

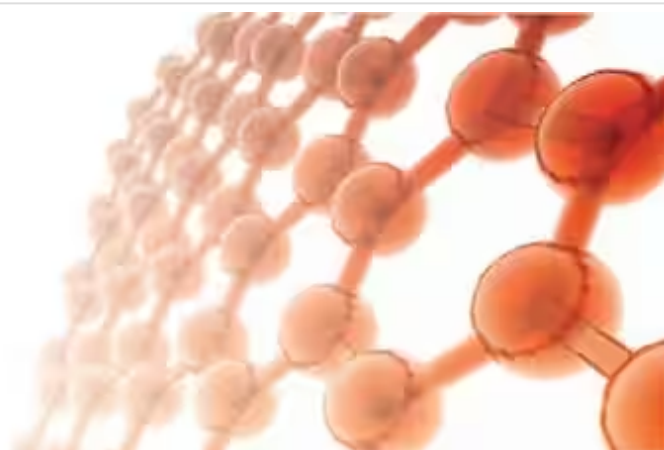
## Other Inorganic compounds



Inorganic oxides are used in diverse applications. Inorganic nanotubes are often metal oxides or nitrides. In recent years, inorganic oxides, predominantly as nanoparticles, increasingly find application as antimicrobials. Of particular interest is MgO, which has generated considerable activity in the field of antimicrobials.

### Nanoparticles

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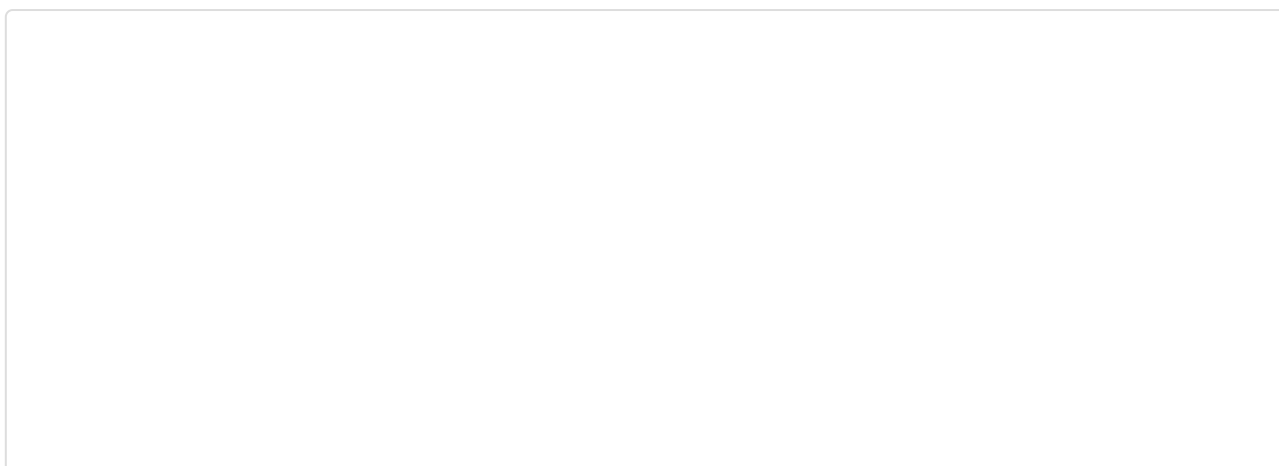
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## Additional Inorganic Compounds


















In this section we list our antimonides, arsenides, carbides, germanides, selenides, silicides, sulfides, and tellurides. Plus a few other compounds.



	A17247	Aliquat® 336 TG
	36239	Aluminon, ACS
	43455	Aluminum antimonide, 99.99% (metals basis)
	14522	Aluminum arsenide, 99.5% (metals basis)
	14038	Aluminum carbide, 99+% (metals basis)
	13132	Aluminum selenide, 99% (metals basis)
	12851	Aluminum sulfide, 99+%, (metals basis)
	H27080	Ammonia, 2M in methanol
	33286	Ammonium sulfide, 20-24% aq. soln.
	40509	Ammonium sulfide, 40-44% w/w aq. soln.
	13130	Antimony(III) selenide, 99.999% (metals basis)
	12521	Antimony(III) sulfide, 98% (metals basis)
	41782	Antimony(III) sulfide, 99.5% (metals basis)
	11683	Antimony(III) sulfide, 99.999% (metals basis)
	45464	Antimony(III) sulfide, 99.999% (metals basis)
	40371	Antimony(III) sulfide, 99.9% (metals basis)
	45922	Antimony(III) telluride, 99.999% (metals basis)

	36282	Antimony(III) telluride, 99.999% (metals basis)
	12849	Arsenic(III) selenide, 99.999% (metals basis)
	43748	Arsenic(III) selenide, 99.999% (metals basis)
	45522	Arsenic(III) sulfide, 99.999% (metals basis)
	41980	Arsenic(III) sulfide, 99.999% (metals basis)
	45616	Arsenic(III) sulfide, 99.9% (metals basis)
	43340	Arsenic(III) sulfide, 99.9% (metals basis)
	41709	Arsenic(III) telluride, 99.999% (metals basis)
	41708	Arsenic(III) telluride, 99.999% (metals basis)
	17284	Arsenic(II) sulfide, tech. 90%
	12848	Barium sulfide, 99.7% (metals basis)
	A15795	Bentonite, sodium form
	A17014	Bismuth antimonide, 99.99%
	47198	Bismuth(III) selenide, 99.995% (metals basis)

	13126	Bismuth(III) selenide, Vacuum Deposition Grade, 99.995% (metals basis)
	45463	Bismuth(III) sulfide, 99.999% (metals basis)
	35834	Bismuth(III) sulfide, 99.9% (metals basis)
	44077	Bismuth(III) telluride, 99.98% (metals basis)
	14519	Bismuth(III) telluride, Vacuum Deposition Grade, 99.999% (metals basis)
	40504	Boron carbide
	10922	Boron carbide, 90+%
	47378	Boron carbide, 99+%
	35670	Boron silicide, 98% (metals basis)
	22773	Cadmium arsenide, 99% (metals basis)
	11057	Cadmium selenide, 99.995% (metals basis)
	36323	Cadmium selenide, 99.995% (metals basis)
	45456	Cadmium selenide, 99.999% (metals basis)
	A14544	Cadmium sulfide, 98%
	38342	Cadmium sulfide, 99.999% (metals basis)



45455 Cadmium sulfide, 99.999% (metals basis)



















41511 Cadmium sulfide, 99.99% (metals basis)





















14365 Cadmium telluride, 99.999% (metals basis)


































45457 Cadmium telluride, 99.999% (metals basis)


















	14367	Cadmium telluride, 99.999% (metals basis)
	14308	Calcium carbide
	89462	Calcium cyanamide, tech.
	14676	Calcium silicide, tech.
	13121	Calcium sulfide, 99.9% (metals basis excluding Sr), Sr typically 500 ppm
	43646	Calcium sulfide, 99% (metals basis excluding Mg), Mg <1%
	32472	Carbon disulfide, 99.9%
	40910	Carbon disulfide, low benzene, 99.9%
	39205	Chromium arsenide, 99% (metals basis)
	11547	Chromium carbide, 99.5% (metals basis)
	42313	Chromium carbide, 99.5% (metals basis)
	A18112	Chromium(III) antimonide, 99%
	40206	Chromium(III) telluride, 99.5% (metals basis)
	13119	Chromium selenide, 99.5% (metals basis)
	12151	Chromium silicide, 99+% (metals basis)
	40224	Cobalt(II) selenide, 99+% (metals basis)














	13114	Cobalt(II) sulfide, 99.5% (metals basis)
	14005	Cobalt(IV) sulfide, 99.5% (metals basis)
	13115	Cobalt silicide, 99% (metals basis)
	45776	Copper based methanol synthesis catalyst
	45604	Copper germanide, 99.99% (metals basis)
	45605	Copper germanium selenide, 99.99% (metals basis)
	17901	Copper(II) selenide, 99.5% (metals basis)
	42925	Copper(II) sulfide, 99.8% (metals basis)
	45660	Copper(I) selenide, 99.5% (metals basis)
	14718	Copper(I) sulfide, 99.5% (metals basis)
	13140	Copper(I) telluride, 99.5% (metals basis)
	89688	Copper powder, 5% in graphite
	12844	Copper silicide, 99.5% (metals basis)
	A13919	Diphenyl diselenide, 98%
	A18364	Diphenyl selenide, 97%
	44224	DuPont Molykote® High-Vacuum Grease
	12933	Gallium antimonide, 99.99% (metals basis)
	88458	Gallium arsenide, 99.999% (metals basis)



	45572	Gallium(III) selenide, 99.99% (metals basis)
	41538	Gallium(III) sulfide, 99.999% (metals basis)
	13387	Gallium(III) sulfide, 99.99% (metals basis)
	41881	Gallium(II) telluride, 99.999% (metals basis)
	45461	Germanium(II) telluride, 99.999%
	12567	Hafnium carbide, 99.5% (metals basis excluding Zr), Zr <1%
	12564	Hafnium silicide
	39223	Hafnium telluride, 99.5% (metals basis)
	14626	Indium antimonide, 99.999% (metals basis)
	88460	Indium antimonide, Electronic Grade, 99.99% (metals basis)
	12932	Indium arsenide, 99.9999% (metals basis)
	22651	Indium arsenide, 99% (metals basis)
	88280	Indium(III) selenide, 99.99% (metals basis)
	44835	Indium(III) sulfide, 99.98% (metals basis)
	44836	Indium(III) sulfide, 99.995% (metals basis)
	45563	Indium(III) sulfide, 99.999% (metals basis)

	89654	Iron, 5% in graphite
	36190	Iron arsenide, 99.5% (metals basis)
	14022	Iron disilicide, 99.9% (metals basis)
	31112	Iron(II) selenide, 99.9% (metals basis)
	22388	Iron(II) sulfide, 99.98% (metals basis)
	14024	Iron(II) sulfide, 99.9% (metals basis)
	17422	Iron(II) sulfide, 99% (metals basis)
	A15569	Iron(II) sulfide, tech.
	14019	Iron silicide, 99.9% (metals basis)
	12842	Iron sulfide, 99.9% (metals basis)
	36350	Lead antimonide, 99+% (metals basis)
	44916	Lead(II) selenide, 99.999+% (metals basis)
	45462	Lead(II) sulfide, 99.995% (metals basis)
	88284	Lead(II) sulfide, 99.9% (metals basis)
	A10268	Lead(II) sulfide, Pb 82% min.

	88285	Lead(II) telluride, 99.999% (metals basis)
	36317	Lead(II) telluride, 99.99% (metals basis)
	L16023	Lithium amide, 95%
	44100	Lithium deuteride, 98%(Isotopic)
	12839	Lithium sulfide, 99.9% (metals basis)
	45517	Magnesium germanide, 99.99% (metals basis)
	12837	Magnesium silicide, 99.5% (metals basis)
	45518	Magnesium silicide, 99.99% (metals basis)
	36384	Manganese aluminide, 99.5% (metals basis)
	36390	Manganese antimonide, 99.5% (metals basis)
	36385	Manganese antimonide, 99.5% (metals basis)
	12835	Manganese(II) sulfide, 99.9% (metals basis)
	13134	Manganese(IV) telluride, 99.9% (metals basis)
	36389	Manganese telluride, 99.9% (metals basis)
	13625	Mercury(II) iodide, ultra dry, 99.999% (metals basis)
	12832	Mercury(II) selenide, 99.999% (metals basis)
	22878	Mercury(II) selenide, 99.9% (metals basis)

	13483	Mercury(II) sulfide, black
	12992	Mercury(II) sulfide, black, Puratronic®, 99.999% (metals basis)
	13482	Mercury(II) sulfide, red
	36666	Mercury(II) telluride, 99.999% (metals basis)
	88244	Mercury(II) telluride, 99% (metals basis)
	12192	Molybdenum carbide, 99.5% (metals basis)
	13112	Molybdenum(IV) selenide, 99.9% (metals basis)
	12213	Molybdenum(IV) sulfide, 98%
	41827	Molybdenum(IV) sulfide, 98%
	11549	Molybdenum silicide, Mo 61% min, typically 99.5% (metals basis)
	36269	Nickel arsenide, 99.5% (metals basis excluding Co), Co 0.1-1%
	13106	Nickel(II) selenide, 99.9% (metals basis)
	13105	Nickel(II) telluride, 99.9% (metals basis excluding Co), Co 0.1-1%
	31276	Nickel on silica-alumina, catalyst



