GFS Chemicals

Turbidity and Water Products Catalog

The highest quality water calibration standards and equipment available

EPA approved Primary Standards are:

- Safe, non-toxic and disposable
- Easy-to-use/No dilutions or preparations
- Accurate to 1% lot-to-lot
- Available in a wide range of values
- Stable/does not settle out of suspension
- Guaranteed One Year Shelf Life
- N.I.S.T. Traceable
- Custom standards available

Sales and Customer Service
800-858-9682
740-881-5989 (fax)

GFS CHEMICALS

For latest products and pricing information visit www.AmcoClear.com

The GFS Advantage: Dedication to Quality Products and Service Excellence

Our commitment to our customers means you get the highest quality products backed by technical expertise and knowledgeable customer service. Our standards are manufactured daily and shipped within 48 hours of your order to ensure that you receive the freshest product. Since we are the manufacturer, we can assist you with custom requirements. GFS has manufactured quality analytical products since 1928 and continues this tradition with the acquisition of the APS Analytical Standards product lines last year.

The GFS sales team takes pride in the service we provide to our customers. No need to worry about expired standards, we'll call to remind you when your standards are due for renewal! Once your order is placed, we'll fax your order confirmation and ship standard catalog items via UPS within 48 hours. Our customer service professionals will follow-up on every order to make sure you're satisfied with our products. If you need a specific NTU value, or water testing product not listed in this catalog, just call us and we'll be happy to discuss your needs and provide you with pricing and product in a timely manner.

GFS maintains relationships with major instrument manufacturers and stocks the most popular products and accessories. Whether you need instruments, calibration standards, or analytical chemicals for your water laboratory, GFS Chemicals is your one-stop shop for quality products, technical assistance, and friendly, knowledgeable customer service. Our people are our greatest asset and you can count on GFS for all your water testing needs.

Water testing and Turbidity

GFS Chemicals, Inc. provides a comprehensive line of standards, analytical reagents and instruments for water treatment facilities worldwide. By bringing together the 18 years of turbidity experience from APS Analytical Standards with 77 years of GFS chemical manufacturing experience, customers can rely on GFS for the highest quality, freshest, most stable and reliable products on the market. As an ISO-9000 certified organization, GFS can give you the assurance of consistent product every time.

Our premier products, AMCO CLEAR® standards, are certified for use in turbidimeters and haze meters by the following regulatory bodies:

- EPA Federal Registry, Vol. 47, #42, March 3, 1982 to present
- Standard Methods of Water & Wastewater, APHA-AWWA-WPOCF, 16th, 17th, 18th & 19th Edition to present
- ASTM, D1889-88a, June 24, 1989 to present
- ASBC - American Society Brewing Chemists 1986 to present
- Analytica - EBC, 4th Edition, 1987 to present

AMCO CLEAR® is an EPA approved turbidity primary standard that is safe, non-toxic and disposable. It is easy-to-use with no dilution or prep work required, and is available in a wide range of values. It is NIST traceable, and its inherent stability means it does not settle out of suspension. It has a guaranteed one year shelf life. The convenient submicron polymer suspensions are the only non-toxic primary calibration standards currently approved by the EPA for water testing, and preferred by the U. S. Geological Survey for turbidity testing.

AMCO CLEAR® are Certified Reference Standards (CRS) for use as primary standards for the calibration of:

Turbidimeters - measuring turbidity (NTU units)
Haze meters (ISO) - measuring haze (EBC units)
Haze meters (ASBC) - measuring haze (FTU units)
Percent Solids Analyzer - measuring percent suspended solids (PPM)
Biomedical Instrumentation - measuring bacterial colony counts; protein/blood composition
Visual Process Monitoring - visually measuring fermentation/distillation
Spectrophotometer-measuring absorbed and transmitted light

GFS Chemicals will continue to develop new products for the turbidity, waste water, spectrophotometric, consumer products, life-science, and materials science markets. Please contact us regarding opportunities that we might develop together for your benefit.

Turbidity Standard Kits

Primary Standard turbidity meter calibration kits include 250 ml bottles of each NTU value indicated and packaged in custom foam fitted carrying cases. The kits contained in this catalog are those which match the manufacturer's guidelines, but you may choose a kit with values more tailored to your application.

