Pharmaceutical Reagents & Research Materials

GFS CHEMICALS®

www.gfschemicals.com

Introduction

For 90 years, GFS‘ abilities and trustworthiness have empowered its customers with the confidence to bring new products to market. GFS Chemicals is a Columbus, OH, USA based manufacturer of specialty and fine chemicals serving customers worldwide since 1928. As an ISO 9001-2015 certified manufacturer, GFS’ capability to produce specialty alkynes and olefins, pharmaceutical building blocks, trace metal salts and solutions, low moisture/anhydrous salts, and specialty rare earth salts and solutions makes GFS a preferred partner for organizations across an array of industries.

In addition to GFS’ proprietary product portfolio of 8000 discrete high-quality products available from small bottles to drum quantities, GFS offers a full range of Karl Fischer reagents, PPT/PPB trace analysis grade acids, turbidity standards, and other high-quality materials for your QA/QC laboratory. GFS will work to support every aspect of your business.

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ACS Reagents

Backed by 90 years of manufacturing expertise, GFS Chemicals manufacturers hundreds of high-purity inorganic and organic ACS reagent grade materials, as well as low trace metal and low moisture/anhydrous grade chemicals commonly used in the pharmaceutical industry. If you do not see what you are searching for here, please look at our complete offering on the web.

Item #	Product Description	CAS #	Chemical Formula
109	2,2'-BIPYRIDINE, 99%, REAGENT (ACS)	366-18-7	(C5H4N)2
547	AMMONIUM ACETATE, REAGENT (ACS)	631-61-8	CH3COONH4
646	AMMONIUM NITRATE, REAGENT (ACS)	6484-52-2	NH4NO3
843	AMMONIUM PERSULFATE, REAGENT (ACS)	7727-54-0	(NH4)2S208
602	BARIUM CHLORIDE, DIHYDRATE, REAGENT (ACS)	10326-27-9	BaCl2•2H2O
864	BISMUTH NITRATE, PENTAHYDRATE, REAGENT (ACS)	10035-06-0	Bi(NO3)3•5H2O
868	CADMIUM CHLORIDE, ANHYDROUS, REAGENT (ACS)	10108-64-2	CdCl2
869	CADMIUM CHLORIDE, HYDRATED, REAGENT (ACS)	7790-78-5	CdCl2•2-1/2H2O
779	CALCIUM NITRATE, TETRAHYDRATE, REAGENT (ACS)	13477-34-4	Ca(NO3)2•4H2O
13	CERIC AMMONIUM NITRATE, REAGENT (ACS)	16774-21-3	(NH4)2Ce(NO3)6
2909	CERIC AMMONIUM NITRATE, SUPERIOR REAGENT (ACS)	16774-21-3	(NH4)2Ce(NO3)6
603	CUPRIC CHLORIDE, DIHYDRATE, REAGENT (ACS)	10125-13-0	CuCl2•2H2O
901	CUPRIC NITRATE, HYDRATE, REAGENT (ACS)	19004-19-4	Cu(NO3)2•2-1/2H2O
922	FERRIC NITRATE, REAGENT (ACS)	7782-61-8	Fe(NO3))3•9H2O
1973	IMIDAZOLE, REAGENT (ACS)	288-32-4	C3H4N2
634	LANTHANUM CHLORIDE, HEPTAHYDRATE, REAGENT (ACS)	10025-84-0	LaCl3•7H2O
49	LEAD PERCHLORATE, TRIHYDRATE, REAGENT (ACS)	13453-62-8	Pb(ClO4)2•3H2O
609	LITHIUM CARBONATE, REAGENT (ACS)	554-13-2	Li2CO3
221	LITHIUM PERCHLORATE, ANHYDROUS, REAGENT (ACS)	7791-03-9	LI2ClO4
53	LITHIUM PERCHLORATE, TRIHYDRATE, (ACS) REAGENT	13453-78-6	LiClO4•3H2O
54	MAGNESIUM PERCHLORATE, ANHYDROUS, REAGENT (ACS)	10034-81-8	Mg(ClO4)2
55	MAGNESIUM PERCHLORATE, ANHYDROUS, REAGENT (ACS)	10034-81-8	Mg(ClO4)2
613	MERCURIC NITRATE, MONOHYDRATE, REAGENT (ACS)	7783-34-8	Hg(NO3)2•H2O
5316	NICKEL CHLORIDE, HEXAHYDRATE, REAGENT (ACS)	7791-20-0	NiCl2•6H20
697	NICKEL SULFATE, HEXAHYDRATE, REAGENT (ACS)	10101-97-0	NiSO4•6H2O
793	POTASSIUM ACETATE, REAGENT (ACS)	127-08-2	KC2H3O2
987	POTASSIUM CHLORATE, REAGENT (ACS)	3811-04-9	KClO3
653	POTASSIUM CHLORIDE, REAGENT (ACS)	7447-40-7	KCl
654	POTASSIUM IODIDE, REAGENT (ACS)	7681-11-0	KI
297	POTASSIUM PERCHLORATE, 100 MESH, REAGENT (ACS)	7778-74-7	KClO4
80	POTASSIUM PERCHLORATE, REAGENT (ACS)	7778-74-7	KClO4
81	POTASSIUM PERIODATE, REAGENT (ACS)	7790-21-8	KIO4
731	POTASSIUM PHOSPHATE, DIBASIC, REAGENT (ACS)	7758-11-4	K2HPO4
732	POTASSIUM PHOSPHATE, MONOBASIC, GRANULAR, REAGENT (ACS)	7778-77-0	KH2PO4
378	SILVER NITRATE, REAGENT (ACS)	7761-88-8	AgNO3
656	SODIUM ACETATE, TRIHYDRATE, REAGENT (ACS)	6131-90-4	CH3COONa•3H2O
1029	SODIUM CHLORATE, REAGENT (ACS)	7775-09-9	NaClO3
657	SODIUM CHLORIDE, REAGENT (ACS)	7647-14-5	NaCl

ACS Reagents cont.

Item #	Product Description	CAS #	Chemical Formula
630	SODIUM HYDROXIDE, REAGENT (ACS)	1310-73-2	NaOH
93	SODIUM META PERIODATE, REAGENT (ACS)	7790-28-5	NaIO4
6581	SODIUM NITRATE, LOW CHLORIDE	7631-99-4	NaNO3
658	SODIUM NITRATE, REAGENT (ACS)	7631-99-4	NaNO3
559	SODIUM NITRITE, REAGENT (ACS)	7632-00-0	NaNO2
91	SODIUM PERCHLORATE, ANHYDROUS, REAGENT (ACS)	7601-89-0	NaClO4
92	SODIUM PERCHLORATE, MONOHYDRATE, REAGENT (ACS)	7791-07-3	NaClO4•H2O
734	SODIUM PHOSPHATE, DIBASIC, ANHYDROUS, REAGENT (ACS)	7558-79-4	Na2HPO4
803	SODIUM SULFATE, ANHYDROUS, GRANULAR, REAGENT (ACS)	7757-82-6	Na2SO4
805	SODIUM TARTRATE, DIHYDRATE, REAGENT (ACS)	6106-24-7	Na2C4H4O6•2H2O
806	SODIUM TETRABORATE, DECAHYDRATE, REAGENT (ACS)	1303-96-4	Na2B4O7•10H2O
562	STANNOUS CHLORIDE, DIHYDRATE, REAGENT (ACS)	10025-69-1	SnCl2•2H2O
807	STRONTIUM CHLORIDE, HEXAHYDRATE, REAGENT (ACS)	10025-70-4	SrCl2•6H2O
808	STRONTIUM NITRATE, REAGENT (ACS)	10042-76-9	Sr(NO3)2
1096	TRISHYDROXYMETHYLAMINOMETHANE, REAGENT (ACS)	77-86-1	(CH2OH)3CNH2

Acids

From Perchloric to Nitric or Hydrochloric to Sulfuric, GFS has the capability to supply you the acid for your lab and production processes. From ACS reagent grade to our high purity (low trace metal) acids, GFS can deliver the quality to meet your needs.