36251 Nickel silicide, 99% (metals basis excluding Co), Co 0.1-1%





















35661 Nickel sulfide, 99.9% (metals basis)



































45498 Nickel sulfide, 99% (metals basis)




















12147 Niobium carbide, 99+% (metals basis)

	13101	Niobium(IV) selenide, 99.8% (metals basis)
	39471	Niobium silicide, 99.5% (metals basis)
	13100	Niobium silicide, 99.85% (metals basis)
	42131	ORP test solution, 200-275 mV
	L10538	Perfluorokerosene, low boiling
	41550	Potash, sulfurated, S 11.8% min as sulfide
	47023	Rhenium, 1% on 2.5mm alumina spheres
	89482	Rhenium(IV) sulfide, 99%
	36383	Rhenium silicide, 99.9% (metals basis)
	42943	Selenium sulfide, 94%
	68104	Selenium sulfide, 97%
	43332	Silicon carbide, 99% (metals basis)
	40155	Silicon carbide, alpha-phase, 99.8% (metals basis)
	14165	Silicon carbide, beta-phase, 99% (metals basis)
	A14470	Silicon carbide powder, coarse, 46 grit
	A16601	Silicon carbide powder, fine, 320 grit
	A11337	Silicon carbide powder, medium, 120 grit
	A13561	Silicon carbide powder, superfine, 600 grit

	38787	Silicon carbide whiskers, 99% (metals basis)
	45458	Silver sulfide, 99.999% (metals basis)
	35102	Sodium borodeuteride, 99% (Isotopic)
	87389	Sodium hydrogen sulfide, anhydrous
	36187	Sodium selenide, 99.8% (metals basis)
	12585	Sodium selenite, anhydrous, 99% min, typically 99.75% min (metals basis)
	65122	Sodium sulfide, anhydrous
	11664	Sodium sulfide hydrate, tech.
	36622	Sodium sulfide nonahydrate, ACS, 98.0% min
	88697	Sodium sulfide, tech., 90+%, H <sub>2</sub> O 5% max
	41777	Sodium telluride, 99.9% (metals basis)
	A17019	Strontium lanthanum sulfide
	89895	Strontium sulfide, 99.9% (metals basis)
	A18680	Sulfamide, 99%
	12144	Tantalum carbide, 99.5% (metals basis)
	44965	Tantalum disilicide
	36296	Thallium(I) selenide, 99.9% (metals basis)
	36363	Tin arsenide, 99.999% (metals basis)

	14051	Tin(II) sulfide, 99.5%
	89186	Tin(II) telluride, 99.999% (metals basis)
	18781	Tin selenide, 99.999% (metals basis)
	40178	Titanium carbide, 99.5% (metals basis)
	12826	Titanium(IV) sulfide, 99.8% (metals basis)
	13087	Titanium silicide, 99.5% (metals basis)
	13088	Titanium silicide, 99.5% (metals basis)
	12482	Tungsten carbide, 99.5% (metals basis)
	41665	Tungsten carbide, 99.5% (metals basis)
	40502	Tungsten carbide, 99% (metals basis)
	13084	Tungsten(IV) selenide, 99.8% (metals basis)
	11551	Tungsten silicide, 99.5% (metals basis)
	11829	Tungsten sulfide, 99.8% (metals basis)
	12141	Vanadium carbide, 99% (metals basis)



	A17623	Zinc arsenide, 99%
	36189	Zinc arsenide, 99.999% (metals basis)
	35660	Zinc arsenide, 99.999% (metals basis)
	A19947	Zinc selenide
	13241	Zinc selenide, 99.995% (metals basis)
	10999	Zinc selenide, 99.999% (metals basis)
	41958	Zinc selenide, 99.99% (metals basis)
	88298	Zinc selenide, Optical Grade, 99.999% (metals basis)
	A16296	Zinc sulfide, 98%
	45454	Zinc sulfide, 99.995% (metals basis)
	13239	Zinc sulfide, 99.99% (metals basis)
	40091	Zinc sulfide, 99.99% (metals basis)
	88299	Zinc sulfide, 99.9% (metals basis)
	36595	Zinc telluride, 99.998% (metals basis)
	44412	Zinc telluride, 99.99% (metals basis)
	35808	Zirconium carbide, 99.5% (metals basis excluding Hf), Hf< 200ppm
	36322	Zirconium silicide, 99.5% (metals basis)

# Inorganic Hydroxides





















The hydroxide moiety contains a oxygen-hydrogen bond, carrying a negative charge. Some of the inorganic hydroxides, like sodium hydroxide, calcium hydroxide, and other alkali hydroxides, are strong bases that are important industrial alkalis. Some of them, like hydroxides of zinc, aluminium, tin, beryllium, and lead, are amphoteric, as they act like both acids and bases.


















Lithium hydroxide is used in breathing gas purification systems for spacecraft, submarines, and rebreathers to remove carbon dioxide from exhaled gas. Alkaline earth metal compounds, like magnesium hydroxide, calcium hydroxide, strontium hydroxide, and barium hydroxide, are strong bases. A solution of calcium hydroxide and limewater can be used to test for carbon dioxide. Soda lime, which is a mixture of NaOH and Ca(OH)<sub>2</sub>, is used as a CO<sub>2</sub> absorbent. Unlike the alkali and alkaline earth hydroxides, boron hydroxide, B(OH)<sub>3</sub>, known as boric acid, is an acid that does not dissociate in aqueous solution. Basic aluminium hydroxide is also amphoteric. Gallium hydroxide, indium hydroxide, and thallium (III) hydroxide are also amphoteric.







The hydroxide ion acts as a base catalyst in several organic transformations. Hydroxide can also act as a Lewis-base catalyst, and as a ligand. Organic reactions where hydroxide can act as a nucleophilic reagent are during amide hydrolysis, in the Cannizzaro reaction, during nucleophilic aliphatic substitution, during nucleophilic aromatic substitution, and in elimination reactions. Alkali metal hydroxides, such as sodium hydroxide, are used in the manufacture of pulp and paper, textiles, soaps, and detergents. Potassium hydroxide is used in agriculture, batteries, petroleum and natural gas refining, and manicure treatments.







































	12366	Aluminum hydroxide, 76.5% min
	35576	Ammonium hydroxide, 0.1N Standardized Solution
	35614	Ammonium hydroxide, 1.0N Standardized Solution
	35575	Ammonium hydroxide, 10% v/v aq. soln.
	87903	Ammonium hydroxide, 25% NH <sub>3</sub> , 99.99% (metals basis)
	L13168	Ammonium hydroxide, 28% NH <sub>3</sub>
	35577	Ammonium hydroxide, 5.0N Standardized Solution
	35574	Ammonium hydroxide, 50% v/v aq. soln.
	88576	Ammonium hydroxide, Acculute Standard Volumetric Solution, Final Concentration 0.1N

	33285	Ammonium hydroxide, ACS, 28.0-30.0% NH <sub>3</sub>
	38741	Ammonium hydroxide, Environmental Grade, 20-22% NH <sub>3</sub>
	12195	Barium hydroxide, anhydrous, 94-98%
	45888	Barium hydroxide monohydrate, 95%
	A12714	Barium hydroxide octahydrate, 97%
	40476	Bismuth hydroxide nitrate oxide, Bi <sub>2</sub> O <sub>3</sub> 79% min
	40397	Bismuth hydroxide, tech.
	89297	Cadmium hydroxide, Cd 70% min
	A12650	Calcium hydroxide, 95%
	10020	Cesium hydroxide, 50% w/w aq. soln., 99.9% (metals basis)
	16505	Cesium hydroxide, 50% w/w aq. soln., 99% (metals basis)
	B22480	Cesium hydroxide monohydrate, 96%; cesium carbonate <5%
	12518	Chromium(III) acetate hydroxide, Cr 24%
	B22045	Cobalt(II) hydroxide, 97%
	12524	Cobalt(II) hydroxide, 99.9% (metals basis)
	33305	Copper(II) carbonate dihydroxide, Cu 55% min
	32733	Copper(II) hydroxide, tech. 94%, stab.
	40100	Indium(III) hydroxide, 99.8% (metals basis)

	19496	Iron(III) hydroxide, alpha-phase
	A16267	Iron(III) hydroxide, alpha-phase, 99+%
	17531	Iron(III) hydroxide, gamma-phase
	43123	Lanthanum(III) hydroxide, 99.95% (REO)
	13407	Lithium hydroxide, anhydrous, 98%
	A15519	Lithium hydroxide monohydrate, 98%
	43171	Lithium hydroxide monohydrate, ACS, 98% min
	H36379	Lithium hydroxide monohydrate, battery grade
	13409	Lithium hydroxide monohydrate, LiOH 56.5% min
	A18070	Magnesium carbonate hydroxide pentahydrate, light, 98%
	33333	Magnesium carbonate hydroxide tetrahydrate, Reagent Grade, MgO $\approx$ 40-43.5%
	12367	Magnesium hydroxide, 95-100.5%
	13395	Methylmercury(II) hydroxide, 1M in H <sub>2</sub> O
	39486	Neodymium(III) hydroxide hydrate, 99% (REO)
	12517	Nickel(II) hydroxide, Ni 61%
	35599	Potassium hydroxide, 0.1N Standardized Solution
	42734	Potassium hydroxide, 0.1N Standardized Solution in methanol

	35595	Potassium hydroxide, 0.5N Standardized Solution
	42735	Potassium hydroxide, 0.5N Standardized Solution in methanol
	35592	Potassium hydroxide, 1.0N Standardized Solution
	42736	Potassium hydroxide, 1.0N Standardized Solution in methanol
	35615	Potassium hydroxide, 10% w/v aq. soln.
	46330	Potassium hydroxide, 25% w/v aq. soln.

	10979	Potassium hydroxide, 30% w/v aq. soln.
	47010	Potassium hydroxide, 45% w/v aq. soln.
	46072	Potassium hydroxide, 45% w/w aq. soln
	35621	Potassium hydroxide, 50% w/v aq. soln.
	88604	Potassium hydroxide, Acculute Standard Volumetric Solution, Final Concentration 0.1N
	88602	Potassium hydroxide, Acculute Standard Volumetric Solution, Final Concentration 0.5N
	13451	Potassium hydroxide, ACS, 85% min, $K_2CO_3$ 2.0% max
	A16199	Potassium hydroxide, flake, 85%
	A18854	Potassium hydroxide, pellets, 85%
	10565	Rubidium hydroxide, 50% w/w aq. soln., 99.6+% (metals basis)
	13481	Rubidium hydroxide hydrate, 99% (metals basis)
	42346	Sodium deuterioxide, 40% w/w solution in $D_2O$ , 99.5%(Isotopic)
	35620	Sodium hydroxide, 0.01N Standardized Solution
	35623	Sodium hydroxide, 0.05N Standardized Solution
	35625	Sodium hydroxide, 0.1N Standardized Solution
	35627	Sodium hydroxide, 0.5N Standardized Solution
	35635	Sodium hydroxide, 10.0N Standardized Solution
	35629	Sodium hydroxide, 1.0N Standardized Solution

	35631	Sodium hydroxide, 2.0N Standardized Solution
	35637	Sodium hydroxide, 20% w/v aq. soln.
	43771	Sodium hydroxide, 25% w/v aq. soln.
	87864	Sodium hydroxide, 30% w/w aq. soln.
	L13095	Sodium hydroxide, 32% w/w aq. soln.
	35639	Sodium hydroxide, 40% w/v aq. soln.
	35633	Sodium hydroxide, 5.0N Standardized Solution
	33382	Sodium hydroxide, 50% w/w aq. soln.
	35604	Sodium hydroxide, 5% w/v aq. soln.
	88623	Sodium hydroxide, Acculute Standard Volumetric Solution, Final Concentration 0.1N
	88620	Sodium hydroxide, Acculute Standard Volumetric Solution, Final Concentration 0.5N
	45780	Sodium hydroxide, beads/pellets, 99.99% (metals basis)
	A18395	Sodium hydroxide, flake, 98%
	13455	Sodium hydroxide (low chloride), ACS, 97.0% min
	B24414	Sodium hydroxide, pearl, 97%
	A16037	Sodium hydroxide, pellets, 98%
	41351	Strontium hydroxide octahydrate, 99% (metals basis)
	12199	Strontium hydroxide octahydrate, tech.



# Nitrides

















Nitrides are compounds of nitrogen having an oxidation state of 3-. Nitrides can be classified into three general categories: ionic, interstitial, and covalent. Alkali and alkaline earth nitrides are called as ionic nitrides. Alkaline earth nitrides are formed with the formula  $M_3N_2$  (for example,  $Ca_3N_2$ ,  $Ba_3N_2$ ,  $Mg_3N_2$ ). These compounds undergo hydrolysis to produce ammonia and the metal hydroxide. Transition metal nitrides form compounds with the formula  $MN$ ,  $M_2N$ , and  $M_4N$ . The largest group of nitrides is the interstitial nitrides. These compounds have high melting points. These are extremely hard, and usually have metallic luster and high conductivities. The nitrides of p-block elements are called as covalent nitrides. These have wide range of properties depending on nitrogen bonding (eg.,  $BN$ ,  $(CN)_2$ ,  $P_3N_5$ ,  $S_4N_4$ ,  $S_2N_2$ ).




