Secondary standard turbidity meter kits include sealed vials or bottles of the NTU values above. Kits may also be produced in the range of interest depending on your application. Sealed standard kits of 3-5 vials will be packaged in foam fitted plastic carrying cases.

Deluxe turbidity standard kits will contain the 250 ml bottles of primary standards and the corresponding sealed secondary standards at the manufacturer's suggested calibration points. These will also be packaged in a foam fitted carrying case and will include a new sample vial. Custom kits may also be available as well as in different volumes. *Foam fitted boxes may not be available for larger volume bottles.

Linear Calibration standard kits contain 125 ml bottles of primary standard in the range of your application. 0-1, 0-10, and 1-100 NTU ranges include 5 bottles at 20%, 40%, 60%, 80% and 100% of the range of interest. Directions and graph paper are included upon request.

Individual Turbidity Standards

Primary Standards are available in 125, 250, and 500 ml, 1 L and 1 Gallon bottles and are instrument specific formulated to match formazin dilutions.

Secondary standards are available for all instruments that require a sample vial. They are primary standard suspensions contained in a sealed vial/bottle and used for daily instrument calibration verification.

Turbidity Standard Kits
EPA 180.1 Benchtops and Portables

Instrument	Item #	Includes these Values
Hach		
2100 A Bench-top	8202	0.1/0.5/5
2100 A Bench-top	8201**	0.5/5/40
2100 N Ratio>40NTRU	8215	0/20/200/1000/4000
2100 AN Ratio>40NTRU	8215	0/20/200/1000/4000*
2100 P Portable	8216	0/20/100/800
Hanna		
C102 Portable	8200	0/20
C114 Portable	8200	0/20
HF Scientific		
Micro 100 Benchtop	8219	0.02/10/1000
Micro 1000 Ratio>100 NTRU	8268	0.02/10/100/1750*
Micro TPW Portable	8252	0.02/10/1000
DRT 15CE Port/Bench	8265	0.02/10/100/1000
LaMotte 2008 Bench-top	8201**	0.5/5/40
LaMotte 2020 Portable	8204	1.0/10
ICM Portable/Bench-top	8201**	0.5/5/40
ICM Portable/Bench-top	8206	0.5/10
Orbeco-Hellige Port/Ben	8211	0/40
Monitek TA1 Bench-top	8207	1.0/10
Monitek TA1 Bench-top	8208	1.0/10/100
Turner 40-400 Bench-top	8201	0.5/5/40

Primary Kits include one bottle of each standard listed
Deluxe kits also include a secondary sealed standard of each value plus a spare sample vial
*Please specify liter or gallon
*10,000 turbidity unit standard is available in a sealed vial
** For item 8201 deluxe kits, specify make & model of instrument

Turbidity Standard Kits

Instrument	Item #	Includes these Values
ISO 7027 Turbidimeters		
Hach		
2100 N IS Ratio >40FNRU	**8195**	**0/20/200/1000/4000**
2100 AN IS Ratio >40FNRU	**8195**	**0/20/200/1000/4000***
Hanna		
LP2000(-11) Bench-top	**8246**	**0/10 (500)**
93703 (-11) Portable	**8246**	**0/10 (500)**
HF Scientific		
Micro 100 IR Bench-top	**8220**	**0.02/10/1000**
Micro 1000 IR Ratio>100 FNRU	**8221**	**0.02/10/100/1750***
Micro TPI Portable	**8275**	**0.02/10/100/1000**
Thermo Electron		
AQ4500 Portable	**8278**	**1/10/100/1000**

Standards are available for other meters - inquire
Primary Kits include one bottle of each standard listed
Deluxe kits also include a secondary sealed standard of each value plus a spare sample vial
*Please specify liter or gallon
*10,000 turbidity unit standard is available in a sealed vial