Item #	Product Description	CAS #	Chemical Formula
3316	10,12-TRICOSADIYNOIC ACID, 97%	66990-30-5	CH3(CH2)9C≡CC≡C(CH2)8COOH
2364	2-(N-MORPHOLINO)ETHANESULFONIC ACID, MONOHYDRATE	145224-94-8	C4H8ONC2H4SO3H
3032	2-BUTYNOIC ACID, 98%	590-93-2	CH3C≡CCOOH
2363	3-(N-MORPHOLINO)PROPANESULFONIC ACID	1132-61-2	C4H8ONC3H6SO3H
3197	5-HEXYNOIC ACID, 96%	53293-00-8	HC≡C(CH2)3COOH
563	5-SULFOSALICYLIC ACID, REAGENT (ACS)	5965-83-3	HOC6H3(COOH)SO3H•2H2O
624	ACETIC ACID, GLACIAL, REAGENT (ACS)	64-19-7	CH3COOH
1261	ACETIC ACID, VERITAS DOUBLE DISTILLED	64-19-7	CH3COOH
546	ACETIC ACID, VERITAS REDISTILLED	64-19-7	CH3COOH
673	BENZOIC ACID, REAGENT (ACS)	65-85-0	C6H5COOH
648	BORIC ACID, REAGENT (ACS), GRANULAR	10043-35-3	H3BO3
1071	CHLOROACETIC ACID, REAGENT (ACS)	79-11-8	CH2ClCOOH
649	CITRIC ACID, ANHYDROUS, REAGENT (ACS)	77-92-9	HOOCCH2C(OH)(COOH) CH2COOH
894	CITRIC ACID, MONOHYDRATE, REAGENT (ACS)	5949-29-1	HOOCCH2C(OH)(COOH) CH2COOH•H2O
1683	DI-p-TOLUOYL-L-TARTARIC ACID	32634-66-5	(C10H9O4)2
1262	FORMIC ACID, 88%, VERITAS DOUBLE DISTILLED	64-18-6	HCOOHBO3
2185	HYDROCHLORIC ACID, 30-35%, VERITAS DOUBLE DISTILLED	7647-01-0	HCl

Acids cont.

Item #	Product Description	CAS #	Chemical Formula
2180	HYDROCHLORIC ACID, 32-38%, VERITAS REDISTILLED	7647-01-0	HCl
625	HYDROCHLORIC ACID, 37%, REAGENT (ACS)	7647-01-0	HCl
2586	HYDROCHLORIC ACID, 37%, SUPERIOR REAGENT (ACS)	7647-01-0	HCl
504	HYDROCHLORIC ACID, 6 MOLAR, VERITAS REDISTILLED	7647-01-0	HCl
5733	HYDROCHLORIC ACID, SELECT TRACE GRADE, MEETS ACS SPECIFICATIONS	7647-01-0	HCl
722	HYDROCHLORIC ACID, SOLUTION, 0.1 N	7647-01-0	HCl
1162	HYDROCHLORIC ACID, SOLUTION, 0.5 N	7647-01-0	HCl
382	HYDROCHLORIC ACID, SOLUTION, 1.0 N	7647-01-0	HCl
5693	HYDROFLUORIC ACID, 48%, TRACE METALS GRADE	7664-39-3	HF
1229	HYDROFLUORIC ACID, VERITAS DOUBLE DISTILLED	7664-39-3	HF
3984	HYDROGEN PEROXIDE, 30%, VERITAS LOW TRACE METALS	7722-84-1	H2O2
2448	HYDROGEN PEROXIDE, 99.999%, 30-32% IN WATER	7722-84-1	H2O2
44	IODIC ACID, REAGENT (ACS)	7782-68-5	HIO3
785	LACTIC ACID, 85%, REAGENT (ACS)	50-21-5	C3H6O3
5454	L-GLUTAMIC ACID, 99%	56-86-0	HOOCCH2CH2CH(NH2)
809	L-TARTARIC ACID, REAGENT (ACS)	87-69-4	HOOC(CHOH)2COOH
5427	MALEIC ACID, 99%	110-16-7	HOOCCH=CHCOOH
63	NITRIC ACID, 69%, VERITAS REDISTILLED	7697-37-2	HNO3
5734	NITRIC ACID, GFS SELECT TRACE GRADE, MEETS ACS SPECIFICATIONS	7697-37-2	HNO3
626	NITRIC ACID, REAGENT (ACS)	7697-37-2	HNO3
2587	NITRIC ACID, SUPERIOR REAGENT (ACS)	7697-37-2	HNO3
621	NITRIC ACID, VERITAS DOUBLE DISTILLED	7697-37-2	HNO3
5790	NITRIC ACID, VERITAS PRIME	7697-37-2	HNO3
2450	OXALIC ACID, ANHYDROUS, 98%	144-62-7	HO2CCO2H
1277	OXALIC ACID, DIHYDRATE, HIGH PURITY	6153-56-6	(COOH)2•2H2O
652	OXALIC ACID, DIHYDRATE, REAGENT (ACS)	6153-56-6	(COOH)2•2H2O
5444	PALMITIC ACID, 95%	57-10-3	CH3(CH2)14COOH
2478	PERCHLORIC ACID, 40% REAGENT	7601-90-3	HClO4
6601	PERCHLORIC ACID, 50%, REAGENT (ACS)	7601-90-3	HClO4
2967	PERCHLORIC ACID, 60% SUPERIOR REAGENT (ACS)	7601-90-3	HClO4
69	PERCHLORIC ACID, 60%, REAGENT (ACS)	7601-90-3	HClO4
68	PERCHLORIC ACID, 68-72%, TECHNICAL	7601-90-3	HClO4
2477	PERCHLORIC ACID, 70% SUPERIOR REAGENT (ACS)	7601-90-3	HClO4
66	PERCHLORIC ACID, 70%, REAGENT (ACS)	7601-90-3	HClO4
230	PERCHLORIC ACID, 70%, VERITAS DOUBLE DISTILLED	7601-90-3	HClO4
67	PERCHLORIC ACID, 70%, VERITAS REDISTILLED	7601-90-3	HClO4
627	PHOSPHORIC ACID, 85%, REAGENT (ACS)	7664-38-2	H3PO4
2362	PIPERAZINE-N,N'-BIS(2-ETHANESULFONIC ACID)	5625-37-6	N2C4H8(C2H4SO3H)2
2361	PIPERAZINE-N,N'-BIS(3-PROPANESULFONIC ACID)	5625-56-9	N2C4H8(C3H6SO3H)2
2354	POTASSIUM ACID PHTHALATE, BUFFER GRADE	877-24-7	HOCOC6H4COOK
554	POTASSIUM ACID PHTHALATE, PRIMARY STANDARD (ACS)	877-24-7	HOCOC6H4COOK

Acids cont.

Item #	Product Description	CAS #	Chemical Formula
2416	p-TOLUENESULFONIC ACID, MONOHYDRATE, REAGENT (ACS)	6192-52-5	CH3C6H4SO3H•H20
628	SULFURIC ACID, REAGENT (ACS)	7664-93-9	H2SO4
1199	SULFURIC ACID, SOLUTION, 0.1 N	7664-93-9	H2SO4
1201	SULFURIC ACID, SOLUTION, 1 N	7664-93-9	H2SO4
2588	SULFURIC ACID, SUPERIOR REAGENT (ACS)	7664-93-9	H2SO4
273	SULFURIC ACID, VERITAS DOUBLE DISTILLED from VYCOR	7664-93-9	H2SO4
1512	SULFURIC ACID, VERITAS REDISTILLED	7664-93-9	H2SO4
1109	SULFUROUS ACID, 6%, REAGENT (ACS)	7782-99-2	H2SO3
390	TRICHLOROACETIC ACID, REAGENT (ACS)	76-03-9	CCl3COOH
3331	TRIFLUOROACETIC ACID, 99.5%	76-05-1	CF3COOH
99	TUNGSTIC ACID, REAGENT	7783-03-1	H2WO4

Bases

Hydroxides and carbonates are critical raw materials for GFS Chemicals, which allows GFS to offer these bases and have them in stock when needed by your lab or production process. GFS can also offer solutions with custom concentrations and packaging configurations based upon your needs. Just ask.

