-2045	Titanium metal	Ti	Powder	-200 mesh	99.9% (Na <10 ppm)
T-1147	Titanium metal	Ti	Powder	-325 mesh	99.5%
T-2022	Titanium metal	Ti	Powder	-325 mesh	99.98%
T-1241	Titanium metal	Ti	Powder	-400 mesh	99.5%
T-1153	Titanium nitride	TiN	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-2100	Titanium oxide	Ti_3O_5	Pieces	1 - 4 mm	99.9%
T-1192	Titanium oxide	TiO_2 (rutile form)	Pieces	3 - 6 mm (sintered)	99.9%
T-1215	Titanium oxide	TiO_2 (rutile form)	Powder	-100 mesh (calcined)	99.998%
T-1155	Titanium oxide	TiO	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1158	Titanium oxide	Ti_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99.8%
T-2041	Titanium oxide	TiO_2 (rutile form)	Powder	-325 mesh (ave. 10 microns or less, sintered)	99.5%
T-2051	Titanium oxide	TiO_2 (rutile form)	Tablets	~10-12 mm dia. X 4-5 mm thick (~1.6g each, black, O2)	99.9%
T-1183	Titanium oxide	TiO_2 (rutile form)	Tablets	~10-12 mm dia. x 4-5 mm thick (~1.6g each, sl. tan)	99.9%
T-1257	Titanium oxide	Ti_2O_3	Tablets	~8-9 mm dia. x 6-7 mm thick (~1.2g each, violet, sintered)	99.9%
T-2038	Titanium oxide	TiO	Tablets	~8-9 mm dia. x 6-7 mm thick (~1.5g each, gold color)	99.9%
T-2039	Titanium oxide	Ti_3O_5	Tablets	~8-9 mm dia. x 7-9 mm thick (1.2g each, black, sintered)	99.9%
T-1159-1	Titanium phosphide	TiP	Granules	<4 microns fisher	Min. 97% (Al <1% , Si <2%)
T-1159	Titanium phosphide	TiP	Powder	-100 mesh	Min. 97% (Al <1% , Si <2%)
T-1162	Titanium silicide	Ti_5Si_3	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1163	Titanium sulfide	TiS_2	Powder	-200 mesh	99.8% (Cl <0.3%)
TUNGSTEN					
T-1169	Tungsten boride	WB	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-2023	Tungsten metal	W	Granules	~5 microns ave.	99.999% (Mo <1 ppm)
T-2049	Tungsten metal	W	Granules	<10 microns ave.	99.995% (Mo <5 ppm)
T-1230	Tungsten metal	W	Pellets	12 mm dia. x 6 mm (sintered)	99.95%
T-1216	Tungsten metal	W	Pieces	1 - 3 mm (crystalline, crushed ingot)	99.95%
T-1165	Tungsten metal	W	Powder	-10, +60 mesh (crystalline, crushed ingot)	99.8%
T-1166	Tungsten metal	W	Powder	-100, +200 mesh (crystalline, crushed ingot)	99.5%
T-1220	Tungsten metal	W	Powder	-200, +325 mesh (crystalline, crushed ingot)	99.5%