Turbidity Standard Kits

Instrument	Item #	Includes these Values
Ratio Turbidimeters		
Hach 18900	**8212**	**1.8/18/180**
Hach 43900™	**8213**	**1.8/18/180**
Hach 43900 XR™	**8214**	**1.8/18/180/1800**
HF DRT 100B	**8217**	**0.8/8/80**
HF DRT 100B	**8218**	**0.8/8/80/800**
Online Turbidimeters - EPA		
Hach		
1720 C/D/E	**8247**	**0/20**
1720 C/D/E	**8271**	**0/1.0**
660 EPA 10133 (laser)	**8279**	**0/0.8**
Surface Scatter 6	**8280**	**0/200**
Micro TOL1/2/4 Online	**8219**	**0.02/10/100**
Micro TOL3	**8276**	**0.02/10/100**
Micro 200BW	**8277**	**0.02/4/10**
Rosemount		
2120	**8250**	**0/20**
Clarity II	**8248**	**0/5.0**
GLI Accu 4™(EPA 180.2)	**8281**	**0/40**

Standards are available for other meters - inquire
Primary Kits include one bottle of each standard listed
Deluxe kits also include a secondary sealed standard of each value plus a spare sample vial
*Please specify liter or gallon
*10,000 turbidity unit standard is available in a sealed vial

AMCO Clear® Guarantee

AMCO Clear® Primary Standards are guaranteed to be within 1% of their stated value for 1 year from the date of shipment.

AMCO Clear® Sealed Secondary Standards are guaranteed to be within 10% of their stated value for 1 year from the date of shipment.

Following these precautions is a must in order to not void the warrantee agreement:
·Do not allow the standards to freeze or expose to extreme heat.
·Do not shake or agitate the standards….they are ready to use.
·Replace bottle caps promptly
·Keep sealed standard vials scratch free by utilizing a cuvette stand or other glass friendly holder.

Unlike Formazin products or any other turbidity standard on the market today, AMCO Clear® standards contain a consistent, size, shape and particle distribution that is very reproducible. Each lot is made to exactly match the previous lots which were formulated to a master blend of many batches of Formazin 4000 NTU (+/- 2%) concentrate and precisely diluted to each value.

New! Coming soon!
Suspended Solids Standards for the Wastewater Industry

*Please inquire with your GFS salesperson.

PPM (or mg/L) standards for Monitek 151 and 251 laboratory turbidity meters are still available.

Now, we are formulating standards for online or probe type sensors based on gravimetric determination of common particulate sizes.

Are you required to analyze Total Suspended Solids (or Total Non-filterable Residue) in your laboratory?

Ask us about standards for gravimetric determination of TSS
Also ask us about combination TSS and TS standards coming soon.

Individual Standards for EPA Design Turbidity Meters (excluding Hach models 2100 N, AN and P and LaMotte 2020 - See next two pages 10 & 11)

GFS Item	NTU
8000	0.0
8001	0.1
8002	0.2
8362	0.3
8003	0.4
8004	0.5
8005	0.6
8006	0.8
8007	1.0
8008	2.0
8009	3.0
8010	4.0
8011	5.0
8012	6.0
8013	8.0
8014	10.0
8015	20.0
8016	30.0
8017	40.0
8018	50.0
8019	60.0
8020	80.0
8021	100.0
8022	200.0
8024	300.0
8025	400.0
8026	500.0
8027	600.0
8028	800.0
8029	900.0
8030	1000.0

Individual Standards

Hach 2100 P

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8115	0.5	8112	20.0
8124	5.0	8111	10.0		
8113	100.0	8114	800.0		

Hach 2100 N and AN

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8098	0.1	8127	0.2
8129	0.3	8106	0.5	8067	1.0
8099	2.0	8100	5.0	8145	10.0
8107	20.0	8108	200.0	8109	1000.0
8110	4000.0	8356	7500*	*sealed vial only	

Hach 18900 Ratio Turbidimeter

Item#	NTU	Item#	NTU	Item#	NTU
8034	0.8	8035	1.8	8037	18
8039	180				

Hach 2000/43900 XR Ratio™

Item#	NTU	Item#	NTU	Item#	NTU
8035	1.8	8037	18	8104	180
8041	1800				

HF Scientific DRT 100B Ratio Turbidimeter

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0(2)	8068	0.8	8036	8.0
8038	80.0	8040	800.0		