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	11546	Aluminum nitride, N 32.0% min
	40608	Boron nitride
	40607	Boron nitride
	40461	Boron nitride, 99.5% (metals basis)
	44837	Boron nitride, 99.5% (metals basis)
	44917	Boron nitride, 99.5% (metals basis)
	11078	Boron nitride, 99.5% (metals basis)
	44838	Boron nitride, 99.5% (metals basis)
	44839	Boron nitride, 99.5% (metals basis)
	40389	Boron nitride, Aerosol Refractory Paint, 97+%, (balance B <sub>2</sub> O <sub>3</sub> )
	43256	Boron nitride, low binder, 99.5% (metals basis)
	43252	Boron nitride, low binder, 99.5% (metals basis)
	45575	Boron nitride, low binder, 99.5% (metals basis)
	45573	Boron nitride, low binder, 99.5% (metals basis)

	43255	Boron nitride, low binder, 99.5% (metals basis)
	43773	Boron nitride paste
	43278	Boron nitride, Refractory Brushable Paint, BN 10%
	43279	Boron nitride, Refractory Brushable Paint, BN 23%
	44086	Boron nitride, Refractory Brushable Paint, BN 31%
	13124	Calcium nitride, 99% (metals basis)
	12149	Chromium nitride
	46709	Gadolinium(III) nitride, 99.5% (REO)
	40218	Gallium(III) nitride, 99.99% (metals basis)
	88198	Iron nitride
	39342	Lanthanum(III) nitride, 99.9% (REO)
	35479	Lithium nitride, 99.4% (metals basis)
	41946	Magnesium nitride, 99.6% (metals basis)
	42091	Neodymium(III) nitride, 99.9% (REO)
	12146	Niobium nitride
	40379	Silicon(IV) nitride, 99.3% (metals basis), typically 90% beta-phase
	42949	Silicon(IV) nitride, alpha-phase, 95%
	14704	Silicon(IV) nitride, alpha-phase, 99.9% (metals basis)
	45611	Silicon(IV) nitride, amorphous, nanopowder, 98.5+%

	49113	Silicon(IV) nitride, Electronic Grade, 99.85% (metals basis), 90+% alpha-phase
	13093	Tantalum nitride, 99.5% (metals basis)
	41556	Titanium nitride, 99.5% (metals basis)
	14510	Titanium nitride, 99.7% (metals basis)
	88212	Zinc nitride, 99% (metals basis)
	12138	Zirconium nitride, 99.5% (metals basis excluding Hf), Hf <3%

# Carbonates



Inorganic carbonates are ionic compounds containing carbonate ( $\text{CO}_3^{2-}$ ) and metal ions. Some important carbonates are  $\text{Li}_2\text{CO}_3$ ,  $\text{Na}_2\text{CO}_3$ ,  $\text{K}_2\text{CO}_3$ ,  $\text{MgCO}_3$ ,  $\text{CaCO}_3$ ,  $\text{BaCO}_3$ ,  $\text{Ti}_2\text{CO}_3$ ,  $\text{PbCO}_3$ ,  $\text{ZnCO}_3$ ,  $\text{CuCO}_3$ ,  $\text{Ag}_2\text{CO}_3$  and  $\text{Fe}_2\text{CO}_3$ . Group-1 and 2 elements form colorless carbonates and transition element carbonates may be colored. Most carbonate salts are insoluble except lithium, sodium, potassium, ammonium and uranium carbonates. On heating carbonates decompose to carbon dioxide and oxide.














Inorganic carbonates are used as raw materials in several industrial products/processes such as glass making, drug development, paper and pulp processing, silicates, soap and detergent production, water softener, drying agent, fireproofing, fire extinguishing compositions, clay and concrete production. Magnesium carbonate is used in antacid, table salt and tooth paste preparations. Lithium carbonate is used in batteries and essential medicines. Sodium percarbonate is used in some eco-friendly cleaning products and as a laboratory source of anhydrous hydrogen peroxide. Cesium carbonate is a base of choice for synthetic organic chemists for large number of N-alkylations of sensitive compounds; for clean oxidation of alcohols into carbonyl compounds; for Suzuki, Heck, and Sonogashira couplings.





































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	36229	Ammonium carbonate, ACS, NH <sub>3</sub> 30.0+%
	A13955	Ammonium carbonate, NH <sub>3</sub> ca 30%
	12980	Ammonium carbonate, Puratronic®, 99.999% (metals basis)
	A13195	Barium carbonate, 99%
	14341	Barium carbonate, 99+%
	14452	Barium carbonate, 99.95% (metals basis)
	36236	Barium carbonate, ACS, 99.0-101.0%
	10645	Barium carbonate, Puratronic®, 99.997% (metals basis)
	43478	Barium carbonate, tech.
	33216	Bismuth carbonate oxide, 98.5% min
	A15812	Cadmium carbonate, 97%
	11864	Cadmium carbonate, 99.99% (metals basis)
	12229	Cadmium carbonate, 99+% (metals basis)

	10660	Cadmium carbonate, Puratronic®, 99.998% (metals basis)
	12365	Calcium carbonate, 98%
	11403	Calcium carbonate, 99.5% (metals basis)
	10996	Calcium carbonate, 99.95% (metals basis)
	36337	Calcium carbonate, ACS, low in alkalies, 99.0% min
	36399	Calcium carbonate, chelometric standard, ACS, 99.95-100.05%
	43073	Calcium carbonate, Puratronic®, 99.997% (metals basis)
	47235	Calcium carbonate, Puratronic®, 99.999% (metals basis)
	10679	Calcium carbonate, Puratronic®, 99.99% (metals basis)
	44496	Cerium(III) carbonate hydrate, REacton®, 99.999% (REO)
	15295	Cerium(III) carbonate hydrate, REacton®, 99.9% (REO)
	87635	Cesium carbonate, 99.99% (metals basis)
	10924	Cesium carbonate, 99.9% (metals basis)
	12887	Cesium carbonate, 99% (metals basis)
	12117	Cesium carbonate, Puratronic®, 99.994% (metals basis)
	14234	Cesium hydrogen carbonate, 99.99% (metals basis)
	42745	Cobalt(II) carbonate, 99.5% (metals basis)
	11343	Cobalt(II) carbonate, 99% (metals basis), Co 45% min

	33305	Copper(II) carbonate dihydroxide, Cu 55% min
	15286	Dysprosium(III) carbonate tetrahydrate, 99.9% (REO)
	A17209	Erbium(III) carbonate hydrate, 99.99%
	13212	Europium(III) carbonate hydrate, REacton®, 99.99% (REO)
	40254	Gadolinium(III) carbonate hydrate, 99% (REO)
	13207	Gadolinium(III) carbonate hydrate, REacton®, 99.99% (REO)
	14589	Holmium(III) carbonate hydrate, REacton®, 99.9% (REO)
	16639	Lanthanum(III) carbonate hydrate, 99.9% (REO)
	13197	Lanthanum(III) carbonate hydrate, REacton®, 99.99% (REO)
	40119	Lead(II) carbonate, ACS
	42089	Lead(II) carbonate, basic, 99% (metals basis)
	33328	Lead(II) carbonate, basic, ACS
	10721	Lead(II) carbonate, Puratronic®, 99.999% (metals basis)
	13418	Lithium carbonate, 99%
	10734	Lithium carbonate, Puratronic®, 99.998% (metals basis excluding Ca), Ca LT 20ppm
	14569	Lutetium(III) carbonate hydrate, REacton®, 99.9% (REO)






















A18070 Magnesium carbonate hydroxide pentahydrate, light, 98%




















33333 Magnesium carbonate hydroxide tetrahydrate, Reagent Grade, MgO  $\approx$ 40-43.5%



14344 Manganese(II) carbonate, 99.9% (metals basis excluding Na)

	14324	Manganese(II) carbonate, Mn 44% min
	40756	Manganese(II) carbonate, Puratronic®, 99.985% (metals basis)
	15301	Neodymium(III) carbonate hydrate, 99.9% (REO)
	22897	Nickel(II) carbonate, anhydrous, 98%
	40106	Nickel(II) carbonate (basic) hydrate, Ni 40% min, typically 99.5% (metals basis)
	10814	Nickel(II) carbonate (basic) hydrate, Puratronic®, 99.996% (metals basis)
	12609	Potassium carbonate, ACS, 99.0% min
	A16625	Potassium carbonate, anhydrous, 99%
	10838	Potassium carbonate, Puratronic®, 99.997% (metals basis)
	10981	Potassium carbonate sesquihydrate, ACS, 98.5-101.0%
	14609	Praseodymium(III) carbonate octahydrate, 99.9% (REO)
	13182	Praseodymium(III) carbonate octahydrate, REacton®, 99.99% (REO)
	A12240	Rubidium carbonate, 99%
	10562	Rubidium carbonate, 99.8% (metals basis)
	11105	Rubidium carbonate, Puratronic®, 99.975% (metals basis)
	13177	Samarium(III) carbonate hydrate, REacton®, 99.99% (REO)
	13646	Scandium(III) carbonate hydrate, REacton®, 99.99% (REO)

	L13098	Sodium carbonate, 98%
	10861	Sodium carbonate, anhydrous, Puratronic®, 99.997% (metals basis)
	A17484	Sodium carbonate decahydrate, 99+%
	14108	Sodium carbonate monohydrate, 85% min
	36485	Sodium carbonate monohydrate, ACS, 99.5% min
	10863	Sodium hydrogen carbonate, Puratronic®, 99.998% (metals basis)
	A16045	Sodium percarbonate, 13-14% active oxygen
	33392	Strontium carbonate, 97.5%
	35793	Strontium carbonate, 99.99% (metals basis)
	14343	Strontium carbonate, 99%, Ba 1%
	36618	Strontium carbonate, Puratronic®, 99.994% (metals basis)
	14599	Terbium(III) carbonate hydrate, REacton®, 99.9% (REO)
	14574	Ytterbium(III) carbonate hydrate, REacton®, 99.9% (REO)
	40651	Yttrium(III) carbonate hydrate, 99.9% (REO)
	13157	Yttrium(III) carbonate hydrate, REacton®, 99.99% (REO)
	A14590	Zinc carbonate basic, 97%, Zn >58.0%
	43245	Zirconium carbonate, basic hydrate

# Inorganic Oxides



Inorganic oxides are binary compounds of oxygen with an element. Inorganic Oxides are classified into acidic or basic based on their acid-base characteristics.

Acidic oxides give an acid when combined with water. Examples of Acid oxides are Sulfurous acid, Carbonic acid and Sulfuric acid. Acid oxides are also known as acid anhydrides.

Basic oxides give a base in water. Generally Group I and II elements form basic oxides. Examples of Basic oxides are Copper (II) oxide, Magnesium oxide and Aluminum oxide.










Amphoteric oxides are metallic oxides which show both basic as well as acidic properties. When they react with an acid, they produce salt and water, showing basic properties. While reacting with alkalis they form salt and water showing acidic properties. A common example of an amphoteric oxide is aluminum oxide.


















Neutral oxides which show neither basic nor acidic properties, They do not form salts when reacted with acids or bases. Carbon monoxide (CO); nitrous oxide (N<sub>2</sub>O); nitric oxide (NO) are neutral oxides.




















Preparation: Inorganic Oxides can be prepared by direct heating of element with oxygen, reaction of oxygen with compounds at high temperatures, oxidation of metals and non-metals with Nitric acid.






In a periodic table, the oxides of elements in a period become progressively more acidic as one goes from left to right, Basic oxides are present on the left side and acidic oxides are found on the right side of the periodic table.




