Item #	Product Description	CAS #	Chemical Formula
2584	AMMONIUM HYDROXIDE SUPERIOR REAGENT (ACS)	1336-21-6	NH4OH
5393	BUTYLAMINE, 99%	109-73-9	CH3(CH2)3NH2
910	DIETHANOLAMINE, REAGENT (ACS)	111-42-2	HN(CH2CH2OH)2
4596	DIISOPROPYLAMINE, 99%	108-18-9	((CH3)2CH)2NH
133	DIPHENYLAMINE, REAGENT (ACS)	122-39-4	(C6H5)2NH
3854	DIPROPARGYLAMINE, 97%	6921-28-4	(HC≡CCH2)2NH
231	ETHYLENEDIAMINE, ANHYDROUS	107-15-3	H2NCH2CH2NH2
1973	IMIDAZOLE, REAGENT (ACS)	288-32-4	C3H4N2
5432	METHYLAMINE, 40%, AQUEOUS SOLUTION	74-89-5	CH3NH2
3928	N-METHYLPROPARGYLAMINE, 98%	35161-71-8	HC≡CCH2NH(CH3)
629	POTASSIUM HYDROXIDE, REAGENT (ACS)	1310-58-3	KOH
3959	PROPARGYLAMINE, 99%	2450-71-7	HC≡CCH2NH2
1989	SODIUM HYDROXIDE SOLUTION, 10%	1310-73-2	NaOH
2129	SODIUM HYDROXIDE SOLUTION, 25% W/W	1310-73-2	NaOH
5609	SODIUM HYDROXIDE SOLUTION, 40% W/W	1310-73-2	NaOH
2130	SODIUM HYDROXIDE SOLUTION, 50% W/W	1310-73-2	NaOH
2131	SODIUM HYDROXIDE SOLUTION, 50% W/W, REAGENT GRADE	1310-73-2	NaOH
630	SODIUM HYDROXIDE, REAGENT (ACS)	1310-73-2	NaOH
2133	SODIUM HYDROXIDE, SOLUTION, 0.02 N	1310-73-2	NaOH
2172	SODIUM HYDROXIDE, SOLUTION, 0.05 N	1310-73-2	NaOH
1191	SODIUM HYDROXIDE, SOLUTION, 0.1 N	1310-73-2	NaOH
2291	SODIUM HYDROXIDE, SOLUTION, 0.1 N, in ETHANOL		NaOH

Bases cont.

Item #	Product Description	CAS #	Chemical Formula
2198	SODIUM HYDROXIDE, SOLUTION, 0.2 N	1310-73-2	NaOH
1192	SODIUM HYDROXIDE, SOLUTION, 0.5 N	1310-73-2	NaOH
1193	SODIUM HYDROXIDE, SOLUTION, 1.0 N	1310-73-2	NaOH
1579	SODIUM HYDROXIDE, SOLUTION, 10 N	1310-73-2	NaOH
1573	SODIUM HYDROXIDE, SOLUTION, 2 N	1310-73-2	NaOH
1551	SODIUM HYDROXIDE, SOLUTION, 5 N	1310-73-2	NaOH
2134	SODIUM HYDROXIDE-THIOSULFATE SOLUTION		
2262	TETRABUTYLAMMONIUM HYDROXIDE, 0.4 M AQUEOUS, ELECTROMETRIC GRADE	2052-49-5	(C4H9)4NOH
2520	TETRAETHYLAMMONIUM HYDROXIDE, 20%, AQUEOUS SOLUTION	77-98-5	(C2H5)4NOH
2275	TETRAMETHYLAMMONIUM HYDROXIDE, SOLUTION, 1.0 Mol/L in WATER, REAGENT (ACS)	75-59-2	(CH3)4NOH

Bio Tested Materials

GFS Chemicals continues to expand in the manufacture and distribution of bio-chemicals used for various life science applications. GFS offers quite a range of products such as HEPES, MOPS, and other materials tested specifically for the bioanalytical and culture media markets.

Item #	Product Description	CAS #	Chemical Formula
1901	AMMONIUM ACETATE, BIO-REFINED	631-61-8	CH3COONH4
1902	AMMONIUM CHLORIDE, BIO-REFINED	12125-02-9	NH4Cl
1905	AMMONIUM NITRATE, BIO-REFINED	6484-52-2	NH4NO3
1904	AMMONIUM PHOSPHATE, DIBASIC, BIO-REFINED	7783-28-0	(NH4)2HPO4
1903	AMMONIUM PHOSPHATE, MONOBASIC, BIO-REFINED	7722-76-1	NH4H2PO4
1906	AMMONIUM SULFATE, BIO-REFINED	7783-20-2	(NH4)2SO4
1907	BORIC ACID, BIO-REFINED	10043-35-3	H3BO3
1908	CALCIUM CHLORIDE, DIHYDRATE, BIO-REFINED	10035-04-8	CaCl2•2H2O
1909	CALCIUM NITRATE, TETRAHYDRATE, BIO-REFINED	13477-34-4	Ca(NO3)2•4H2O
1911	CESIUM CHLORIDE, BIO-REFINED	7647-17-8	CsCl
1914	GUANIDINE HYDROCHLORIDE, BIO-REFINED	50-01-1	NH2C(NH)NH2•HCL
1915	LITHIUM METABORATE, ANHYDROUS, BIO-REFINED	13453-69-5	LiBO2
1916	LITHIUM NITRATE, TRACE METAL GRADE	7790-69-4	LiNO3
1917	LITHIUM PERCHLORATE, ANHYDROUS, BIO-REFINED	7791-03-9	LiClO4
1918	LITHIUM SULFATE, MONOHYDRATE, BIO-REFINED	10102-25-7	Li2SO4•H2O
1919	MAGNESIUM CHLORIDE, HEXAHYDRATE, BIO-REFINED	7791-18-6	MgCl•6H2O
1920	MAGNESIUM NITRATE, HEXAHYDRATE, BIO-REFINED	13446-18-9	Mg(NO3)2•6H2O
1921	MAGNESIUM SULFATE, HEPTAHYDRATE, BIO-REFINED	10034-99-8	MgSO4•7H2O
1926	POTASSIUM ACID PHTHALATE, BIO-REFINED	877-24-7	HOCOC6H4COOK
1922	POTASSIUM CHLORATE, BIO-REFINED	3811-04-9	KClO3
1923	POTASSIUM CHLORIDE, BIO-REFINED	7447-40-7	KCl
1927	POTASSIUM IODATE, BIO-REFINED	7758-05-6	KIO3

Bio Tested Materials cont.