Standards for Instruments Meeting ISO 7027 Design Criteria

Laboratory

Hach 2100 N/AN IS

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8145	10.0	8107	20.0
8147	100.0	8108	200.0	8148	1000.0
8032	4000.0	8356	7500*	*sealed vial only	

HF Micro 100 IR and HF Micro 1000 IR

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8014	10.0	8021	100.0
8030	1000.0	8359	1750.0	8358	10,000*

*sealed vial only

Hanna Instruments LP2000 and LP2000-11

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8125	10.0	8026	500.0

Portable/Handheld

HF Scientific Micro TPI

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8014	10.0	8021	100.0
8030	1000.0				

Hanna Instruments 93703 and 93703-11

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8125	10.0	8026	500.0

LaMotte 2020 (EPA 180.1 and ISO 7027 compatible)

Item#	NTU	Item#	NTU	Item#	NTU
8180	1.0	8184	10.0	8186	100.0

Standards for Online Instruments

HF Scientific Micro TOL (models 1, 2, 3, and 4)

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0(2)	8014	10	8021	100*
8030	1000	*Micro TOL 3 full range			

Rosemount Model 2120 and New Clarity II

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8070	5.0	8050	20.0

Hach 1720 (C,D,E) series

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8289	1.0	8050	20.0

Hach FilterTrak 660™

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8001	0.1	8362	0.3
8006	0.8				

Hach Surface Scatter 6™

Item#	NTU	Item#	NTU
8000	0.0	8249	200.0

GLI Accu 4™

Item#	NTU	Item#	NTU
8000	0.0	8017	40.0

**** **This is not an all inclusive list of the available instruments on the market today.**

Please ask your sales person if you don't see your particular meter listed.

Standards for In-Situ/Probe Instruments

McVan Analite 90 Degree Probes (including those in YSI sondes prior to 1999)

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8116	5.0	8117	10
8120	40	8188	100	8121	400
8189	800	8122	1000		

McVan Analite 180 Degree (retro-scatter or back-scatter) Probes

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8360	1000	8361	4000

Hydrolab

Item#	NTU	Item#	NTU	Item#	NTU
8000	0.0	8176	50	8177	100

In-Situ*, OBS-3®*, Horiba*, OptiQuant™*, TxPro-2™*

*Standards available. Please inquire with your salesperson for your specific use and NTU values.

Linear Calibration Kits

Kit #	NTU values
8257	0.0 / 0.1 / 0.2 / 0.3
8254	0.2 / 0.4 / 0.6 / 0.8 / 1.0
8255	2.0 / 4.0 / 6.0 / 8.0 / 10
8256	20 / 40 / 60 / 80 / 100

Kit contains 125 ml of each primary standard value.
Larger volume bottles available upon request.

Wavelength Certification Kits

Kit #	Contents	Application
8258	18 NTU plus 400 NTU Formazin	Hach 18900 and 43900/XR
8259	40 NTU plus 400 NTU Formazin	All other meters w/ tungsten lamp

Kits contain 125 ml of primary standard and 125 ml of 400 NTU formazin along with instructions. *This kit is designed to help the user validate the light source wavelength and intensity, thus verifying instrument performance.

The Right Turbidimeters and Testing Equipment for your Application

GFS Chemicals offers many different instruments so you're sure to find the right one for your application and budget. Ask our friendly sales staff to assist in choosing the instrument that gives you the best performance at the most economical price. By developing long-term relationships with equipment manufacturers, we offer a wide range of instruments for specific testing needs. Whether you're need is a portable, benchtop, on-line, or in-situ, we provide quality instruments at competitive prices.

HF Scientific

Micro 100 Laboratory Turbidimeter

Auto ranging 0 - 1000 NTU; instrument senses trubidity level of sample and automatically adjusts to the appropriate measurement
Auto Alert Calibration Prompt; automatically prompts the operator when calibration is needed
Simple Calibration Procedures; calibration initiated with a push of a button to ensure accurate readings
RS-232 Output; date, time, and NTU reading captured with a serial printer or data recorder
EPA 180.1 Design
Optional Features
Infrared Light Source (Micro 100 IR) - meets ISO 7027 for turbidity measures
Pour-through Assembly - save time by pouring your grab sample through the measurement chamber
Cuvette Stand

HF Scientific

HF Micro 1000 EPA 180.1 approved. 0 - 10,000 NTU, auto ranging, ratio mode in 100 - 10,000 NTU range, Also suitable for private sector laboratory use such as beverage , chemical, and process manufacturing.