Item #	Name	Compound	Form	Size	Purity
T-1167	Tungsten metal	W	Powder	-325 mesh (crystalline, crushed ingot)	99.5%
T-1168	Tungsten metal	W	Powder	ave. 1-2 microns (from H2 reduced oxide)	99.95%
T-2065	Tungsten oxide	WO_3	Granules	<5 microns ave.	99.9%
T-1179	Tungsten oxide	WO_3	Powder	-325 mesh (ave. 10-20 microns, yellow-green)	99.99%
T-1181	Tungsten selenide	WSe_2	Powder	ave. 5 microns or less	99.8%
T-1190	Tungsten silicide	W_5Si_3	Powder	-100 mesh	99.5%
T-1182	Tungsten silicide	WSi_2	Powder	-325 mesh (ave. 10 microns or less)	99.5%
T-1240	Tungsten-titanium	90 wt% W - 10 wt% Ti	Pieces	3 - 12 mm (sintered)	99.9%
VANADIUM					
V-1007	Vanadium chloride	VCl_3	Powder	-4 mesh	99%
V-1022	Vanadium oxide	VO_2	Powder	-100 mesh	99.5%
V-1012	Vanadium oxide	V_2O_3	Powder	-200 mesh	99.9%
V-2002	Vanadium oxide	V_2O_5	Powder	-200 mesh	99.9%
V-1011	Vanadium oxide	VO (X-ray may show $VO_{0.9}$ and/or $VO_{1.27}$)	Powder	-80 mesh	99.5%
V-2003	Vanadyl sulfate	$VOSO_4 - xH_2O$ (V = ~18.5%)	Lumps	(crystalline)	99.9%
YTTERBIUM					
Y-1051	Ytterbium fluoride	YbF_3	Pieces	3 - 12 mm (melted)	99.9%
Y-1052	Ytterbium fluoride	YbF_3	Powder	-60 mesh (melted)	99.9%
Y-1044	Ytterbium metal	Yb	Pieces	12 mm and smaller	99.9 (REO basis)% pure (Ca <1500 ppm)
Y-1000	Ytterbium metal	Yb	Powder	~-40 mesh	99.9 (REO basis)% pure (all rare earths <0.1% total, Ta <0.5%)
Y-1053	Ytterbium oxide	Yb_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
Y-1015	Ytterbium oxide	Yb_2O_3	Powder	-325 mesh (ave. 5 - 10 microns)	99.9 (REO basis)% pure
YTTRIUM					
Y-1057	Yttrium aluminum oxide (YAG)	$Y_3Al_5O_{12}$	Pieces	3 - 12 mm (melted)	99.99%
Y-2000	Yttrium aluminum oxide (YAG)	$Y_3Al_5O_{12}$	Powder	-325 mesh (ave. 10 microns or less)	99.9%
Y-1029	Yttrium carbide	YC_2	Pieces	12 mm and smaller	99.5%
Y-1049	Yttrium fluoride	YF_3	Pieces	3 - 12 mm (melted)	99.9%
Y-1050	Yttrium fluoride	YF_3	Powder	-325 mesh (precipitated)	99.9%
Y-1045	Yttrium metal	Y	Pieces	12 mm and smaller	99.9 (REO basis)% pure (all rare earths <0.1% total, Ta <0.5%)

Core Inorganic Chemical List

Item #	Name	Compound	Form	Size	Purity
Y-1036	Yttrium nitride	YN	Powder	-60 mesh	99.9% (Ta <0.9%)
Y-1046	Yttrium oxide	Y_2O_3	Pieces	3 - 12 mm (sintered)	99.9%
Y-1037	Yttrium oxide	Y_2O_3	Powder	-325 mesh (ave. 5 microns or less, calcined)	99.9 (REO basis)% pure
Y-2004	Yttrium oxide	Y_2O_3	Powder	-325 mesh (ave. 5 microns or less, calcined)	99.999(REO basis)%pure (non rare-earths <50 ppm)
Y-1043	Yttrium oxide	Y_2O_3	Tablets	~10-12 mm dia. x 4-5 mm thick (~1.5g each, sintered)	99.9%
Y-1041	Yttrium sulfide	Y_2S_3	Powder	-200 mesh	99.9%
Y-2005	Yttrium-barium fluoride	90 wt% YF_3 - 10 wt% BaF_2	Pieces	3 - 6 mm	99.9%
Y-2010-1	Yttrium-calcium fluoride	95 wt% YF_3 -5 wt% CaF_2	Pieces	1 - 3 mm	99.9%
ZINC					
Z-1005	Zinc arsenide	Zn_3As_2	Pieces	6 mm and smaller	99.999% (electronic doping grade)
Z-1053	Zinc arsenide	$ZnAs_2$	Pieces	6 mm and smaller	99.9999% (electronic doping grade)
Z-1069	Zinc arsenide	Zn_3As_2	Pieces	6 mm and smaller	99.9999% (electronic doping grade)
Z-1010	Zinc iodide	ZnI_2	Powder	-8 mesh	99.9%
Z-1080	Zinc metal	Zn	Pieces	1 - 5 mm pieces	99.99%
Z-1001	Zinc metal	Zn	Powder	-100, +200 mesh	99.9%
Z-1066	Zinc metal	Zn	Powder	-140, +325 mesh	99.9%
Z-1003	Zinc metal	Zn	Powder	-325 mesh	99.9% (thin oxide coating)
Z-1059	Zinc metal	Zn	Powder	-325 mesh (ave. 4-6 microns)	99.9% (thin oxide coating)
Z-1000	Zinc metal	Zn	Shot	1 - 3 mm	99.999%
Z-1051	Zinc metal	Zn	Shot	3 - 6 mm	99.999%
Z-1011	Zinc nitride	Zn_3N_2 (N typ. 10.5%)	Powder	-200 mesh	99.9%
Z-1012	Zinc oxide	ZnO	Powder	-200 mesh	99.9%
Z-1027	Zinc oxide	ZnO	Tablets	~10-12 mm dia. x 4-5 mm thick (~2.3g each, sintered)	99.9%
Z-1081	Zinc phosphide	Zn_3P_2	Pieces	ave. 3 mm and smaller (agglomerates)	99.9% (electronic doping grade)
Z-2000	Zinc selenide	ZnSe	Pieces	1 - 3 mm (CVD grade)	99.999%
Z-1014	Zinc selenide	ZnSe	Pieces	3 - 6 mm (CVD grade)	99.999%
Z-1016	Zinc selenide	ZnSe	Powder	-325 mesh (ave. 10 microns or less)	99.99%
Z-2006	Zinc sulfide	ZnS	Granules	<1 micron aver.	99%