	12733	Aluminum oxide, 20% in H <sub>2</sub> O, colloidal dispersion
	11503	Aluminum oxide, 5016-A, Basic, Brockmann Grade I
	47171	Aluminum oxide, 99%
	12553	Aluminum oxide, 99% (metals basis)
	45956	Aluminum oxide, acidic, HPLC Flash Grade
	45935	Aluminum oxide, acidic, HPLC Flash Grade
	11501	Aluminum oxide, activated, acidic, Brockmann Grade I, 58 angstroms
	11502	Aluminum oxide, activated, neutral, Brockmann Grade I, 58 angstroms
	A17141	Aluminum oxide, activated, neutral, Brockmann Grade II














	43266	Aluminum oxide, activated, neutral, gamma-phase, 99.9% (metals basis)
	43119	Aluminum oxide, Aerosol Refractory Brushable Paint
	40391	Aluminum oxide, Aerosol Refractory Paint
	42573	Aluminum oxide, alpha-phase, 99.95% min (metals basis)
	47261	Aluminum oxide, alpha-phase, 99.997% (metals basis)
	38368	Aluminum oxide, alpha-phase, 99.997% (metals basis)
	36341	Aluminum oxide, alpha-phase, 99.99% (metals basis)
	42571	Aluminum oxide, alpha-phase, 99.9% (metals basis)
	42572	Aluminum oxide, alpha-phase, 99.9% (metals basis)
	43833	Aluminum oxide, alpha-phase, catalyst support, low surface area, trimodal
	14558	Aluminum oxide, alpha-phase, gamma-phase, 99.99% (metals basis)
	46001	Aluminum oxide, basic, for TLC
	45949	Aluminum oxide, basic, HPLC Flash Grade
	46071	Aluminum oxide, basic, HPLC Flash Grade
	33195	Aluminum oxide, calcined, insulating powder
	43855	Aluminum oxide, catalyst support, high surface area
	43856	Aluminum oxide, catalyst support, intermediate surface area


















	43857	Aluminum oxide, catalyst support, intermediate surface area (low SiO <sub>2</sub> )
	44849	Aluminum oxide, catalyst support, low silica
	43862	Aluminum oxide, catalyst support, low surface area
	33201	Aluminum oxide, cement, Al <sub>2</sub> O <sub>3</sub> 95% (SiO <sub>2</sub> ≈5%)
	46200	Aluminum oxide, for Bio-Mass Cleanup
	46066	Aluminum oxide, for Decolorization
	46082	Aluminum oxide, for Dioxin Analysis
	46033	Aluminum oxide, for PCB removal
	45998	Aluminum oxide, for Process Cleanup (Scavenger)
	46105	Aluminum oxide, for Process Cleanup (Scavenger)
	46145	Aluminum oxide, for Pyrogen removal
	33200	Aluminum oxide, fused, insulating powder, 99.7+%
	33199	Aluminum oxide, fused, insulating powder, 99.7+%
	39812	Aluminum oxide, gamma-phase, 99.97% (metals basis)
	45035	Aluminum oxide, gamma-phase, 99.997% (metals basis)
	47202	Aluminum oxide, gamma-phase, 99.997% (metals basis)
	10459	Aluminum oxide, gamma-phase, alpha-phase, 99.98% (metals basis)
	43832	Aluminum oxide, gamma-phase, catalyst support, high surface area, bimodal
	44757	Aluminum oxide, gamma-phase, nanopowder, 99+%



















	44931	Aluminum oxide, NanoArc□, AL-0405, 99.5%
	45586	Aluminum oxide, NanoArc® AL-2220, 30% in mineral spirits, colloidal dispersion with dispersant
	45790	Aluminum oxide, NanoDur® AL-2420, 50% in mineral spirits, colloidal dispersion with dispersant
	46025	Aluminum oxide, neutral, HPLC Flash Grade
	45985	Aluminum oxide, neutral, HPLC Flash Grade



































	42767	Aluminum oxide, polymeric precursor, 10% w/v solution in toluene
	10627	Aluminum oxide, Puratronic®, 99.995% (metals basis)
	43863	Aluminum oxide-silicon oxide (13%), catalyst support, low surface area, macroporous
	46065	Aluminum oxide, super activated, acidic, Grade I
	45886	Aluminum oxide, super activated, basic, Grade I
	45901	Aluminum oxide, super activated, neutral, Grade I
	14484	Aluminum titanium oxide, 99.5% (metals basis)
	22980	Ammonium-d <sub>4</sub> deuterioxide, 99% (Isotopic), 23.0-27.0 wt% soln. in D <sub>2</sub> O
	44792	Ammonium metatungstate hydrate
	44588	Ammonium tungsten oxide, 99.99+% (metals basis)
	22640	Ammonium tungsten oxide hydrate
	10899	Ammonium tungsten oxide pentahydrate, Puratronic®, 99.999% (metals basis)
	11091	Ammonium vanadium oxide, 99% (metals basis)
	36213	Ammonium vanadium oxide, ACS, 99.0% min
	10902	Ammonium vanadium oxide, Puratronic®, 99.995% (metals basis)
	A11123	Antimony(III) oxide, 99%
	11579	Antimony(III) oxide, 99.6% min



















	36314	Antimony(III) oxide, 99.9% (metals basis)
	10641	Antimony(III) oxide, Puratronic®, 99.999% (metals basis)
	44930	Antimony tin oxide, NanoArc®, 99.5%
	40128	Antimony(V) oxide, 30% in H <sub>2</sub> O, colloidal dispersion
	10643	Antimony(V) oxide, Puratronic®, 99.998% (metals basis)
	43488	Arsenic(III) oxide, 99.5% (metals basis)
	40370	Arsenic(III) oxide, 99.99% (metals basis)
	33289	Arsenic(III) oxide, primary standard, ACS, 99.95-100.05%
	11173	Arsenic(III) oxide, Puratronic®, 99.996% (metals basis excluding Sb), Sb content reported
	14668	Arsenic(V) oxide, 99.9% (metals basis)
	22642	Barium aluminum oxide, tech.
	39192	Barium calcium copper oxide (2-1-2), 99.9% (metals basis)
	40122	Barium calcium copper oxide (2-2-3), 99.9% (metals basis)
	40444	Barium copper oxide (1-1), 99.9% (metals basis)
	45552	Barium dodecairon nonadecaoxide

















	40205	Barium molybdenum oxide, 99.9% (metals basis excluding Sr)
	39130	Barium niobium oxide, 99.9% (metals basis)
	44440	Barium oxide, 99.5% (metals basis excluding Sr), Sr <500ppm
	14008	Barium peroxide, anhydrous, 84% min
	15122	Barium silicon oxide
	10649	Barium sodium niobium oxide, Puratronic®, 99.999% (metals basis)
	12348	Barium titanium oxide, 99%
	88267	Barium titanium oxide, 99.7% (metals basis)
	10652	Barium titanium oxide, 99.95% (metals basis)
	45083	Barium titanium oxide, 99.95% (metals basis)
	88266	Barium titanium oxide, 99.9% (metals basis)
	41633	Barium titanium oxide, high surface area
	39755	Barium titanium oxide, polymeric precursor, (Oxide ≈ 35 wt%)
	44806	Barium titanium oxide sputtering target, 50.8mm (2.0in) dia x 3.18mm (0.125in) thick, 99.9% (metals basis excluding Sr)
	14028	Barium zirconium oxide, 99% (metals basis)
	35480	Beryllium oxide, 99.95% (metals basis)
	10001	Beryllium oxide, 99% (metals basis)

	A12483	Bismuth carbonate oxide
	33216	Bismuth carbonate oxide, 98.5% min
	13029	Bismuth germanium oxide, Puratronic®, 99.9995% (metals basis)
	40396	Bismuth(III) chloride oxide, 98%
	17131	Bismuth(III) chloride oxide, 99.95% (metals basis)
	11843	Bismuth(III) chloride oxide, 99.999% (metals basis)
	47309	Bismuth(III) iodide oxide, 98+%
	11122	Bismuth(III) nitrate oxide, Puratronic®, 99.998% (metals basis)
	12230	Bismuth(III) oxide, 99%
	40394	Bismuth(III) oxide, 99.975% (metals basis)
	45582	Bismuth(III) oxide, NanoArc□, 99.5+%
	46314	Bismuth(III) oxide, nanopowder, 99.9%
	10658	Bismuth(III) oxide, Puratronic®, 99.9995% (metals basis)
	42863	Bismuth(III) oxide, Puratronic®, 99.999% (metals basis)
	17132	Bismuth(III) oxide, typically 99.99% (metals basis)
	47372	Bismuth(III) perchlorate oxide hydrate, 96%
	41203	Bismuth(III) tert-pentyloxiide, 97+%
	17526	Bismuth iron molybdenum oxide, 99% (metals basis)

















	41669	Bismuth titanium oxide, 99.9% (metals basis)
	41854	Bismuth tungsten oxide, 99.9% (metals basis)
	39220	Bismuth vanadium oxide, 99.9% (metals basis)
	12290	Boron oxide, 97.5% min, typically 98.5%
	A11707	Boron oxide, 98%
	89964	Boron oxide, 99.98% (metals basis)
	41786	Boron oxide, 99.999% (metals basis)
	11158	Boron oxide, Puratronic®, 99.999% (metals basis)
	11160	Boron oxide, Puratronic®, (H <sub>2</sub> O 200ppm), 99.999% (metals basis)
	11159	Boron oxide, Puratronic®, (H <sub>2</sub> O 200ppm), 99.999% (metals basis)
	10662	Cadmium hydroxide, Puratronic®, 99.98% (metals basis)
	40202	Cadmium molybdenum oxide, 99.5% (metals basis)
	33235	Cadmium oxide, 98.9%
	12219	Cadmium oxide, 99.95% (metals basis)
	10664	Cadmium oxide, Puratronic®, 99.998% (metals basis)
	22646	Calcium aluminum oxide, 99% (metals basis)



















	43686	Calcium molybdenum oxide, 99%
	41865	Calcium molybdenum oxide, 99.8%
	10682	Calcium molybdenum oxide, Puratronic®, 99.9965% (metals basis)
	10923	Calcium oxide, 99.95% (metals basis)
	44776	Calcium oxide, 99.95% (metals basis)
	10684	Calcium oxide, Puratronic®, 99.998% (metals basis, excluding other alkaline earth and alkali metals 130ppm max)
	33299	Calcium oxide, Reagent Grade
	21157	Calcium peroxide, typically 65%
	11397	Calcium titanium oxide, 99+% (metals basis)
	13051	Calcium tungsten oxide, 98%
	35669	Calcium tungsten oxide, 99.78% (metals basis)
	12344	Calcium zirconium oxide, 99.2% (metals basis)
	44468	Cerium(IV) isopropoxide, Ce 37-45%
	40581	Cerium(IV) oxide, 96% (REO)
	44662	Cerium(IV) oxide, 99.5% (REO)
	12925	Cerium(IV) oxide, 99.5% (REO)



















	43818	Cerium(IV) oxide, 99.9% (metals basis)
	21120	Cerium(IV) oxide, hydrated
	46763	Cerium(IV) oxide, NanoArc <sup>®</sup> CE-0440, 25% in H <sub>2</sub> O, colloidal dispersion
	44960	Cerium(IV) oxide, nanopowder, 99.5% min (REO)
	11327	Cerium(IV) oxide, REacton <sup>®</sup> , 99.99% (REO)
	11328	Cerium(IV) oxide, REacton <sup>®</sup> , 99.9% (REO)
	40210	Cerium molybdenum oxide, 99%
	40125	Cerium oxide, 20% in H <sub>2</sub> O, colloidal dispersion
	12730	Cerium oxide, 20% in H <sub>2</sub> O, colloidal dispersion
	35840	Cerium tungsten oxide, 99.9% (REO)
	39216	Cerium zirconium oxide, 99.5% (metals basis)
	13233	Cesium hydroxide hydrate, 99.9% (metals basis)
	39207	Cesium titanium oxide, 99.85% (metals basis)
	39206	Cesium tungsten oxide, 99.9% (metals basis)
	12286	Chromium(III) oxide, 98+%
	12285	Chromium(III) oxide, 99%
	36258	Chromium(III) oxide, 99.6% (metals basis)
	10688	Chromium(III) oxide, Puratronic <sup>®</sup> , 99.97% (metals basis)















	36379	Chromium silicon monoxide, 99.85+% (metals basis)
	36378	Chromium silicon monoxide, 99.8+% (metals basis)
	35667	Chromium silicon monoxide, 99.9% (metals basis)
	12522	Chromium(VI) oxide, 99%
	10691	Chromium(VI) oxide, 99.5% (metals basis)
	36468	Chromium(VI) oxide, ACS, 98+%
	17686	Cobalt aluminum oxide, Co 39-42%
	A16121	Cobalt(II,III) oxide
	45806	Cobalt(II,III) oxide, 99.7% (metals basis)
	40184	Cobalt(II,III) oxide, 99.7% (metals basis)
	44661	Cobalt(II,III) oxide, nanopowder, 99% (metals basis)
	10695	Cobalt(II,III) oxide, Puratronic®, 99.9985% (metals basis)
	45860	Cobalt(II) molybdenum oxide hydrate, 99.9% (metals basis)
	23141	Cobalt(II) oxide, 95%
	44354	Cobalt(II) oxide, 99.995% (metals basis)
	40223	Cobalt(II) tungsten oxide, 99%





