HF Micro1000-IR ISO 7027compliant benchtop turbidimeter. Long life LED light source, color compensating. 0 - 10,000 NTU, auto ranging, ratio mode in 100 - 10,000 NTU range. Also suitable for private sector laboratory use such as beverage , chemical, and process manufacturing.

HF Micro TPI Portable ISO 7027 compliant portable turbidimeter for field use. Waterproof, self-contained, auto ranging, 0.01 - 1,100 NTU, simple calibration, and over 1000 tests on a single set of 4 AAA batteries. Designed to eliminate color as an interference. Compact unit with case.

HF Micro TPW

EPA 180.1 approved portable turbidimeter for field use. Waterproof, self-contained, auto ranging, 0.01 - 1,100 NTU, simple calibration, and over 1000 tests on a single set of 4 AAA batteries. Designed to eliminate color as an interference. Compact unit with case.

HF DRT-15CE Portable EPA 180.1 approved. Dual purpose field and lab turbidimeter with resolution to 0.01 NTU and extended range to 1000 NTU. Compact, self-contained design, 5 lbs total weight, 20 hour rechargeable battery with immediate turbidity reading response time. One turbidimeter for two applications.

HF Micro TSCM

Establishes a new level of control for plant operators that depend on Streaming Current to maintain water quality. Unlike other systems, the Micro TSCM can be calibrated to a known Ion Charge unit (ICu) value, using a cationic polymer solution. Once calibrated, the operator can use the Micro TSCM to determine the control set-point for the plant. This set-point is established through optimization and reflects the actual ICu of the sample stream.

HF Micro TOL On-Line Turbidimeters

A new approach to EPA required on-line turbidity monitoring. Fast and easy calibration with a low volume sample chamber (30 ml). Low maintenance fail safe design with a bubble rejection system. 0 - 1000 NTU auto ranging. Same optics as Micro 100 benchtop. Small compact single unit design for easy installation.
Optional Features: On-line software and remote display

Coming Soon! HF Scientific On-line Chlorine Analyzer

Sutron XLite Datalogger/Controller

Highly modular, the rugged XLite can be leveraged to handle multiple simple or complex applications. Its Sensor Library can be programmed for most widely used brand name sensors and all Sutron sensors. It is designed specifically to support a variety of portable and permanent monitoring and control situations.

McVan Analite 160 Series Microprocessor based Turbidimeter

McVan NEP 160-3-05R
Rugged portable field turbidimeter with cable-attached stainless steel 90° probe; ISO 7027 compliant.
0 - 3000 NTU, auto range.
Can store up to 100 date points with adjustable data logging.
RS232 port rechargeable batteries or can run on 110v or 220v.
Long-lasting LED fiber optic light source.
Comes with 5 meters of cable, but up to 30 meters is available.

Also available: **NEP 160-1-05R**
Ideal for use in extremely high turbid environments like sediment testing or process monitoring.
Same design as NEP 160-3-05R, except with 180° probe.
0 - 20,000 NTU, auto ranging

The ANALITE 9000 Series Turbidity Probe

Applications of the ANALITE 9000 and 9500 are too extensive and numerous to elaborate but generally include:

-- Monitoring of streams and rivers
-- Monitoring of water storage bodies including stratification studies
-- Intermediate/final effluent treatment monitoring
-- Hydrological run off studies
-- Ground and bore water analysis
-- Four turbidity ranges 0-40, 0-100, 0-400, and 0-1000 NTU
-- Drinking water filtration efficiency

McVan Analite 395

Field (in-situ) probe, ISO 7027 compliant, designed for monitoring and process applications where turbidity levels of up to 1000 NTU may be encountered. Four ranges available which can be set by the user via the RS232 interface, with an integral wiper assembly designed where bio-fouling or sedimentation build-up is likely. This unique modulation technique allows almost total rejection of ambient light and compensates for color. For long term monitoring of water systems with accompanying data logger.