Item #	Product Description	CAS #	Chemical Formula
1928	POTASSIUM NITRATE, BIO-REFINED	7757-79-1	KNO3
1929	POTASSIUM PERCHLORATE, BIO-REFINED	7778-74-7	KClO4
1931	POTASSIUM PERMANGANATE, BIO-REFINED	7722-64-7	KMnO4
1925	POTASSIUM PHOSPHATE, DIBASIC, BIO-REFINED	7758-11-4	K2HPO4
1924	POTASSIUM PHOSPHATE, MONOBASIC, BIO-REFINED	7778-77-0	KH2PO4
1932	POTASSIUM SULFATE, BIO-REFINED	7778-80-5	K2SO4
1934	SODIUM ACETATE, ANHYDROUS, BIO-REFINED	127-09-3	Na2C2H3O2
1935	SODIUM ACETATE, TRIHYDRATE, BIO-REFINED	6131-90-4	CH3COONa•3H2O
2552	SODIUM BICARBONATE, BIO-REFINED	144-55-8	NaHCO3
1940	SODIUM BITARTRATE, MONOHYDRATE, BIO-REFINED	6131-98-2	NaHC4H4O6•H2O
1936	SODIUM CARBONATE, ANHYDROUS, BIO-REFINED	497-19-8	Na2CO3
1937	SODIUM CHLORIDE, BIO-REFINED	7647-14-5	NaCl
1943	SODIUM META PERIODATE, BIO-REFINED	7790-28-5	NaIO4
1942	SODIUM NITRATE, BIO-REFINED	7631-99-4	NaNO3
1950	SODIUM PERCHLORATE, MONOHYDRATE, BIO-REFINED	7791-07-3	NaClO4•H2O
1939	SODIUM PHOSPHATE, DIBASIC, BIO-REFINED	7558-79-4	Na2HPO4
1938	SODIUM PHOSPHATE, MONOBASIC, MONOHYDRATE, BIO-REFINED	10049-21-5	NaH2PO4•H2O
1944	SODIUM SULFATE, ANHYDROUS, BIO-REFINED	7757-82-6	Na2SO4
1945	SODIUM TARTRATE, DIHYDRATE, BIO-REFINED	6106-24-7	Na2C4H4O6•2H2O
1947	SODIUM THIOSULFATE, PENTAHYDRATE, BIO-REFINED	10102-17-7	Na2S2O3•5H2O
2983	TRIFLUOROACETIC ACID, BIO-REFINED	76-05-1	CF3COOH
1949	TRISHYDROXYMETHYLAMINOMETHANE HYDROCHLORIDE, BIO-REFINED	1185-53-1	(CH2OH)3CNH2•HCl
1948	TRISHYDROXYMETHYLAMINOMETHANE, BIO-REFINED	77-86-1	(CH2OH)3CNH2

Buffers

GFS manufactures a wide variety of pH buffers to meet almost any laboratory need. From pH 1 to pH 12.45, GFS has the full pH range covered. Beside pH buffers, GFS also manufactures HEPES and MOPS buffers, in addition to the many others noted below.

Item #	Product Description	CAS #	Chemical Formula
2340	BUFFER CONCENTRATE, pH 4.00		
2335	BUFFER CONCENTRATE, pH 7.00		
2341	BUFFER CONCENTRATE, pH 10.00		
2325	BUFFER SOLUTION, pH 1.00		
1631	BUFFER SOLUTION, pH 1.68		
1632	BUFFER SOLUTION, pH 2.00		
1633	BUFFER SOLUTION, pH 3.00		
680	BUFFER SOLUTION, pH 4.00		
1634	BUFFER SOLUTION, pH 4.00, (COLOR CODED RED)		
1635	BUFFER SOLUTION, pH 5.00		
1636	BUFFER SOLUTION, pH 5.50		
1637	BUFFER SOLUTION, pH 6.00		

Buffers cont.

Item #	Product Description	CAS #	Chemical Formula
681	BUFFER SOLUTION, pH 7.00		
1640	BUFFER SOLUTION, pH 7.00, (COLOR CODED GREEN)		
1639	BUFFER SOLUTION, pH 7.00, (COLOR CODED YELLOW)		
1641	BUFFER SOLUTION, pH 7.38		
1642	BUFFER SOLUTION, pH 8.00		
1643	BUFFER SOLUTION, pH 9.00		
1644	BUFFER SOLUTION, pH 9.18		
682	BUFFER SOLUTION, pH 10.00		
1645	BUFFER SOLUTION, pH 10.00, (COLOR CODED BLUE)		
2548	BUFFER SOLUTION, pH 11.00		
1646	BUFFER SOLUTION, pH 11.33		
1647	BUFFER SOLUTION, pH 12.00		
2176	BUFFER SOLUTION, pH 12.45		
2913	CHLORIDE IONOPHORE I	32195-55-4	C44H28ClMnN4
5767	HEPES	7365-45-9	C8H18N2SO4
5772	HEPES, SODIUM SALT	75277-39-3	C8H17N2SO4Na
5793	MONOCHLOROACETIC ACID BUFFER (pH 3)		
5440	MOPS, SODIUM SALT	71119-22-7	C4H8ONC3H6SO3Na
9383	PHOSPHATE BUFFER for B.O.D., pH about 7.2		
2182	PHOSPHATE BUFFER FOR CHLORINE, pH 7		
2354	POTASSIUM ACID PHTHALATE, BUFFER GRADE	877-24-7	HOCOC6H4COOK
2433	TETRABUTYLAMMONIUM DIHYDROGEN PHOSPHATE	5574-97-0	(C4H9)4N(H2PO4)
2436	TETRABUTYLAMMONIUM PHOSPHATE BUFFER, pH 7.5		
2438	TETRAETHYLAMMONIUM HEXAFLUOROPHOSPHATE	429-07-2	(C2H5))4NPF6
5804	TRISHYDROXYMETHYLAMINOMETHANE BUFFER, pH 7.0		

High Purity Solvents

GFS Chemicals has realized the growing need for high purity solvents for HPLC applications and has developed various high-quality materials for your lab. From Distilled in Glass materials to our VERITAS® ULTIMATE GFS has the solvent for your chromatographic needs.

Item #	Product Description	CAS #	Chemical Formula
2494	2,2,4-TRIMETHYLPENTANE, HPLC	540-84-1	(CH3)3CCH2CH(CH3)2
5578	2,2,4-TRIMETHYLPENTANE, VERITAS ULTIMATE	540-84-1	(CH3)3CCH2CH(CH3)2
1232	ACETONE, DISTILLED IN GLASS	67-64-1	(CH3)2CO
2481	ACETONE, HPLC	67-64-1	(CH3)2CO
5562	ACETONE, VERITAS ULTIMATE SOLVENT	67-64-1	(CH3)2CO
1233	ACETONITRILE, DISTILLED IN GLASS	75-05-8	CH3CN
5563	ACETONITRILE, GRADIENT/LC-MS GRADE, VERITAS ULTIMATE SOLVENT	75-05-8	CH3CN
2482	ACETONITRILE, HPLC	75-05-8	CH3CN
5579	ACETONITRILE, LOW WATER, VERITAS ULTIMATE	75-05-8	CH3CN

High Purity Solvents cont.