	45579	Cobalt oxide, typically 3.4-4.5%, Molybdenum oxide typically 11.5-14.5% on alumina
	41670	Cobalt titanium oxide, 99.8% (metals basis excluding Ni), Ni <0.15%
	39419	Copper aluminum oxide, 99.5% (metals basis)
	12299	Copper(II) oxide, 97%
	41692	Copper(II) oxide, 99.7% (metals basis)
	44356	Copper(II) oxide, 99.9995% (metals basis)
	13152	Copper(II) oxide, ACS
	33307	Copper(II) oxide, ACS, 99.0% min
	44663	Copper(II) oxide, nanopowder
	10700	Copper(II) oxide, Puratronic®, 99.995% (metals basis)
	40217	Copper(II) tungsten oxide, 99.5% (metals basis)
	A14436	Copper(I) oxide, 97%
	12300	Copper(I) oxide, 97% (Cu + Cu <sub>2</sub> O Assay)
	40189	Copper(I) oxide, 99.9% (metals basis)
	40188	Copper(I) oxide, 99% (metals basis)
	36370	Dysprosium(III) oxide, 99.9% (REO)













	11318	Dysprosium(III) oxide, REacton®, 99.99% (REO)
	11319	Dysprosium(III) oxide, REacton®, 99.9% (REO)
	41649	Dysprosium(III) titanium oxide, 99% (metals basis)
	36372	Erbium(III) oxide, 99.8% (metals basis)
	44668	Erbium(III) oxide, nanopowder, 99.5% (REO)
	11309	Erbium(III) oxide, REacton®, 99.99% (REO)
	11310	Erbium(III) oxide, REacton®, 99.9% (REO)
	88181	Europium(III) fluoride, anhydrous, 99.5% (REO)
	36352	Europium(III) oxide, 99.9% (REO)
	44667	Europium(III) oxide, nanopowder, 99.9% (REO)
	44347	Europium(III) oxide, REacton®, 99.996% (REO)
	11299	Europium(III) oxide, REacton®, 99.99% (REO)
	11300	Europium(III) oxide, REacton®, 99.9% (REO)
	44052	Europium(III) oxide, REacton®, nanopowder, 99.999% (REO)
	40507	Gadolinium(III) hydroxide hydrate, 99.9% (REO)
	36355	Gadolinium(III) oxide, 99.9% (REO)
	44020	Gadolinium(III) oxide, nanopowder, 99.99+% (REO)
	11289	Gadolinium(III) oxide, REacton®, 99.999% (REO)

	11290	Gadolinium(III) oxide, REacton®, 99.99% (REO)
	11291	Gadolinium(III) oxide, REacton®, 99.9% (REO)
	36318	Gallium(III) oxide, 99.995% (metals basis)
	10508	Gallium(III) oxide, 99.999% (metals basis)
	32102	Gallium(III) oxide, 99.99% (metals basis)
	11151	Gallium(III) oxide, Puratronic®, 99.999% (metals basis)
	42528	Gallium(III) oxide, Puratronic®, 99.999% (metals basis)
	10510	Germanium(IV) oxide, 99.9999% (metals basis)
	36382	Germanium(IV) oxide, 99.99% (metals basis)
	11155	Germanium(IV) oxide, Puratronic®, 99.999% (metals basis)
	11833	Hafnium dichloride oxide octahydrate, 98+% (metals basis excluding Zr), Zr <1.5%
	10705	Hafnium dichloride oxide octahydrate, Puratronic®, 99.998% (metals basis excluding Zr), Zr <1%
	44246	Hafnium dinitrate oxide, 99.9% (metals basis excluding Zr), Zr <0.1%, 10% w/v aq. soln.
	35666	Hafnium(IV) oxide, 99.95%, (metals basis excluding Zr), Zr typically <0.5%
	45483	Hafnium(IV) oxide, 99.995%, (metals basis excluding Zr), Zr typically <0.2%
	40620	Hafnium(IV) oxide, 99.99% (metals basis excluding Zr), Zr <100ppm
	36204	Hafnium(IV) oxide, 99.9% (metals basis excluding Zr), Zr <0.5%
	11835	Hafnium(IV) oxide, 99% (metals basis excluding Zr), Zr <1.5%

	11836	Hafnium(IV) oxide, Spectrographic Grade, 99.9% (metals basis excluding Zr), Zr typically <80ppm
	40270	Hafnium(IV) oxide, tech.
	45033	Holmium(III) fluoride, anhydrous, 99.9% (REO)
	36357	Holmium(III) oxide, 99.9% (REO)
	10910	Holmium(III) oxide, REacton®, 99.995% (REO)
	11281	Holmium(III) oxide, REacton®, 99.99% (REO)
	11280	Holmium(III) oxide, REacton®, 99.9% (REO)
	11855	Indium(III) hydroxide, 99.998% (metals basis)
	H37523	Indium(III) n-octoxide, 98%
	11853	Indium(III) oxide, 99.994% (metals basis)
	45460	Indium(III) oxide, 99.995% (metals basis)
	36386	Indium(III) oxide, 99.999% (metals basis)
	12544	Indium(III) oxide, 99.99% (metals basis)
	12581	Indium(III) oxide, 99.9% (metals basis)

	10709	Indium(III) oxide, Puratronic®, 99.997% (metals basis)
	42229	Indium oxide, tin doped, polymeric precursor, Oxide ≈20 wt%
	36348	Indium tin oxide, 99.99% (metals basis)
	44927	Indium tin oxide, NanoTek®, 99.5%
	42677	Indium tin oxide, Vacuum Deposition Grade, 99.99% (metals basis)
	87682	Iodine(V) oxide, 98%
	A17849	Iridium(IV) oxide powder, 99%
	12374	Iron(II,III) oxide, 97% (metals basis)
	47141	Iron(II,III) oxide, nanopowder, 97%
	12375	Iron(III) oxide, 98% (metals basis)
	36387	Iron(III) oxide, 99.85+% (metals basis)
	47247	Iron(III) oxide, 99.9% (metals basis)
	47044	Iron(III) oxide, alpha-phase, nanopowder, 98% (metals basis)
	44895	Iron(III) oxide, cosmetic, NanoArc®
	45007	Iron(III) oxide, industrial, NanoArc®
	44896	Iron(III) oxide, magnetic, NanoArc®
	10716	Iron(III) oxide, Puratronic®, 99.995% (metals basis)
	30513	Iron(II) oxide, 99.5% (metals basis)

	13137	Iron(II) titanium oxide, 99.8+% (metals basis)
	88530	Iron nickel oxide, tech.
	39488	Iron yttrium oxide, 99.9% (REO)
	39250	Lanthanum aluminum oxide, 99.9% (metals basis)
	43123	Lanthanum(III) hydroxide, 99.95% (REO)
	A13246	Lanthanum(III) oxide, 99.9%
	11266	Lanthanum(III) oxide, 99.99% (REO), Ca 10ppm max, AAS Grade
	41644	Lanthanum(III) oxide, 99.9% (metals basis)
	11265	Lanthanum(III) oxide, REacton®, 99.999% (REO)
	11264	Lanthanum(III) oxide, REacton®, 99.99% (REO)
	11272	Lanthanum(III) oxide, REacton®, 99.9% (REO)
	18213	Lanthanum titanium oxide
	14232	Lead(II,IV) oxide, 97%
	12220	Lead(II) oxide, 99.9%
	14240	Lead(II) oxide, 99.99% (metals basis)
	33330	Lead(II) oxide, low silver

	10728	Lead(II) oxide, Puratronic®, 99.9995% (metals basis)
	40753	Lead(II) oxide, Puratronic®, 99.999% (metals basis)
	14139	Lead(II) titanium oxide, 99.5%
	35671	Lead(II) titanium oxide, 99.9% (metals basis)
	14682	Lead(II) zirconium oxide, 99.7% (metals basis excluding Hf), Hf 1% max
	40754	Lead(II) zirconium oxide, Puratronic®, 99.997% (metals basis)
	A12742	Lead(IV) oxide, 97%
	12483	Lead(IV) oxide, ACS, 97.0% min
	10729	Lead(IV) oxide, Puratronic®, 99.995% (metals basis)
	44734	Lead lanthanum zirconium titanium oxide, polymeric precursor
	12133	Lead potassium niobium oxide, Puratronic®, 99.99% (metals basis)
	39758	Lead zirconium titanium oxide, polymeric precursor, oxide ≈30 wt%



13412 Lithium aluminum oxide



14049 Lithium cobalt(III) oxide, 97%







































42090 Lithium cobalt(III) oxide, 99.5% (metals basis)


































44471 Lithium hydroxide, anhydrous, 99.995% (metals basis)


































	44473	Lithium hydroxide monohydrate, 99.995% (metals basis)
	40250	Lithium manganese(III,IV) oxide, 99.5% (metals basis)
	13427	Lithium molybdenum oxide, 99+%
	A17805	Lithium niobium oxide, 99.99%
	10741	Lithium niobium oxide, Puratronic®, 99.998% (metals basis excluding Ta), Ta <50ppm
	41832	Lithium oxide, 99.5% (metals basis)
	13421	Lithium peroxide, 95%
	41834	Lithium tantalum oxide, 99.9% (metals basis)
	13411	Lithium titanium oxide
	41650	Lithium titanium oxide, 99% (metals basis)
	43366	Lithium tungsten oxide, 99% min
	39358	Lithium vanadium oxide, 99.9% (metals basis)
	39377	Lithium zirconium oxide, 94% min
	36244	Lutetium(III) oxide, 99.9% (REO)
	10912	Lutetium(III) oxide, REacton®, 99.995% (metals basis), REM 50ppm
	11256	Lutetium(III) oxide, REacton®, 99.99% (REO)
	11255	Lutetium(III) oxide, REacton®, 99.9% (REO)
	36388	Magnesium aluminum oxide, 99.9% (metals basis excluding Ca), Ca <25ppm



















	22950	Magnesium aluminum oxide, 99% (metals basis)
	10796	Magnesium carbonate hydroxide hydrate, Puratronic®, 99.996% (metals basis)
	39376	Magnesium molybdenum oxide, 99.9% (metals basis)
	39373	Magnesium niobium oxide, 99.9% (metals basis)
	43135	Magnesium oxide, 2 part ceramic adhesive paste
	43195	Magnesium oxide, 95% min
	44237	Magnesium oxide, 96%, heavy
	12287	Magnesium oxide, 96%, light
	44078	Magnesium oxide, 96% min
	36214	Magnesium oxide, 99.95% (metals basis)
	43196	Magnesium oxide, 99.95% (metals basis)
	14684	Magnesium oxide, 99.95% (metals basis)
	41648	Magnesium oxide, 99.95% (metals basis)
	43186	Magnesium oxide, 99.99% (metals basis)
	35442	Magnesium oxide, ACS, 95.0% min
	44733	Magnesium oxide, nanopowder, 99+% (metals basis)
	10800	Magnesium oxide, Puratronic®, 99.995% (metals basis)
	39366	Magnesium tantalum oxide, 99.9% (metals basis)

















	11398	Magnesium titanium oxide, 99% (metals basis)
	47319	Manganese(II,III) oxide, 97%
	87791	Manganese(III) oxide, 98%
	44441	Manganese(II) oxide, 99.99% (metals basis)
	11870	Manganese(II) oxide, Mn 76.0-78.0%, typically 99%
	13133	Manganese(II) titanium oxide, 99.9% (metals basis)
	39374	Manganese(II) tungsten oxide, 99.9% (metals basis)
	A10765	Manganese(IV) oxide, 97%
	42250	Manganese(IV) oxide, 99.9% (metals basis)
	L13253	Manganese(IV) oxide activated, tech. 90%
	14340	Manganese(IV) oxide, activated, tech., Mn 58% min
	10805	Manganese(IV) oxide, Puratronic®, 99.996% (metals basis)
	10810	Mercury(II) oxide, Puratronic®, 99.998% (metals basis)
	A16157	Mercury(II) oxide, red, 99%

	12277	Mercury(II) oxide, red, ACS, 99.0% min
	36261	Mercury(II) oxide, yellow, ACS, 99.0% min
	12276	Mercury(II) oxide, yellow, Reagent Grade
	48117	Molybdenum(IV) oxide, 99% (metals basis)
	A11159	Molybdenum(VI) oxide, 99.5%
	11837	Molybdenum(VI) oxide, 99.95% (metals basis)
	36687	Molybdenum(VI) oxide, ACS, 99.5% min
	44140	Molybdenum(VI) oxide bis(2,4-pentanedionate), 99%
	10812	Molybdenum(VI) oxide, Puratronic®, 99.998% (metals basis excluding W), W 300ppm max
	12930	Molybdenum(VI) oxide, Puratronic®, 99.9995% (metals basis excluding W)
	36275	Neodymium(III) oxide, 99.9% (REO)
	13837	Neodymium(III) oxide, REacton®, 99.997% (REO)
	45566	Neodymium(III) oxide, REacton®, 99.999% (REO)
	11250	Neodymium(III) oxide, REacton®, 99.99% (REO)
	11248	Neodymium(III) oxide, REacton®, 99.9% (REO)
	40252	Neodymium(III) oxide, REacton®, 99% (REO)
	44423	Nickel(II) oxide, 99.995% (metals basis)

