Item #	Name	Compound	Form	Size	Purity
Z-2076	Zinc sulfide	ZnS	Pellets	10mm x 5mm	99.99%
Z-2001	Zinc sulfide	ZnS	Pieces	1 - 3 mm (CVD grade)	99.99%
Z-1017	Zinc sulfide	ZnS	Pieces	3 - 12 mm (CVD grade)	99.99%
Z-1061	Zinc sulfide	ZnS	Pieces	3 - 12 mm (sintered)	99.9%
Z-1018	Zinc sulfide	ZnS	Powder	-325 mesh (ave. 10 microns or less)	99.99%
Z-1021	Zinc telluride	ZnTe	Powder	-325 mesh (ave. 10 microns or less)	99.99%
ZIRCONIUM					
Z-1034	Zirconium carbide	ZrC	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Hf <200 ppm)
Z-1094	Zirconium hydride	ZrH_2	Powder	-325 mesh (ave. 10 microns or less)	99.7% (Hf <200 ppm)
Z-2059	Zirconium metal	Zr	Pellets	3 mm dia. x 3 mm thick (melted)	99.8% (Hf <4.5%)
Z-1024	Zirconium metal	Zr	Pieces	3 - 6 mm	99.8% (Hf <200 ppm)
Z-1088	Zirconium metal	Zr	Powder	-140, +325 mesh	99.8% (Hf <3000 ppm)
Z-1026	Zirconium metal	Zr	Powder	-325 mesh (ave. 20 microns or less, under argon)	99.7% (Hf <200 ppm)
Z-1063	Zirconium metal	Zr	Powder	ave. 2-5 microns (under water)	94-98%(Hf <4%)
Z-1040	Zirconium nitride	ZrN	Powder	-325 mesh (ave. 10 microns or less)	99.5% (Hf <3%)
Z-2002	Zirconium oxide	ZrO_2 (monoclinic)	Granules	<3 microns (precipitated)	99.95% (sintering grade, Hf <3%)
Z-1074	Zirconium oxide	ZrO_2 (monoclinic)	Pieces	3 - 12 mm (sintered, white)	99.7% (Hf <75 ppm)
Z-1041	Zirconium oxide	ZrO_2	Powder	-325 mesh (ave. 10 microns or less)	99% (Hf <3%)
Z-1042	Zirconium oxide	ZrO_2 (monoclinic)	Powder	-325 mesh (ave. 10 microns or less)	99.7% (Hf <75 ppm, reactor grade)
Z-1086	Zirconium oxide-yttria stabilized	ZrO_2 -10-15 wt% Y_2O_3	Powder	-140, +325 mesh	99% (Hf <3%)
Z-1065	Zirconium oxide-yttria stabilized	ZrO_2 -10-15 wt% Y_2O_3	Powder	-325 mesh (ave. 10 microns or less)	99% (Hf <3%)