Item #	Product Description	CAS #	Chemical Formula
3778	CHLOROFORM, VERITAS ULTIMATE, ALCOHOL STABILIZED	67-66-3	CHCl3
1234	CHLOROFORM, VERITAS ULTIMATE, HYDROCARBON STABILIZED	67-66-3	CHCl3
2495	CYCLOHEXANE, HPLC	110-82-7	C6H12
5564	CYCLOHEXANE, VERITAS ULTIMATE	110-82-7	C6H12
1236	DICHLOROMETHANE DISTILLED IN GLASS	75-09-2	CH2Cl2
2484	DICHLOROMETHANE, HPLC	75-09-2	CH2Cl2
5565	DICHLOROMETHANE, VERITAS ULTIMATE	75-09-2	CH2Cl2
1237	ETHYL ACETATE, DISTILLED IN GLASS	141-78-6	CH3COOCH2CH3
2488	ETHYL ACETATE, HPLC	141-78-6	CH3COOCH2CH3
5566	ETHYL ACETATE, VERITAS ULTIMATE	141-78-6	CH3COOCH2CH3
1238	ETHYL ETHER, VERITAS ULTIMATE	60-29-7	(C2H5)2O
2487	HEPTANE, HPLC	142-82-5	C7H16
1231	HEXANE, DISTILLED IN GLASS	110-54-3	C6H14
2497	HEXANES, HPLC	110-54-3	C6H14
2489	ISOPROPYL ALCOHOL, HPLC	67-63-0	CH3CHOHCH3
5569	ISOPROPYL ALCOHOL, VERITAS ULTIMATE	67-63-0	CH3CHOHCH3
5570	METHYL ALCOHOL, GRADIENT/LC-MS GRADE, VERITAS ULTIMATE	67-56-1	CH3OH
2483	METHYL ALCOHOL, HPLC	67-56-1	CH3OH
1995	METHYL ALCOHOL, VERITAS ULTIMATE, for PURGE and TRAP	67-56-1	CH3OH
1980	METHYL ETHYL KETONE, DISTILLED IN GLASS	78-93-3	CH3COC2H5
5572	METHYL ETHYL KETONE, VERITAS ULTIMATE	78-93-3	CH3COC2H5
2490	METHYL tert-BUTYL ETHER, HPLC	1634-04-4	(CH3)3COCH3
5567	n-HEPTANE, VERITAS ULTIMATE	142-82-5	CH3(CH2))5CH3
5568	n-HEXANE, VERITAS ULTIMATE	110-54-3	C6H14
1241	n-PENTANE, DISTILLED IN GLASS	109-66-0	C5H12
2491	n-PENTANE, HPLC	109-66-0	C5H12
5574	n-PENTANE, VERITAS ULTIMATE	109-66-0	C5H12
1242	PETROLEUM ETHER DISTILLED IN GLASS	8032-32-4	
5575	PETROLEUM ETHER, VERITAS ULTIMATE	8032-32-4	
1244	TETRAHYDROFURAN, DISTILLED IN GLASS	109-99-9	C4H8O
2492	TETRAHYDROFURAN, HPLC	109-99-9	C4H8O
5576	TETRAHYDROFURAN, VERITAS ULTIMATE	109-99-9	C4H8O
1245	TOLUENE, DISTILLED IN GLASS	108-88-3	C6H5CH3
2493	TOLUENE, HPLC	108-88-3	C6H5CH3
5577	TOLUENE, VERITAS ULTIMATE	108-88-3	C6H5CH3
1963	WATER, DEIONIZED (HPLC)	7732-18-5	H2O
5613	WATER, VERITAS ULTIMATE, DEIONIZED AND FILTERED, FOR LC-MS	7732-18-5	H2O
5634	WATER, WITH 0.1% ACETIC ACID, LC-MS Eluent		
5635	WATER, WITH 0.1% AMMONIUM HYDROXIDE, LC-MS Eluent		
5614	WATER, WITH 0.1% FORMIC ACID, LC-MS Eluent		
5615	WATER, WITH 0.1% TRIFLUOROACETIC ACID, LC-MC Eluent		

UV-VIS Standards

The In-Spec® product line was designed to make UV/visible spectrophotometer validation accessible and easy for everyone. This range of non-toxic, NIST traceable materials includes photometric accuracy reference standards, wavelength accuracy filters, and stray light filters. In-Spec® standards can be used as both a quality control check and to verify the operating procedure practiced by laboratory staff. All orders come with a detailed certificate of analysis with certified results.

Item #	Product Description	CAS #	Chemical Formula
2051	COLOR STANDARD SOLUTION, APHA 500		
9418	COLOR STANDARD SOLUTION, APHA 250		
9033	COLOR STANDARD SOLUTION, APHA 100		
9502	COLOR STANDARD SOLUTION, APHA 50		
9498	COLOR STANDARD SOLUTION, APHA 10		
8414	IN-SPEC AMARANTH RED COLOR STANDARD, CUSTOM UV-VISIBLE REFERENCE MATERIAL		
8476	IN-SPEC NANO KIT, PHOTOMETRIC ACCURACY VERIFICATION		
8300	IN-SPEC BACKGROUND SOLUTION		
8660	IN-SPEC ORANGE COLOR STANDARD, PHOTOMETRIC ACCURACY REFERENCE		
8416	IN-SPEC PATENT BLUE COLOR STANDARD, CUSTOM UV-VISIBLE REFERENCE MATERIAL		
8587	IN-SPEC PURPLE COLOR STANDARD, PHOTOMETRIC ACCURACY REFERENCE		
8301	IN-SPEC UV STANDARD #1, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8302	IN-SPEC UV STANDARD # 2, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8303	IN-SPEC UV STANDARD # 3, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8304	IN-SPEC UV STANDARD # 4, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8305	IN-SPEC UV STANDARD # 5, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8306	IN-SPEC UV STANDARD # 6, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8307	IN-SPEC UV STANDARD # 7, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8308	IN-SPEC UV STANDARD # 8, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8309	IN-SPEC UV STANDARD # 20, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8310	IN-SPEC UV STANDARD # 30, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8311	IN-SPEC VISIBLE STANDARD 0.05, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8312	IN-SPEC VISIBLE STANDARD 0.1, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8322	IN-SPEC VISIBLE STANDARD 0.3, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8313	IN-SPEC VISIBLE STANDARD 0.5, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8314	IN-SPEC VISIBLE STANDARD 0.8, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8315	IN-SPEC VISIBLE STANDARD 1.0, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8316	IN-SPEC VISIBLE STANDARD 4.0, PHOTOMETRIC ACCURACY REFERENCE STANDARD		
8658	IN-SPEC UV/VIS VERIFICATION KIT		
8445	IN-SPEC TRANSMITTANCE STANDARD, 20%		
8444	IN-SPEC TRANSMITTANCE STANDARD, 40%		
8443	IN-SPEC TRANSMITTANCE STANDARD, 60%		
8442	IN-SPEC TRANSMITTANCE STANDARD, 80%		
8446	IN-SPEC TRANSMITTANCE LINEARITY KIT		
8378	IN-SPEC WAVELENGTH VERIFICATION STANDARD, DIDYMIUM OXIDE	11141-21-2	
8340	IN-SPEC WAVELENGTH VERIFICATION STANDARD, HOLMIUM OXIDE		
8379	IN-SPEC WAVELENGTH VERIFICATION STANDARD, SAMARIUM OXIDE	13569-60-3	

UV-VIS Standards cont.

Item #	Product Description	CAS #	Chemical Formula
8380	IN-SPEC STRAY LIGHT STANDARD, POTASSIUM IODIDE, 1% SOLUTION	7681-11-0	KI
8381	IN-SPEC STRAY LIGHT STANDARD, SODIUM IODIDE, 1% SOLUTION	7681-82-5	NaI
8473	IN-SPEC SPECTRAL RESOLUTION STANDARD, TOLUENE 0.02% in HEXANE		
8384	POTASSIUM CHLORIDE, 1.2% SOLUTION, IN-SPEC STRAY LIGHT STANDARD	7447-40-7	KCl
8350	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, 20 mg/L REFERENCE SOLUTION		K2Cr2O7
8368	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, 40 mg/L REFERENCE SOLUTION		K2Cr2O7
8369	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, 60 mg/L REFERENCE SOLUTION		K2Cr2O7
8348	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, 80 mg/L REFERENCE SOLUTION		K2Cr2O7
8372	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, 100 mg/L REFERENCE SOLUTION		K2Cr2O7
8385	POTASSIUM DICHROMATE, UV ABSORBANCE/LINEARITY, FULL REFERENCE KIT		
8475	WATER, 100% T	7732-18-5	H20

Etheral HCl

GFS offers non-aqueous hydrogen chloride in a variety of solvents such as isopropyl alcohol, dioxane, methanol, ethyl acetate and denatured alcohol. This highly corrosive chemical requires extensive safety precautions and handling expertise that few companies are able to offer. Our experts bring the technical know-how and process expertise to tailor products that you need when you need them.