	12359	Nickel(II) oxide, 99% (metals basis)
	87302	Nickel(II) oxide, black, Ni 76%, (contains Ni <sub>2</sub> O <sub>3</sub> )
	45094	Nickel(II) oxide, green, Ni 78.5%
	10819	Nickel(II) oxide, Puratronic®, 99.998% (metals basis)
	89938	Nickel molybdenum oxide, 98%
	39452	Nickel tin oxide dihydrate
	41826	Nickel tungsten oxide, 99.9% (metals basis excluding Co), Co <100ppm
	89692	Niobium(IV) oxide, 99+% (metals basis)
	51120	Niobium phenoxide
	11365	Niobium(V) oxide, 99.5% (metals basis)
	36478	Niobium(V) oxide, 99.95% (metals basis)
	11366	Niobium(V) oxide, 99.9% (metals basis)
	10822	Niobium(V) oxide, Puratronic®, 99.9985% (metals basis)
	A13348	Phosphorus(V) oxide, 98%



















	89966	Phosphorus(V) oxide, 99.99%
	10524	Phosphorus(V) oxide, ACS, 98% min
	10827	Phosphorus(V) oxide, Puratronic®, 99.9925% (metals basis)
	44273	Potassium hydroxide, 99.98% (metals basis), 85% min
	48112	Potassium molybdenum oxide, 95%
	22898	Potassium molybdenum oxide, anhydrous, 99.8% (metals basis)
	10843	Potassium niobium oxide, Puratronic®, 99.999% (metals basis)
	14058	Potassium oxide, super, 96.5%
	14015	Potassium tin(IV) oxide trihydrate, 95%
	B20263	Potassium titanium oxide
	14138	Potassium titanium oxide, 98% (metals basis)
	14031	Potassium tungsten oxide, 99.5% (metals basis)
	11234	Praseodymium(III, IV) oxide, 99.5% (REO)
	36276	Praseodymium(III, IV) oxide, 99.9% (REO)
	44594	Praseodymium(III, IV) oxide, 99% (REO)
	10914	Praseodymium(III, IV) oxide, REacton®, 99.996% (REO)
	11235	Praseodymium(III, IV) oxide, REacton®, 99.99% (REO)
	35663	Praseodymium(III) oxide, 99.9% (metals basis)



















	11339	Rhenium(VII) oxide, 99.99% (metals basis)
	40468	Rhenium(VII) oxide, 99.9% (metals basis)
	62109	Rhenium(VI) oxide, 99.9% (metals basis)
	47002	Rhodium(IV) oxide, Rh 75.2-77.4%
	39516	Rubidium molybdenum oxide, 99.5% (metals basis)
	A10816	Ruthenium(IV) oxide, anhydrous, 99.9%
	39512	Samarium(III) hydroxide hydrate, 99% (REO)
	36278	Samarium(III) oxide, 99.9% (metals basis)
	10915	Samarium(III) oxide, REacton®, 99.998% (metals basis), REM 100ppm
	11230	Samarium(III) oxide, REacton®, 99.99% (REO)
	11229	Samarium(III) oxide, REacton®, 99.9% (REO)
	10916	Scandium(III) oxide, REacton®, 99.998% (metals basis), REM 50ppm max
	11217	Scandium(III) oxide, REacton®, 99.99% (REO)
	11216	Scandium(III) oxide, REacton®, 99.9% (REO)
	68108	Selenium dichloride oxide, 99% (metals basis)
	12358	Selenium(IV) oxide, 99.4% (metals basis)
	10854	Selenium(IV) oxide, Puratronic®, 99.999% (metals basis)
	36347	Silicon(II) oxide, 99.99% (metals basis)















	41710	Silicon(II) oxide, 99.9% (metals basis)
	41711	Silicon(II) oxide, 99.9% (metals basis)
	89829	Silicon(II) oxide, Optical Grade, 99.7% (metals basis)
	89430	Silicon(II) oxide, Optical Grade, 99.8% (metals basis)
	36669	Silicon(IV) oxide, 15% in H <sub>2</sub> O, colloidal dispersion
	43091	Silicon(IV) oxide, 30% in Ethylene glycol, colloidal dispersion
	43094	Silicon(IV) oxide, 30% in Ethylene glycol, colloidal dispersion
	43093	Silicon(IV) oxide, 30% in Ethylene glycol, colloidal dispersion
	43111	Silicon(IV) oxide, 30% in H <sub>2</sub> O, colloidal dispersion
	43110	Silicon(IV) oxide, 40% in H <sub>2</sub> O, colloidal dispersion
	12727	Silicon(IV) oxide, 40% in H <sub>2</sub> O, colloidal dispersion
	43109	Silicon(IV) oxide, 50% in H <sub>2</sub> O, colloidal dispersion
	89709	Silicon(IV) oxide, 99.0% (metals basis)
	88316	Silicon(IV) oxide, 99.5% (metals basis)
	47098	Silicon(IV) oxide, 99.95% (metals basis)
	88777	Silicon(IV) oxide, 99.995% (metals basis)

































	36346	Silicon(IV) oxide, 99.99% (metals basis)
	43736	Silicon(IV) oxide, 99.99% (metals basis)
	42739	Silicon(IV) oxide, amorphous fumed
	42740	Silicon(IV) oxide, amorphous fumed, S.A. 175-225m <sup>2</sup> /g
	42741	Silicon(IV) oxide, amorphous fumed, S.A. 300-350m <sup>2</sup> /g
	89376	Silicon(IV) oxide, amorphous fumed, S.A. 350-420m <sup>2</sup> /g
	42737	Silicon(IV) oxide, amorphous fumed, S.A. 85-115m <sup>2</sup> /g
	42784	Silicon(IV) oxide, amorphous fumed, surface treated, S.A. 105-130m <sup>2</sup> /g
	42783	Silicon(IV) oxide, amorphous fumed, surface treated, S.A. 105-145m <sup>2</sup> /g
	42782	Silicon(IV) oxide, amorphous fumed, surface treated, S.A. 205-245m <sup>2</sup> /g
	44782	Silicon(IV) oxide, amorphous, nanopowder, 99.5% (metals basis)
	44781	Silicon(IV) oxide, amorphous, nanopowder, 99.9% (metals basis)
	13024	Silicon(IV) oxide, microcrystalline
	L16985	Silicon(IV) oxide, powder, 0.5 micron, 99.9%
	L16986	Silicon(IV) oxide, powder, 1.0 micron, 99.9%
	L16987	Silicon(IV) oxide, powder, 1.5 micron, 99.9%

















	10856	Silicon(IV) oxide, Puratronic®, 99.999% (metals basis)
	44740	Silicon oxide, catalyst support, high surface area
	35453	Sodium aluminum oxide, tech.
	A14073	Sodium bismuth oxide, 80%
	33219	Sodium bismuth oxide, ACS, 80% min
	41281	Sodium hydroxide monohydrate, 99.996% (metals basis)
	12209	Sodium molybdenum oxide, anhydrous, Mo 46.2%
	A19222	Sodium molybdenum oxide dihydrate, 98%
	12214	Sodium molybdenum oxide dihydrate, ACS, 99.5-103.0%
	10872	Sodium niobium oxide, Puratronic®, 99.997% (metals basis)
	36712	Sodium oxide
	L13306	Sodium peroxide, 95%
	33384	Sodium peroxide, ACS, 93% min
	14021	Sodium tin(IV) oxide hydrate, Reagent Grade
	87371	Sodium tungsten oxide dihydrate, 95%
	36489	Sodium tungsten oxide dihydrate, ACS, 99.0-101.0%
	22569	Strontium dodecairon nonadecaoxide, 99.0% (metals basis)
	40238	Strontium molybdenum oxide, 99%

	88220	Strontium oxide, 99.5% (metals basis), SrO ≈97%
	12495	Strontium oxide, tech.
	46310	Strontium peroxide, 12.3% available oxygen
	11399	Strontium titanium oxide, 99+% (metals basis)
	41634	Strontium titanium oxide, S.A. 12.5-25m <sup>2</sup> /g
	41899	Strontium tungsten oxide, 99.9% (metals basis)
	12346	Strontium zirconium oxide, 99.3% (metals basis)
	11336	Tantalum(V) oxide, 99.85% (metals basis)
	36343	Tantalum(V) oxide, 99.95% (metals basis excluding Nb), Nb <200ppm
	14709	Tantalum(V) oxide, 99% (metals basis)
	10881	Tantalum(V) oxide, Puratronic®, 99.993% (metals basis excluding Nb), Nb 50ppm max
	73118	Tantalum(V) oxide, Spectrographic Grade, 99.5% (metals basis)
	11821	Tellurium(IV) oxide, 99.995% (metals basis)
	87813	Tellurium(IV) oxide, 99.99% (metals basis)
	10882	Tellurium(IV) oxide, Puratronic®, 99.999% (metals basis)
	10608	Tellurium(IV) oxide, tech.
	36246	Terbium(III,IV) oxide, 99.9% (REO)
	10917	Terbium(III,IV) oxide, REacton®, 99.998% (REO)

	11208	Terbium(III,IV) oxide, REacton®, 99.99% (REO)
	11207	Terbium(III,IV) oxide, REacton®, 99.9% (REO)
	41995	Terbium vanadium oxide, 99.8% (REO)
	A17601	Thallium(III) oxide, 96%
	43797	Thallium(III) oxide, 99.9% (metals basis)
	36279	Thulium(III) oxide, 99.9% (REO)
	10918	Thulium(III) oxide, REacton®, 99.997% (REO)
	11199	Thulium(III) oxide, REacton®, 99.99% (REO)
	11198	Thulium(III) oxide, REacton®, 99.9% (REO)
	A17889	Tin(II) oxide, 99%
	11569	Tin(II) oxide, 99.9% (metals basis)
	44592	Tin(IV) oxide, 15% in H <sub>2</sub> O colloidal dispersion
	12283	Tin(IV) oxide, 99.9% (metals basis)
	36302	Tin(IV) oxide, 99.9% (metals basis)

	10891	Tin(IV) oxide, Puratronic®, 99.996% (metals basis)
	39754	Tin oxide, antimony doped, polymeric precursor, Oxide ≈ 30 wt%
	39753	Tin oxide, polymeric precursor, Oxide ≈29 wt%
	77127	Titanium(III) oxide, 99.8% (metals basis)
	77126	Titanium(II) oxide, 99.5% (metals basis)
	42939	Titanium(II) oxide, 99.9% (metals basis)
	42940	Titanium(II) oxide pellets, 99.9% (metals basis)
	77107	Titanium(IV) 2-ethylhexyloxiide, 95%
	44678	Titanium(IV) 2-ethylhexyloxiide, VERTEC® EHT
	89454	Titanium(IV) methylphenoxide, tech.
	44517	Titanium(IV) oxide, 20-36% in H <sub>2</sub> O colloidal dispersion
	36199	Titanium(IV) oxide, anatase, 99.6% (metals basis)
	45603	Titanium(IV) oxide, anatase, nanopowder, 99.7% (metals basis)
	77130	Titanium(IV) oxide bis(2,4-pentanedionate)
	44429	Titanium(IV) oxide, catalyst support
	43828	Titanium(IV) oxide, catalyst support

	40458	Titanium(IV) oxide, high surface area, 99.9% (metals basis)
	39953	Titanium(IV) oxide, NanoArc□, anatase, nanopowder, 99.9% (metals basis)
	10897	Titanium(IV) oxide, Puratronic®, 99.995% (metals basis)
	43047	Titanium(IV) oxide, rutile, 99.5% min (metals basis)
	42681	Titanium(IV) oxide, rutile, 99.8% (metals basis)
	14631	Titanium(IV) oxide, rutile, 99.99% (metals basis)
	44375	Titanium(IV) oxide, rutile, 99.9% (metals basis)
	36425	Titanium(IV) oxide, rutile, single crystal
	39591	Titanium(IV) oxide sulfate sulfuric acid hydrate
	41635	Titanium oxide, 99.9% (metals basis)
	39000	Titanium oxide, 99.9% (metals basis)
	89962	Tungsten dichloride dioxide, 99%
	40367	Tungsten(IV) oxide, 99.9% (metals basis)
	89949	Tungsten oxide, 99.99% (metals basis)