"NEW" MCVAN ANALITE 495

FOR LOGGING OF TURBIDITY AND TEMPERATURE

Self contained in-situ probe that measures temperature and turbidity and logs the data, plus and integral wiper assembly to prevent bio-fouling, 0-1,000 NTU. It is easy to set up and easy to download the data collected via the RS232 interface. Submerged to a depth of 100 m (330 ft.). ISO 7027 compliant with the same optics as the 395. Flexible logging function and stores over 30,000 data sets, set from less than 1 second to over 18 hours. Can be left in the field up to 60 days. The batteries will last for 60 days. No cable necessary to hook up to an external data logger which must be protected from damage. A truly innovative probe that eliminates many of the problems of current probes.

Hanna Instruments

Hanna offers a variety of high tech, easy to use turbidimeters that can resolve your measurement needs in the lab as well as in the field.

The C102 and C114 have been designed for operators who need to measure multiple parameters in the field including pH, free and total chlorine, bromine, iodine, low range iron and cyanuric acid.

The 93703 and LP2000 recognize calibration standards of 0 FTU and 10 FTU with their microprocessor automatically setting the proper calibration points. The 93703-11 and LP 2000-11 also provide for log-on-demand and RS-232 interface.

Lamotte 2020 Portable multi-detector, microprocess turbidimeter with signal averaging which minimizes fluctuations in turbidity readings. 0 - 1,100 NTU range, 2 point calibration with a resolution of 0.01 NTU at the lowest range. Bettery power or AC adapter for either field or lab use. RS232 interface, a first for an instrument in this price range. Comes complete with case, primary and secondary standards, and AC adaptor.

Total Organic Carbon (TOC) Testing
EPA Regulation SUVA 415.3

If you don't need to monitor continuously, TOC can be determined using a spectrophotometer as described by the EPA in Standard Method 5910B (UV Absorption Method). Using a spectrophotometer to determine TOC is fast – no waiting for oxidation to occur. Place the sample in the cuvette, read the absorbance and a quick determination of the amount of TOC in the water sample is made. However, the absorbance accuracy of the spectrophotometer needs to be determined by a standard and the EPA has approved In-Spec® Standards for this purpose. In-Spec® is an excellent alternative to mixing potassium hydrogen phthalate (KHP) solutions.

EPA 141.135 Stage 2 Disinfectants and Disinfections/ Byproducts Rule

The EPA has proposed the above rule to reduce disease incidence associated with the disinfection byproducts that form when public water supply systems add disinfectants. This rule will supplement existing regulations by requiring water systems to meet disinfection byproduct maximum contamination levels at each monitoring site in the distribution system. This rule will apply to all community water systems and nontransient noncommunity water systems that add a primary or residual disinfectant other than ultraviolet (UV) light or deliver water that has been disinfected by a primary or residual disinfectant other than UV.

To comply with this rule, several different tests will be run. Determination of Total Organic Carbon (TOC), Dissolved Organic Carbon (DOC) and UV absorption at 254 nm (UVA) will be required. For the UVA test, a spectrophotometer will be required. The day-to-day performance of the spectrophotometer will have to be demonstrated to be in compliance with this EPA rule. GFS Chemicals has the only EPA approved commercially available spectrophotometer check solutions, In-Spec®.

In-Spec standards are based on sub-micron polymer beads in a homogenous suspension. In-Spec® standards are available in a range of concentrations with data supplied over the entire UV/Vis/Near-IR range (190-1100nm). The In-Spec® standards are provided with absorbency data at 254nm for use to comply with this EPA rule. In-Spec® Standards are guaranteed to be within 5% of stated values.

In-Spec® Standards are ready-to-use absorbence standards that will make your compliance with EPA regulations fast and easy. Individual standards and multi-standard kits are available. Each kit is customized to meet your requirements for absorbance or linearity within a wave length.