Item #	Product Description	CAS #	Chemical Formula
5726	HYDROGEN CHLORIDE, 4 M in CYCLOPENTYLMETHYL ETHER		
5586	HYDROGEN CHLORIDE, 4M IN DIOXANE	7647-01-0	HCl
2474	HYDROGEN CHLORIDE, 5-6 N, in ISOPROPYL ALCOHOL	7647-01-0	HCl
5802	HYDROGEN CHLORIDE, 5-6 N, in ISOPROPYL ALCOHOL, LOW WATER	7647-01-0	HCl
5788	HYDROGEN CHLORIDE, 1 M in ACETONITRILE		
5653	HYDROGEN CHLORIDE, 2.5M in DENATURED ETHANOL	7647-01-0	HCl
5674	HYDROGEN CHLORIDE, 3 N, in ETHYL ACETATE	7647-01-0	HCl
5618	HYDROGEN CHLORIDE, 3N, in METHYL ALCOHOL	7647-01-0	HCl
5794	HYDROGEN CHLORIDE, 3 M in CYCLOPENTYLMETHYL ETHER		
5243	HYDROGEN CHLORIDE, 6% (w/w), in METHYL ALCOHOL	7647-01-0	HCl

Unsaturated Alcohols

GFS Chemicals core capabilities in acetylenic chemistry allow us to offer a range of unsaturated alcohols. The alcohol product line extends to linear, branched, aromatic, acyclic (not sure what we are going for here), aliphatic alkynols, diols and enols. Products include those such as 1,1-Diphenyl-2-propyn-1-ol and 3 Methyl-3-oxitanemethanol. These products find their use in a wide variety of industries such as electronics, pharmaceutical and flavors and fragrance.

Item #	Product Description	CAS #	Chemical Formula
3110	1,1-DIPHENYL-2-PROPYN-1-OL, 97%	3923-52-2	(C6H5)2C(OH)C≡CH
3287	1-PHENYL-2-PROPYN-1-OL, 98%	4187-87-5	HC≡CCH(OH)C6H5
3033	2-BUTYN-1-OL, 98%	764-01-2	CH3C≡CCH2OH
3210	2-METHYL-3-BUTYN-2-OL, 98%	115-19-5	HC≡CC(CH3)2(OH)
3282	2-PHENYL-3-BUTYN-2-OL, 99%	127-66-2	HC≡CC(OH)(C6H5)CH3
3807	3-BUTEN-1-OL, 98%	627-27-0	H2C=CHCH2CH2OH
3034	3-BUTYN-1-OL, 98%	927-74-2	HC≡CCH2CH2OH
3276	4-PENTYN-1-OL, 98%	5390-04-5	HC≡CCH2CH2CH2OH
3202	5-HEXYN-1-OL, 97%	928-90-5	HC≡C(CH2)3CH2OH
3295	PROPARGYL ALCOHOL, 99%	107-19-7	HC≡CCH2OH

Alkenes & Alkynes

GFS is a recognized world leader in the manufacturing of Alkenes and Alkynes. In some cases, GFS is the single supplier for many alkenes (olefins) in the market today. We manufacture more than 400 alkynes and alkenes available in lab scale to multi-ton quantities and various packaging configurations.

Item #	Product Description	CAS #	Chemical Formula
5529	1-AMINO-5-HEXENE, 98%	34825-70-2	H2C=CH(CH2)4NH2
3015	1-BROMO-2-BUTYNE, 98%	3355-28-0	CH3C≡CCH2Br
3164	1-HEPTYNE, 98%	628-71-7	CH3(CH2)4C≡CH
3193	1-HEXYNE, 98%	693-02-7	CH3(CH2)3C≡CH
3270	1-PENTYNE, 97%	627-19-0	CH3CH2CH2C≡CH
3396	1-PENTENE, 98%	109-67-1	CH3CH2CH2CH=CH2
3286	1-PHENYL-1-PROPYNE, 98%	673-32-5	CH3C≡CC6H5
5283	2-BROMOPROPENE, 99%	557-93-7	CH3C(Br)=CH2
3395	3-AMINO-3-METHYL-1-BUTYNE, 95%	2978-58-7	HC≡CH2C(CH3)2NH2
3195	3-HEXYNE, 99%	928-49-4	CH3CH2C≡CCH2CH3
3209	3-METHYL-1-BUTYNE, 96%	598-23-2	(CH3)2CHC≡CH
5252	7-BROMO-1-HEPTENE, 98%	4117-09-3	CH2=CH(CH2)5Br
3265	cis-2-PENTENE, 96%	627-20-3	CH3CH2CH=CHCH3
3187	cis-3-HEXENE, 97%	7642-09-3	CH3CH2CH=CHCH2CH
3279	PHENYLACETYLENE, 98+%	536-74-3	C6H5C≡CH
3296	PROPARGYLALDEHYDE DIETHYL ACETAL, 98%	10160-87-9	HC≡CCH(OCH2CH3)2
3161	trans-2-HEPTENE, 98%	14686-13-6	CH3(CH2)3CH=CHCH
3266	trans-2-PENTENE, 99%	646-04-8	CH3CH2CH=CHCH3

Specialty Alkynes

Alkynes have become core building blocks for several other functionalized products, such as our specialty olefins, diactylenic intermediates and specialty heterocycles, to name a few. The growing number of literature references that use acetylenic intermediates in organic synthesis demonstrates the impact this chemical family continues to have in the research community. GFS offers and synthesizes materials to meet the needs of this community and its customers.

Item #	Product Description	CAS #	Chemical Formula
3097	3,3-DIMETHYL-1-BUTYNE, 97%	917-92-0	(CH3)3CC≡CH
3048	3-CHLORO-3-METHYL-1-BUTYNE, 97%	1111-97-3	(CH3)2C(Cl)C≡CH
3359	3-TRIMETHYLSILYLPROPARGYL ALCOHOL, 98%	5272-36-6	(CH3)3SiC≡CCH2OH
3258	4-OCTYNE, 99%	1942-45-6	CH3CH2CH2C≡CCH2CH2CH3
3053	5-CHLORO-1-PENTYNE, 98%	14267-92-6	HC≡C(CH2)3Cl
5537	7-OCTYN-1-OL TETRAHYDROPYRAN, 97%	16695-31-1	C13H22O2
3854	DIPROPARGYLAMINE, 97%	6921-28-4	(HC≡CCH2)2NH
3132	ETHYL 2-BUTYNOATE, 98%	4341-76-8	CH3C≡CCOOC2H5
3134	ETHYL ETHYNYL ETHER, 50% (W/W), In HEXANES	927-80-0	HC≡COCH2CH3
3959	PROPARGYLAMINE, 99%	2450-71-7	HC≡CCH2NH2
3337	TRIISOPROPYLSILYLACETYLENE, 97%	89343-06-6	[CH(CH3)2]3SiC≡CH
3969	TRIPROPARGYLAMINE, 98%	6921-29-5	(HC≡CCH2)3N
3340	(TRIMETHYLSILYL)ACETYLENE, 98+%	1066-54-2	(CH3)3SiC≡CH

Grignard Reagents

While GFS' focus is on specialty grignards that stem from our existing product line, GFS has plant capacity to support grignards from lab scale through container loads. Beyond what you see here, GFS continues to extend its offering to new halogenated compound inquiries that arise from work with our customers. Our unique offerings of alkynyl (ie. ethynyl MgCl), olefinic (ie. isopropenyl MgBr), and alkyl (ie. t-butyl MgCl) grignards are supported in several solvents, including but not limited to THF, butyl ether, methyl THF, and diethyl ether. Our ability to manufacture these internally help our customers save reactor space and time in their own facilities.