	11828	Tungsten(VI) oxide, 99.8% (metals basis)
	13398	Tungsten(VI) oxide, Puratronic®, 99.998% (metals basis excluding Mo), Mo 100ppm
	41375	Tungsten zirconium oxide, 99.7% (metals basis excluding Hf), Hf <0.38%
	12301	Vanadium(III) oxide, 95%
	43377	Vanadium(III) oxide, 99.7% (metals basis)
	22957	Vanadium(IV) oxide, 99% (metals basis)
	81119	Vanadium(IV) oxide bis(2,4-pentanedionate)
	11090	Vanadium(IV) sulfate oxide hydrate, 99.9% (metals basis)
	22956	Vanadium(IV,V) oxide, 99.5% (metals basis)
	39585	Vanadium naphthenate oxide, 35% in naphthenic acid (V 2.8-3.2%)
	11093	Vanadium(V) oxide, 99.2%
	11094	Vanadium(V) oxide, 99.6% min
	10904	Vanadium(V) oxide, 99.99% (metals basis)
	44424	Vanadium(V) oxide, 99.9% (metals basis)
	81118	Vanadium(V) trichloride oxide, V+5 28.5% min
	14128	Vanadium(V) trifluoride oxide, 99%



36252 Ytterbium(III) oxide, 99.9% (REO)



10919 Ytterbium(III) oxide, REacton®, 99.998% (REO)





































11192 Ytterbium(III) oxide, REacton®, 99.99% (REO)
























11191 Ytterbium(III) oxide, REacton®, 99.9% (REO)



	36241	Yttrium aluminum oxide, 99.99% (metals basis)
	41491	Yttrium aluminum oxide, 99.9% (REO)
	83106	Yttrium(III) fluoride, 98%
	40392	Yttrium(III) oxide, Aerosol Refractory Paint, 99.9% (REO)
	47154	Yttrium(III) oxide, nanopowder, 99.995% (REO)
	40648	Yttrium(III) oxide pellets, 99.9% (REO)
	42864	Yttrium(III) oxide, REacton®, 99.9999% (REO)
	11182	Yttrium(III) oxide, REacton®, 99.999% (REO)
	11181	Yttrium(III) oxide, REacton®, 99.99% (REO)
	11180	Yttrium(III) oxide, REacton®, 99.9% (REO)
	44286	Yttrium(III) oxide, REacton®, 99.9% (REO)
	44048	Yttrium(III) oxide, REacton®, nanopowder, 99.995% (REO)
	19407	Zinc iron oxide
	89937	Zinc molybdenum oxide, 98%
	87812	Zinc oxide, 99.99% (metals basis)
	44263	Zinc oxide, 99.9% (metals basis)
	44264	Zinc oxide, 99.9% (metals basis)
	11558	Zinc oxide, ACS, 99.0% min

	45410	Zinc oxide doped with silver, NanoTek® ZnO:Ag-W, 50% in H <sub>2</sub> O, colloidal dispersion
	A16188	Zinc oxide, heavy, 98%
	44899	Zinc oxide, NanoTek®
	44900	Zinc oxide, NanoTek® C1, 99%, organosilane coated, hydrophobic, nonpolar
	12855	Zinc oxide, Puratronic®, 99.9995% (metals basis)
	11137	Zinc oxide, Puratronic®, 99.999% (metals basis)
	39635	Zinc peroxide, approximately 50% ZnO <sub>2</sub>
	41673	Zinc titanium oxide, 99.9% (metals basis)
	40234	Zinc tungsten oxide, 99.9% (metals basis)
	22886	Zirconium aluminide, 99% (metals basis)
	86108	Zirconium dichloride oxide hydrate, 99.9% (metals basis)
	11135	Zirconium dichloride oxide hydrate, Puratronic®, 99.9985% (metals basis)
	A12342	Zirconium dichloride oxide octahydrate, 98%
	43224	Zirconium dinitrate oxide hydrate, 99.9% (metals basis)
	12971	Zirconium dinitrate oxide hydrate, Puratronic®, 99.994% (metals basis)
	12732	Zirconium(IV) oxide, 20% in H <sub>2</sub> O, colloidal dispersion
	40124	Zirconium(IV) oxide, 20% in H <sub>2</sub> O, colloidal dispersion
	40123	Zirconium(IV) oxide, 20% in H <sub>2</sub> O, colloidal dispersion, stabilized with 1.4% yttrium oxide

	40140	Zirconium(IV) oxide, 99.5% (metals basis excluding Hf), Hf <100ppm
	36319	Zirconium(IV) oxide, 99.7% (metals basis excluding Hf)
	41528	Zirconium(IV) oxide, 99.7% (metals basis excluding Hf), Hf <75ppm
	40459	Zirconium(IV) oxide, 99.8% (metals basis excluding Hf)
	11395	Zirconium(IV) oxide, 99+% (metals basis excluding Hf), HfO <sub>2</sub> 2%
	40453	Zirconium(IV) oxide, calcia stabilized, 99.4% (metals basis excluding Hf)
	40452	Zirconium(IV) oxide, calcia stabilized, 99.4% (metals basis excluding Hf)
	A13578	Zirconium(IV) oxide, calcined, 99%
	42493	Zirconium(IV) oxide, cement
	44886	Zirconium(IV) oxide, nanopowder, 99% (metals basis excluding Hf)
	11141	Zirconium(IV) oxide, Puratronic®, 99.978% (metals basis)
	45126	Zirconium(IV) oxide, titania stablized
	45562	Zirconium(IV) oxide, yttria stabilized, 99.95% (metals basis excluding Hf)
	36272	Zirconium(IV) oxide, yttria stabilized, 99% (metals basis excluding Hf), Hf 4% max

	43814	Zirconium oxide, catalyst support
	43815	Zirconium oxide, catalyst support, monoclinic phase
	45600	Zirconium oxide, catalyst support, sulfated
	45597	Zirconium oxide, catalyst support, tungstated
	42766	Zirconium oxide, polymeric precursor
	44211	Zirconium oxide, yttria stabilized, polymeric precursor
	39490	Zirconium titanium oxide, 99.5% (metals basis excluding Hf), Hf <75ppm



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	11038	Diamminepalladium(II) nitrite solution, Pd 8-10% w/w (cont. Pd)
	40020	Nitrite, Ion chromatography standard solution, Specpure®, NO <sub>2</sub> <sup>-</sup> 1000 µg/ml
	12629	Potassium dinitrosulfatopalladate(II), solution, Pd 5% (cont. Pd)
	L13289	Potassium nitrite, 97%
	14245	Potassium nitrite, ACS, 96.0% min
	11418	Silver nitrite, 99% (metals basis)
	43015	Sodium nitrite, 0.1M Standardized Solution
	A18668	Sodium nitrite, 98%
	44227	Sodium nitrite, 99.999% (metals basis)
	14244	Sodium nitrite, ACS, 97% min

# Hydrides

















Hydride (anion of hydrogen,  $H^-$ ) is a compound of anion of hydrogen with electropositive elements in the periodic table. Four main groups of inorganic hydrides are reported, covalent, ionic, transition metal and metallic hydrides. Ionic hydrides form between alkali and alkaline earth metals of group I and II metals like lithium, sodium and calcium. Transition metal hydrides usually contain complexing ligands. Metallic hydrides or interstitial hydrides are formed by transition metals/lanthanides/actinides.












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	19106	Calcium hydride, 90-95%
	41590	Calcium hydride, 92% min
	41645	Calcium hydride, 98% (metals basis excluding Mg), Mg <1%
	A16242	Calcium hydride, coarse powder, ca 92%
	45502	Lithium aluminum hydride, 10% in THF
	45503	Lithium aluminum hydride, 15% in THF/toluene (2.4:1)
	13442	Lithium aluminum hydride, 95% min
	89643	Lithium aluminum hydride, pellets, 97%
	A18116	Lithium aluminum hydride, powder, 95%
	A17948	Lithium hydride, 97+%
	41596	Lithium hydride, 99.4% (metals basis)
	30716	Lithium tri-tert-butoxyaluminum hydride, 94%
	L13266	Potassium hydride, 30% w/w in mineral oil
	13431	Sodium hydride, 57-63% oil dispersion



	H36490	Sodium hydride, ca 60% dispersion in oil, in solvent soluble bags
	12857	Titanium(II) hydride, 99% (metals basis)
	89183	Titanium(II) hydride, Ti 94.0% min.
	47320	Titanium sub-hydride (TiH <sub>0.65</sub> ), -325 mesh, 99%, packed under argon
	47302	Titanium sub-hydride (TiH <sub>1.65</sub> ), -325 mesh, 99%, packed under argon
	A13298	Tri-n-butyltin hydride, 97%
	47203	Zirconium hydride, 99%

## Naturally occurring mineral



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These minerals are mined and otherwise not in any way refined or processed.














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	42641	Albite, naturally occurring mineral, grains, approximately 0.06-0.19in
	42524	Analcime, naturally occurring mineral, grains, approximately 0.06-0.19in
	42643	Andesine, naturally occurring mineral, grains, approximately 0.06-0.19in
	42535	Apatite, naturally occurring mineral, grains, approximately 0.06-0.19in
	42532	Chalcocite, naturally occurring mineral, grains, approximately, 0.06-0.19in
	42526	Dolomite, naturally occurring mineral, grains, approximately 0.06-0.19in
	42546	Galena, naturally occurring mineral, approximately 1-2in
	42640	Galena, naturally occurring mineral, grains, approximately 0.06-0.19in
	44521	Glauberite, naturally occurring mineral, pieces, approximately 1in
	42646	Hornblende, naturally occurring mineral, grains, approximately 0.06-0.19in
	43363	Marcasite, naturally occurring mineral, grains, approximately 0.06-0.19 in
	42644	Microcline, naturally occurring mineral, grains, approximately 0.06-0.19in
	42642	Molybdenite, naturally occurring mineral, grains, approximately 0.06-0.19in

	L15160	Montmorillonite K10
	42531	Montmorillonite, naturally occurring mineral
	42633	Pyrite, naturally occurring mineral, grains, approximately 1.5-4.8mm (0.06-0.19in)
	44522	Topaz, naturally occurring mineral, grains, approximately 0.06-0.19in

## Nitronium Salts



The class of chemical salts containing nitronium cation ( $\text{NO}_2^+$ ) are called nitronium salts. Nitronium salts are excellent nitrating agents and are superior to the mixed acids or other nitrating agents since the attacking species of nitration, nitronium cation ( $\text{NO}_2^+$ ) is readily available in the nitronium salts before the interaction with the substrate.

Nitronium tetrafluoroborate ( $\text{NO}_2^+\text{BF}_4^-$ ) and nitronium hexafluorophosphate ( $\text{NO}_2^+\text{PF}_6^-$ ) are some of the most frequently used nitronium salts for nitration of organic compounds. These salts are extremely active for the nitration of aromatic compounds and will give high yield under mild conditions. Nitronium salts have also been used in the nitration of aliphatic compounds. Nitronium tetrafluoroborate is a versatile nitrating agent for nitrogen compounds. When reacted with secondary aliphatic amines, aryl aliphatic amine, carbamate ester, diacyl amine and primary amides, nitronium tetrafluoroborate gives corresponding N-nitro derivatives. Nitronium tetrafluoroborate is also used in the nitration of alkylsilanes to give corresponding nitroalkanes.



13151 Nitronium hexafluorophosphate

# Hydrogen Carbonates



Hydrogen carbonate, also referred to as bicarbonate, and amphoteric in nature, is an intermediate form in the deprotonation of carbonic acid and a polyatomic anion. Bicarbonate serves a crucial biochemical role in the physiological pH buffering system. The most common salt of the bicarbonate ion is sodium bicarbonate,  $\text{NaHCO}_3$ , which is commonly known as baking soda. Bicarbonates are used as fire extinguishers, chemical reagents, and in medications as buffers. Bicarbonates are widely and extensively used in huge volumes in organic synthesis, pharmaceuticals, analytical chemistry, biotechnology, and biology owing to their basicity and buffering characteristics.













Ammonium bicarbonate is used in ceramics and polymer industries. It is also useful for the synthesis of catalysts, and chrome leather tanning. The blood value of bicarbonate is useful as indicator in diagnostics on the state of acid-base physiology. Bicarbonates are often used as inactive ingredients in pharmaceutical oral and parenteral formulations to stabilize the drug, maintain pH, and improve the solubility. Commonly used hydrogen carbonates are sodium bicarbonate, potassium bicarbonate, cesium bicarbonate, calcium bicarbonate, and ammonium bicarbonate.