PERIODIC TABLE OF THE ELEMENTS

1 IA 1A	2 IIA 2A	3 IIIB 3B	4 IVB 4B	5 VB 5B	6 VIB 6B	7 VIIB 7B	8	9 VIII 8	10	11 IB 1B	12 IIB 2B	13 IIIA 3A	14 IVA 4A	15 VA 5A	16 VIA 6A	17 VIIA 7A	18 VIIIA 8A
1 **H** Hydrogen 1.008																	2 **He** Helium 4.003
3 **Li** Lithium 6.941	4 **Be** Beryllium 9.012											5 **B** Boron 10.811	6 **C** Carbon 12.011	7 **N** Nitrogen 14.007	8 **O** Oxygen 15.999	9 **F** Fluorine 18.998	10 **Ne** Neon 20.180
11 **Na** Sodium 22.990	12 **Mg** Magnesium 24.305											13 **Al** Aluminum 26.982	14 **Si** Silicon 28.086	15 **P** Phosphorus 30.974	16 **S** Sulfur 32.066	17 **Cl** Chlorine 35.453	18 **Ar** Argon 39.948
19 **K** Potassium 39.098	20 **Ca** Calcium 40.078	21 **Sc** Scandium 44.956	22 **Ti** Titanium 47.88	23 **V** Vanadium 50.942	24 **Cr** Chromium 51.996	25 **Mn** Manganese 54.938	26 **Fe** Iron 55.933	27 **Co** Cobalt 58.933	28 **Ni** Nickel 58.693	29 **Cu** Copper 63.546	30 **Zn** Zinc 65.39	31 **Ga** Gallium 69.732	32 **Ge** Germanium 72.61	33 **As** Arsenic 74.922	34 **Se** Selenium 78.09	35 **Br** Bromine 79.904	36 **Kr** Krypton 84.80
37 **Rb** Rubidium 84.468	38 **Sr** Strontium 87.62	39 **Y** Yttrium 88.906	40 **Zr** Zirconium 91.224	41 **Nb** Niobium 92.906	42 **Mo** Molybdenum 95.94	43 **Tc** Technetium 98.907	44 **Ru** Ruthenium 101.07	45 **Rh** Rhodium 102.906	46 **Pd** Palladium 106.42	47 **Ag** Silver 107.868	48 **Cd** Cadmium 112.411	49 **In** Indium 114.818	50 **Sn** Tin 118.71	51 **Sb** Antimony 121.760	52 **Te** Tellurium 127.6	53 **I** Iodine 126.904	54 **Xe** Xenon 131.29
55 **Cs** Cesium 132.905	56 **Ba** Barium 137.327	57-71	72 **Hf** Hafnium 178.49	73 **Ta** Tantalum 180.948	74 **W** Tungsten 183.85	75 **Re** Rhenium 186.207	76 **Os** Osmium 190.23	77 **Ir** Iridium 192.22	78 **Pt** Platinum 195.08	79 **Au** Gold 196.967	80 **Hg** Mercury 200.59	81 **Tl** Thallium 204.383	82 **Pb** Lead 207.2	83 **Bi** Bismuth 208.980	84 **Po** Polonium [208.982]	85 **At** Astatine 209.987	86 **Rn** Radon 222.018
87 **Fr** Francium 223.020	88 **Ra** Radium 226.025	89-103	104 **Rf** Rutherfordium [261]	105 **Db** Dubnium [262]	106 **Sg** Seaborgium [266]	107 **Bh** Bohrium [264]	108 **Hs** Hassium [269]	109 **Mt** Meitnerium [268]	110 **Ds** Darmstadtium [269]	111 **Rg** Roentgenium [272]	112 **Cn** Copernicium [277]	113 **Uut** Ununtrium unknown	114 **Fl** Flerovium [289]	115 **Uup** Ununpentium unknown	116 **Lv** Livermorium [298]	117 **Uus** Ununseptium unknown	118 **Uuo** Ununoctium unknown

Lanthanide Series	57 **La** Lanthanum 138.906	58 **Ce** Cerium 140.115	59 **Pr** Praseodymium 140.908	60 **Nd** Neodymium 144.24	61 **Pm** Promethium 144.913	62 **Sm** Samarium 150.36	63 **Eu** Europium 151.966	64 **Gd** Gadolinium 157.25	65 **Tb** Terbium 158.925	66 **Dy** Dysprosium 162.50	67 **Ho** Holmium 164.930	68 **Er** Erbium 167.26	69 **Tm** Thulium 168.934	70 **Yb** Ytterbium 173.04	71 **Lu** Lutetium 174.967
Actinide Series	89 **Ac** Actinium 227.028	90 **Th** Thorium 232.038	91 **Pa** Protactinium 231.036	92 **U** Uranium 238.029	93 **Np** Neptunium 237.048	94 **Pu** Plutonium 244.064	95 **Am** Americium 243.061	96 **Cm** Curium 247.070	97 **Bk** Berkelium 247.070	98 **Cf** Californium 251.080	99 **Es** Einsteinium [254]	100 **Fm** Fermium 257.095	101 **Md** Mendelevium 258.1	102 **No** Nobelium 259.101	103 **Lr** Lawrencium [262]

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- Large Area Glass
- Led Lighting
- Medical
- Other Chemical Markets

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▪ Pieces	▪ Sputtering Targets	▪ Borides	▪ Phosphides
▪ Pellets	▪ Powders	▪ Carbides	▪ Phosphor Precursors
▪ Evaporation Cones	▪ New Product Development	▪ Fluorides	▪ Selenides
▪ Billets/Ingots	▪ Custom Alloys, Size & Forms	▪ Hydrides	▪ Silicides
▪ Rods	▪ On-site Assistance	▪ Nitrides	▪ Sulfides
▪ Chunks	▪ Backing Plates	▪ Oxides	▪ Tellurides
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