Item #	Product Description	CAS #	Chemical Formula
9179	1-PROPYNYLMAGNESIUM BROMIDE, 0.5 M, SOLUTION IN TETRAHYDROFURAN	16466-97-0	CH3C≡CMgBr
5293	2,6-DIETHYNYLPYRIDINE	75867-46-8	C5H3N(C≡CH)2
5636	4-[BIS(TRIMETHYLSILYL)AMINO]PHENYLMAGNESIUM BROMIDE, 0.5 M in TETRAHYDROFURAN	756822-47-6	C12H22NSi2MgBr
5725	4-BENZYLOXYPHENYL MAGNESIUM BROMIDE, 1 M, in METHYLTETRAHYDROFURAN	120186-59-6	C6H5CH2OC6H4MgBr
5204	4-BENZYLOXYPHENYL MAGNESIUM BROMIDE, in TETRAHYDROFURAN	120186-59-6	C6H5CH2OC6H4MgBr
5200	4-CHLOROPHENYLMAGNESIUM BROMIDE, 1 M, in DIETHYL ETHER	873-77-8	ClC6H4MgBr
5265	4-CHLOROPHENYLMAGNESIUM BROMIDE, 1 M, in TETRAHYDROFURAN	873-77-8	ClC6H4MgBr
5494	CYCLOHEXYL MAGNESIUM CHLORIDE, 1M in THF	931-51-1	C6H11MgCl
5264	CYCLOPROPYLMAGNESIUM BROMIDE, 0.75 M, in TETRAHYDROFURAN	23719-80-4	C3H5MgBr
3979	HEXYLMAGNESIUM BROMIDE, 0.8 M, in TETRAHYDROFURAN	3761-92-0	CH3(CH2)5MgBr
5561	ISOPROPENYLMAGNESIUM BROMIDE, 1.5 M, in METHYL TETRAHYDROFURAN	13291-18-4	H2C=C(CH3)MgBr
5292	ISOPROPENYLMAGNESIUM BROMIDE, in ETHYL ETHER	13291-18-4	H2C=C(CH3)MgBr

Grignard Reagents cont.

Item #	Product Description	CAS #	Chemical Formula
5291	ISOPROPENYLMAGNESIUM BROMIDE, in TETRAHYDROFURAN	13291-18-4	H2C=C(CH3)MgBr
5195	ISOPROPYLMAGNESIUM BROMIDE, 0.8 M, in TETRAHYDROFURAN	920-39-8	(CH3)2CHMgBr
5290	n-BUTYLMAGNESIUM CHLORIDE, 1.3 M, in DIBUTYL ETHER	693-04-9	CH3(CH2)3MgCl
5501	n-BUTYLMAGNESIUM CHLORIDE, 2M, in TETRAHYDROFURAN	693-04-9	CH3(CH2)3MgCl
5197	OCTYLMAGNESIUM CHLORIDE 1.4M, IN TETRAHYDROFURAN	38841-98-4	CH3(CH2)7MgCl
5233	PHENYLMAGNESIUM CHLORIDE, 1 M, in DIBUTYL ETHER	100-59-4	C6H5MgCl
2974	PHENYLMAGNESIUM CHLORIDE, 2 M, in TETRAHYDROFURAN	100-59-4	C6H5MgCl
2974	PHENYLMAGNESIUM CHLORIDE, 2 M, in TETRAHYDROFURAN	100-59-4	C6H5MgCl
3721	tert-BUTYLMAGNESIUM CHLORIDE, 1 M, in TETRAHYDROFURAN	677-22-5	(CH3)3CMgCl
3721	tert-BUTYLMAGNESIUM CHLORIDE, 1 M, in TETRAHYDROFURAN	677-22-5	(CH3)3CMgCl

Lithium & Alkali Metals

GFS Chemicals is a primary manufacturer of a full range of alkali metal salts, from lithium to cesium. Our capabilities allow for a variety of downstream salts, including nitrates, chlorides, iodides, perchlorates, and oxalates. These salts can be manufactured in purities ranging from reagent grade through 99.999% on a metals basis, and in quantities from a few grams through metric ton single lots. GFS is able to manufacture to your custom and confidential specifications.

Item #	Product Description	CAS #	Chemical Formula
2297	LITHIUM CARBONATE, HIGH PURITY, OPTICAL GRADE	554-13-2	Li2CO3
2595	LITHIUM IODIDE, ANHYDROUS	10377-51-2	LiI
940	LITHIUM IODIDE, REAGENT	7790-22-9	LiI•3H2O
347	LITHIUM LACTATE, REAGENT	867-55-0	LiO2CCHOHCH3
611	LITHIUM NITRATE, REAGENT	7790-69-4	LiNO3
1916	LITHIUM NITRATE, TRACE METAL GRADE	7790-69-4	LiNO3
233	LITHIUM PERCHLORATE, BATTERY GRADE	7791-03-9	LiClO4
1687	LITHIUM PHOSPHATE, MONOBASIC	13453-80-0	LiH2PO4
56	MAGNESIUM PERCHLORATE, HYDRATED, REAGENT	13446-19-0	Mg(ClO4)2•6H2O
589	MAGNESIUM PERCHLORATE, SOLUTION	13446-19-0	Mg(ClO4)2•6H2O
944	MAGNESIUM SULFATE, ANHYDROUS, REAGENT	7487-88-9	MgSO4
373	POTASSIUM PERCHLORATE, COMMERCIAL	7778-74-7	KClO4
593	POTASSIUM PERIODATE, COMMERCIAL	7790-21-8	KIO4
1016	RUBIDIUM NITRATE, 99.8%	13126-12-0	RbNO3
5384	RUBIDIUM NITRATE, TECHNICAL	13126-12-0	RbNO3
659	SODIUM PARA PERIODATE, COMMERCIAL	13940-38-0	Na3H2O6
94	SODIUM PARA PERIODATE, REAGENT	13940-38-0	Na3H2O6
3230	SODIUM PERCHLORATE, SOLUTION, 60%	7601-89-0	NaClO4
5168	STRONTIUM PERCHLORATE, ANHYDROUS, REAGENT	13450-97-0	Sr(ClO4)2
96	STRONTIUM PERCHLORATE, TRIHYDRATE, REAGENT	15650-09-6	Sr(ClO4)2•3H2O

Rare Earth Compounds

GFS has extensive experience manufacturing a wide range of rare earth materials making us the supplier of choice for your production operations or laboratory use. Although specializing in Cerium III and Cerium IV, we cover the majority of the lanthanide series by offering several rare earths ranging from ACS reagent grade through 99.99+% purity.

Item #	Product Description	CAS #	Chemical Formula
15	CERIC AMMONIUM NITRATE, CERTIFIED	16774-21-3	(NH4)2Ce(NO3)6
768	CERIC AMMONIUM NITRATE, COMMERCIAL	16774-21-3	(NH4)2Ce(NO3)6
7683	CERIC AMMONIUM NITRATE, ELECTRONICS GRADE	16774-21-3	(NH4)2Ce(NO3)6
14	CERIC AMMONIUM NITRATE, PRIMARY STANDARD	16774-21-3	(NH4)2Ce(NO3)6
19	CERIC NITRATE, SOLUTION, 0.5N	13093-17-9	H2Ce(NO3)6
1574	CERIC NITRATE, SOLUTION, 1.0N	13093-17-9	H2Ce(NO3)6
1575	CERIC NITRATE, SOLUTION, 1.5 N	13093-17-9	H2Ce(NO3)6
24	CERIC SULFATE, REAGENT	17106-39-7	H4Ce(SO4)4
2902	CEROUS CHLORIDE, ANHYDROUS	7790-86-5	CeCl3
29	CEROUS CHLORIDE, HEPTAHYDRATE, REAGENT	18618-55-8	CeCl3•7H2O
30	CEROUS NITRATE, HYDRATED, REAGENT	10294-41-4	Ce(NO3)3•6H2O
5910	GFS ETCHANT FORMULA 10		
5911	GFS ETCHANT FORMULA 11		
5912	GFS ETCHANT FORMULA 12		
5913	GFS ETCHANT FORMULA 13		
633	LANTHANUM NITRATE, HEXAHYDRATE, REAGENT	10277-43-7	La(NO3)3•6H2O
2453	YTTRIUM NITRATE, 99.9%, 50% SOLUTION	13494-98-9	Y(NO3)3•6H2O
1216	YTTRIUM NITRATE, HEXAHYDRATE, 99.9%	13494-98-9	Y(NO3)3•6H2O
2250	YTTRIUM NITRATE, HEXAHYDRATE, 99.99%	13494-98-9	Y(NO3)3•6H2O

Heavy Metal Compounds

Through almost 90 years of research and development, GFS Chemicals has assembled a broad range of chemistries based on transition metals, precious metals and heavy metals. This extremely broad product line is every-changing to meet the expanding needs of industry and academia. Heavy metal chemistries available from GFS include: mercury, cadmium, nickel, lead, chromium, and vanadium, Transition metals offerings include:copper, zinc, cobalt, iron, manganese zirconium, and molybdenum.