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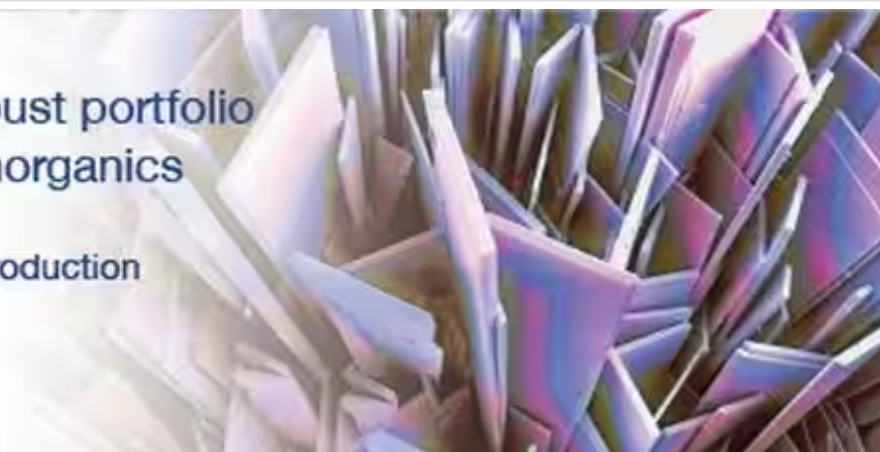
	B24696	Aminoguanidine hydrogen carbonate, 98+%
	A18566	Ammonium hydrogen carbonate, 98%
	14249	Ammonium hydrogen carbonate, 99.0%
	14234	Cesium hydrogen carbonate, 99.99% (metals basis)
	A12429	Potassium hydrogen carbonate, 99%
	40195	Potassium hydrogen carbonate, ACS, 99.7-100.5% (dried basis)
	A17005	Sodium hydrogen carbonate, 99%
	14707	Sodium hydrogen carbonate, ACS, 99.7-100.3%
	10863	Sodium hydrogen carbonate, Puratronic®, 99.998% (metals basis)
	A16045	Sodium percarbonate, 13-14% active oxygen
	45082	Tetraamminepalladium(II) hydrogen carbonate
	44042	Tetraammineplatinum(II) hydrogen carbonate




































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	10626	Aluminum nitrate hydrate, Puratronic®, 99.999% (metals basis excluding Hg)
	12360	Aluminum nitrate nonahydrate, 98%
	36291	Aluminum nitrate nonahydrate, ACS, 98.0-102.0%
	43145	Aluminum nitrate nonahydrate, low mercury, Puratronic®, 99.999% (metals basis)
	12363	Ammonium nitrate, ACS, 95% min
	10638	Ammonium nitrate, Puratronic®, 99.999% (metals basis)
	A11305	Barium nitrate, 99%
	30481	Barium nitrate, 99.95% (metals basis)
	10648	Barium nitrate, Puratronic®, 99.999% (metals basis)
	40476	Bismuth hydroxide nitrate oxide, Bi <sub>2</sub> O <sub>3</sub> 79% min
	10657	Bismuth(III) nitrate hydrate, Puratronic®, 99.999% (metals basis)
	A11748	Bismuth(III) nitrate pentahydrate, 98%
	12231	Bismuth(III) nitrate pentahydrate, ACS, 98% min
	47389	Bismuth sub-nitrate monohydrate, 98+%






































	12228	Cadmium nitrate tetrahydrate, 98.5% min
	41732	Cadmium nitrate tetrahydrate, 99.9% (metals basis)
	10663	Cadmium nitrate tetrahydrate, Puratronic®, 99.999% (metals basis)
	10683	Calcium nitrate hydrate, Puratronic®, 99.995% (metals basis)
	44515	Calcium nitrate hydrate, Puratronic®, 99.9995% (metals basis)
	A16645	Calcium nitrate tetrahydrate, 97+%
	30482	Calcium nitrate tetrahydrate, 99.98% (metals basis)
	38367	Cerium(III) ammonium nitrate tetrahydrate, Reagent Grade
	11329	Cerium(III) nitrate hexahydrate, REacton®, 99.5% (REO)
	11330	Cerium(III) nitrate hexahydrate, REacton®, 99.99% (REO)
	43181	Cerium(III) nitrate hydrate, REacton®, 99.998% (metals basis)
	A12882	Cerium(IV) ammonium nitrate, 98+%
	33254	Cerium(IV) ammonium nitrate, ACS, 98.5% min
	11332	Cerium(IV) ammonium nitrate, REacton®, 99.5% (REO)
	38617	Cesium nitrate, 99.999% (metals basis)
	14440	Cesium nitrate, 99.99% (metals basis)
	11565	Chromium(III) nitrate nonahydrate, 98.5%

	43182	Chromium(III) nitrate nonahydrate, 99.99% min (metals basis)
	11341	Cobalt(II) nitrate hexahydrate, 97.7% min
	36418	Cobalt(II) nitrate hexahydrate, ACS, 98.0-102.0%
	10694	Cobalt(II) nitrate hexahydrate, Puratronic®, 99.999% (metals basis)
	A14004	Copper(II) nitrate hemi(pentahydrate), 98%
	12523	Copper(II) nitrate hemi(pentahydrate), ACS, 98.0-102.0%
	10699	Copper(II) nitrate hydrate, Puratronic®, 99.999% (metals basis)
	12922	Dysprosium(III) nitrate pentahydrate, 99.9% (REO)
	11315	Dysprosium(III) nitrate pentahydrate, REacton®, 99.99% (REO)
	12920	Erbium(III) nitrate hydrate, 99.9% (REO)
	11306	Erbium(III) nitrate pentahydrate, REacton®, 99.99% (REO)
	15290	Europium(III) nitrate hexahydrate, REacton®, 99.9% (REO)
	11296	Europium(III) nitrate hydrate, REacton®, 99.99% (REO)
	12917	Gadolinium(III) nitrate hydrate, 99.5% (REO)
	11284	Gadolinium(III) nitrate hydrate, REacton®, 99.99% (REO)
	32116	Gallium(III) nitrate hydrate, 99.9% (metals basis)
	11150	Gallium(III) nitrate hydrate, Puratronic®, 99.999% (metals basis)
	43484	Gallium(III) nitrate solution, Ga 9-10% w/w

	40185	Indium(III) nitrate hydrate, 99.99% (metals basis)
	A18252	Indium(III) nitrate hydrate, In 29% min.
	10708	Indium(III) nitrate hydrate, Puratronic®, 99.999% (metals basis)
	10715	Iron(III) nitrate hydrate, Puratronic®, 99.999% (metals basis)
	12226	Iron(III) nitrate nonahydrate, 98+% (metals basis)
	H60247	Isopropyl nitrate, 98%
	12915	Lanthanum(III) nitrate hexahydrate, 99.9% (REO)
	44346	Lanthanum(III) nitrate hexahydrate, REacton®, 99.999% (REO)
	11267	Lanthanum(III) nitrate hexahydrate, REacton®, 99.99% (REO)
	A14890	Lanthanum(III) nitrate hydrate, 99%, water ca 22-25%
	A16345	Lead(II) nitrate, 99%
	10727	Lead(II) nitrate, Puratronic®, 99.999% (metals basis)
	13405	Lithium nitrate, anhydrous, 99%
	10985	Lithium nitrate, anhydrous, 99.98% (metals basis)
	44456	Lithium nitrate, anhydrous, 99.999% (metals basis)
	10742	Lithium nitrate hydrate, Puratronic®, 99.999% (metals basis)
	14568	Lutetium(III) nitrate hydrate, 99.9% (REO)

	11258	Lutetium(III) nitrate hydrate, REacton®, 99.99% (REO)
	A10329	Magnesium nitrate hexahydrate, 98%
	87609	Magnesium nitrate hexahydrate, 99.97% (metals basis)
	11564	Magnesium nitrate hexahydrate, ACS, 98.0-102.0%
	10799	Magnesium nitrate hydrate, Puratronic®, 99.999% (metals basis)
	33340	Manganese(II) nitrate, 50% w/w aq. soln.
	L14040	Manganese(II) nitrate hexahydrate, 98+%
	87848	Manganese(II) nitrate hydrate, 99.98% (metals basis)
	10806	Manganese(II) nitrate hydrate, Puratronic®, 99.995% (metals basis)
	A18521	Manganese(II) nitrate tetrahydrate, 98%
	14497	Mercury(II) nitrate hydrate, ACS, 98.0% min
	A16268	Mercury(I) nitrate dihydrate, 97%
	12912	Neodymium(III) nitrate hexahydrate, 99.9% (REO)
	11245	Neodymium(III) nitrate hydrate, REacton®, 99.99% (REO)
	A15540	Nickel(II) nitrate hexahydrate, 98%
	10816	Nickel(II) nitrate hexahydrate, Puratronic®, 99.9985% (metals basis)

	12222	Nickel(II) nitrate hexahydrate, tech., Ni 19.8% min
	A14527	Potassium nitrate, 99%
	11008	Potassium nitrate, 99.994% (metals basis)
	13443	Potassium nitrate, ACS, 99.0% min
	10844	Potassium nitrate, Puratronic®, 99.995% (metals basis)
	11240	Praseodymium(III) nitrate hexahydrate, REacton®, 99.99% (REO)
	12909	Praseodymium(III) nitrate hydrate, 99.9% (REO)
	12889	Rubidium nitrate, 99%
	13496	Rubidium nitrate, 99% (metals basis)
	10852	Rubidium nitrate, Puratronic®, 99.975% (metals basis)
	12906	Samarium(III) nitrate hexahydrate, 99.9% (REO)
	11224	Samarium(III) nitrate hydrate, REacton®, 99.99% (REO)
	11221	Scandium(III) nitrate hydrate, REacton®, 99.99% (REO)
	67104	Scandium(III) nitrate hydrate, REacton®, 99.9% (REO)
	A13854	Silver nitrate, 99+%
	11414	Silver nitrate, ACS, 99.9+% (metals basis)
	43087	Silver nitrate, Premion®, 99.995% (metals basis), Ag 63% min

	10858	Silver nitrate, Premion®, 99.9995% (metals basis)
	A12327	Sodium nitrate, 98+%
	14493	Sodium nitrate, ACS, 99.0% min
	10873	Sodium nitrate, Puratronic®, 99.999% (metals basis)
	12232	Strontium nitrate, ACS, 99.0% min
	30534	Strontium nitrate, anhydrous, 98%
	30486	Strontium nitrate, anhydrous, 99.97% (metals basis)
	10879	Strontium nitrate, Puratronic®, 99.9965% (metals basis)
	43193	Strontium nitrate, Puratronic®, 99.999% (metals basis)
	74103	Terbium(III) nitrate hydrate, 99.9% (REO)
	13593	Terbium(III) nitrate hydrate, REacton®, 99.99% (REO)
	87999	Thallium(III) nitrate trihydrate, 99.5% (metals basis)
	11203	Thulium(III) nitrate hydrate, REacton®, 99.99% (REO)
	14579	Thulium(III) nitrate hydrate, REacton®, 99.9% (REO)
	12901	Ytterbium(III) nitrate hydrate, 99.9% (REO)
	11196	Ytterbium(III) nitrate hydrate, REacton®, 99.99% (REO)
	12898	Yttrium(III) nitrate hexahydrate, 99.9% (REO)
	11187	Yttrium(III) nitrate hydrate, REacton®, 99.99% (REO)



A16282 Zinc nitrate hexahydrate, 98%



12313 Zinc nitrate hexahydrate, 99% (metals basis)



11136 Zinc nitrate hexahydrate, Puratronic®, 99.998% (metals basis)



43224 Zirconium dinitrate oxide hydrate, 99.9% (metals basis)

# Nitrosonium Salts



Nitrosonium salts are salts containing nitrosonium ion,  $\text{NO}^+$ . Nitrosonium ion is formed by bonding of nitrogen atom to an oxygen atom with a bond order of 3 and the overall diatomic species bears a positive charge.  $\text{NOClO}_4$ ,  $\text{NOSO}_4\text{H}$  and  $\text{NOBF}_4$  are some of the examples of nitrosonium salts.

These nitrosonium salts are used in chemical reactions for several purposes, including as a convenient oxidizing agent since the byproduct,  $\text{NO}$ , is a gas and can be easily removed from the reaction with the stream of  $\text{N}_2$ , and as a diazotizing agent for aryl amine to give diazonium salts. Since the  $\text{NO}^+$  ion of nitrosonium salt is isoelectronic with carbon monoxide and its mode of coordination to transition metal is also similar to that of carbon monoxide, these salts are used as a source of  $\text{NO}$  for the synthesis of metal nitrosyl complexes from metal carbonyl complexes.



13151 Nitronium hexafluorophosphate



13149 Nitrosonium hexafluorophosphate, 96%

Алматы (7273)495-231  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Владикавказ (8672)28-90-48  
Владимир (4922)49-43-18  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Иркутск (395)279-98-46  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Коломна (4966)23-41-49  
Кострома (4942)77-07-48  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Курган (3522)50-90-47  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (3496)41-32-12  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
Псков (8112)59-10-37  
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Саранск (8342)22-96-24  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
Тверь (4822)63-31-35

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