Item #	Product Description	CAS #	Chemical Formula
7	BARIUM PERCHLORATE, ANHYDROUS	13465-95-7	Ba(ClO4)2
8	BARIUM PERCHLORATE, TRIHYDRATE, REAGENT	10294-39-0	Ba(ClO4)2•3H2O
12	CALCIUM PERCHLORATE, HYDRATED, REAGENT	15627-86-8	Ca(ClO4)2•4H2O
3614	CUPRIC CHLORIDE, ANHYDROUS	7447-39-4	CuCl2
3615	CUPRIC CHLORIDE, DIHYDRATE	10125-13-0	CuCl2•2H2O
666	CUPRIETHYLENEDIAMINE SOLUTION, 1M	14552-35-3	Cu(C2H8N2)2(OH)2
6661	CUPRIETHYLENEDIAMINE SOLUTION, 0.5M	14552-35-3	Cu(C2H8N2)2(OH)2
39	FERRIC PERCHLORATE, HYDRATED, YELLOW, REAGENT	55144-08-6	Fe(ClO4)3•6H2O
40	FERRIC PERCHLORATE, HYDRATED, NON-YELLOW, REAGENT	55144-08-6	Fe(ClO4)3•6H2O
42	FERROUS PERCHLORATE, HYDRATED, REAGENT	13520-69-9	Fe(ClO4)2•6H2O

Heavy Metal Compounds cont.

Item #	Product Description	CAS #	Chemical Formula
5142	LEAD PERCHLORATE, DEHYDRATED	13637-76-8	Pb(ClO4)2•H2O
50	LEAD PERCHLORATE, SATURATED SOLUTION, REAGENT	13637-76-8	Pb(ClO4)2
60	MERCURIC PERCHLORATE, TRIHYDRATE, REAGENT	73491-34-6	Hg(ClO4)2•3H2O
9248	MERCUROUS NITRATE, 10%, SOLUTION IN 10% NITRIC ACID	10415-75-5	HgNO3
957	MERCUROUS NITRATE, DIHYDRATE, REAGENT	14836-60-3	Hg2(NO3)2•2H2O
972	NICKEL CHLORIDE, HEXAHYDRATE, PURIFIED	7791-20-0	NiCl2•6H2O
5155	NICKEL PERCHLORATE, DEHYDRATED, REAGENT	13637-71-3	Ni(ClO4))2•3H2O
62	NICKEL PERCHLORATE, HEXAHYDRATE, REAGENT	13520-61-1	Ni(ClO4))2•6H2O
1190	SILVER IODIDE, REAGENT	7783-96-2	AgI
86	SILVER PERCHLORATE, ANHYDROUS, REAGENT	7783-93-9	AgClO4
87	SILVER PERCHLORATE, HYDRATED, REAGENT	14242-05-8	AgClO4•H2O

Karl Fischer Reagents

GFS Chemicals manufactures the Watermark® brand of Karl Fischer reagents. These high-quality Karl Fischer reagents are made fresh in the U.S. and are available to ship the same or next day. The line includes reagents for both volumetric and coulometric applications. Materials are available in pyridine and pyridine free solutions.

Item #	Product Description	CAS #	Chemical Formula
1612	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, PYRIDINE-FREE		
1619	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, FOR KETONES AND ALDEHYDES		
1607	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, CFC FREE		
5202	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, for OILS		
1613	WATERMARK KARL FISCHER COULOMETRIC GENERATOR SOLUTION, PYRIDINE-FREE		
1671	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, DIAPHRAGMLESS, CHLOROFORM-FREE		
1889	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, OVEN		
1609	WATERMARK KARL FISCHER SOLVENT, METHANOL-FREE		
1610	WATERMARK KARL FISCHER SOLVENT, GENERAL PURPOSE		
5322	WATERMARK KARL FISCHER SOLVENT, for ALDEHYDES AND KETONES		
3569	WATERMARK KARL FISCHER SOLVENT, METHYL ALCOHOL, ANHYDROUS	67-56-1	CH3OH
1615	WATERMARK KARL FISCHER BUFFER SOLUTION		
1622	WATERMARK KARL FISCHER COULOMETRIC VESSEL SOLUTION, PYRIDINE-BASED		
1600	WATERMARK KARL FISCHER REAGENT, PYRIDINE-FREE SINGLE SOLUTION, 5 mg/ml		
1893	WATERMARK KARL FISCHER REAGENT, 5 mg/ml SINGLE SOLUTION, NON-HAZ		
1601	WATERMARK KARL FISCHER REAGENT, PYRIDINE-FREE SINGLE SOLUTION, 2 mg/ml		
1894	WATERMARK KARL FISCHER REAGENT, 2 mg/ml SINGLE SOLUTION, NON-HAZ		
1602	WATERMARK KARL FISCHER TITRANT, STABLE, 1 mg/ml, NON-HYGROSCOPIC		
1603	WATERMARK KARL FISCHER TITRANT, STABLE, 2 mg/ml, NON-HYGROSCOPIC		

Karl Fischer Reagents cont.

Item #	Product Description	CAS #	Chemical Formula
1604	WATERMARK KARL FISCHER TITRANT, STABLE, 5 mg/ml, NON-HYGROSCOPIC		
1616	WATERMARK KARL FISCHER TITRANT, 5 mg/ml, in METHANOL		
1885	WATERMARK KARL FISCHER SOLVENT, METHANOL PRIME		
2978	WATERMARK KARL FISCHER SOLVENT FOR OILS, for ONE-COMPONENT SYSTEM		
2991	WATERMARK KARL FISCHER SOLVENT FOR OILS, for TWO-COMPONENT SYSTEM		
1892	WATERMARK KARL FISCHER WATER STANDARD, 10.0 mg/mL		
2196	WATERMARK KARL FISCHER WATER STANDARD, 0.10 mg/ml		
2301	WATERMARK KARL FISCHER WATER STANDARD, 0.10 mg/g		
2302	WATERMARK KARL FISCHER WATER STANDARD, 1.0 mg/g		
2303	WATERMARK KARL FISCHER WATER STANDARD, 10.0 mg/g		
2304	WATERMARK KARL FISCHER WATER STANDARD, 5.0 mg/g		
9425	WATERMARK KARL FISCHER WATER STANDARD, 1 mg/ml, in METHANOL		
2321	WATERMARK KARL FISCHER COULOMETRIC GENERATOR SOLUTION, UNIVERSAL		
1617	WATERMARK KARL FISCHER WATER STANDARD, 5.0 mg/ml		
1618	WATERMARK KARL FISCHER WATER STANDARD, 1.0 mg/ml		
3493	WATERMARK KARL FISCHER WATER STANDARD, 0.50 mg/g		
2311	WATERMARK KARL FISCHER WATER STANDARD, 0.05 mg/g (50 ppm)		
2385	WATERMARK KARL FISCHER WATER STANDARD, POTASSIUM CITRATE	6100-05-6	K3C6H5O7H20
963	MOLECULAR SIEVE, 3A, 8-12 MESH BEADS	12736-96-8	

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