In-Spec® calibration verification standards are:

- Non-toxic, eliminates concerns with handling, storage, and disposal
- Ready to use, pour straight from the bottle and dispose down the drain
- Accurate to within +/-5% inter/intra nstument variance
- Stable, will not settle out of suspension
- Guaranteed one year shelf life
- NIST Traceable
- Consistent 5% lot to lot

Kits and data available for absorbance values over the entire UV/Vis/Near-IR range, from 190 to 1100 nanometers. In-Spec® standards can be made to order with a specific absorbance or % transmittance at your designated wavelength(s). Excellent alternative to mixing KHP solutions. Great companion product to Holmium Oxide in Perchloric Acid (also available from GFS Chemicals)

Now available!

Genesys 10,20 Water Analysis Spectrophotometer

Wavelength range of 190 to 1100 nanometers or 315 to 1100 nanometers. Simple yet flexible operation; suitable for scientific and non-scientific users. Built-in printer and low price MiniSipper options. Pre-programmed with the most common methods and calibrations. Load your choice of methods and calibrations into non-volatile memory from the built-in floppy disk drive. Export results in ASCII format to PC applications. 7-position automatic carousel for cuvettes. Simple operation: select a pre-programmed method and press “run”. For more information visit www.in-spec.com.

Standard Solutions for Trace Metal Analysis

GFS Chemicals manufactures AA & ICP Standards as single-element solutions, standard reference sets, and multi-element sets and solutions. Discounts available on kits for Priority Pollutants, Environmental, Compliance Standard sets, and Contract Lab Program standards for AA & ICP protocols. Larger package sizes and custom blended standards available, just ask our customer care staff for assistance. GFS provides quality products at competitive products backed by technical expertise. A wide variety of analytical and research products available in the 2004/2005 GFS catalog. Call toll-free 888 GFS CHEM (437-2436) or visit www.gfschemicals.com for more information.

"PIONEERS IN HIGH PURITY ACIDS"

You can trust the time-tested experience of GFS Chemicals, Inc. when it comes to your High Purity Acid needs. Why? Well, for starters, GFS began manufacturing High Purity Acids in 1956. Then, in response to a request from chemists analyzing lunar samples brought back on the Apollo space missions, we scaled-up our production in the 1960's.

1. REAGENT
First, we start with the finest ACS reagent grade acids available.

2. ACS Superior™
Enhanced trace metal impurity limits are certified for uses where both high purity and economy are essential

3. VERITAS™ REDISTILLED
Next, we slowly "redistill" the reagent grade in specially designed glass stills, to produce acid with very low or absent trace elements, commonly called PPB grade acids

4. ENVIRONMENTAL
A full trace metal scan (ICP) is provided for redistilled acids specially packaged in fluoro polymer bottles. This special packaging maintains the trace element consistency of B, Si, Ca, Al, and other elements commonly found in glass bottles while maintaining economical pricing compared to packaging inTeflon® bottles

5. VERITAS™ DOUBLE DISTILLED
Finally, we produce our highest purity product from our redistilled grade acids, commonly called PPT grade acids. Distillation is done through custom made Vycor/Quartz stills or our new Teflon® still. This step virtually removes remaining trace metal contaminants and nearly all of the volatile and nonvolatile impurities. Acids retain their purity through packaging in Teflon® bottles.

pH Reference Buffers and Primary Standards

pH Reference Buffers
GFS Chemicals' pH Buffers are manufactured from the finest high-purity water and reagent grade chemicals. They are standardized at 25°C against NIST reference materials to a tolerance of 0.01 on Buffers 4.00, 7.00, and 10.00 and to a tolerance of 0.02 on all other buffer ranges.

Our buffers are used with confidence for all applications because standardization is performed using the most trusted instruments in the business - Orion, Beckman-Coulter, and Hanna, to name a few. For simplicity, all common buffers are the same price regardless of pH or if color coded. GFS offer many sizes, including bulk containers, and case pricing. Certificates of Analysis are provided with every shipment and include NIST Traceability.

Primary Standards
Even with the automation of so many lab methods, it remains essential to verify analytical standard solutions. For over 75 years, GFS Chemicals has provided primary standards to support analytical chemists worldwide with traceability and confidence their results are accurate.

For a complete listing of GFS Chemicals analytical products, call 800-858-9682 or visit www.gfschemicals.com

GFS Chemicals

Turbidity and Water

Products Ordering Information

Customer Service Representatives and Technical Support are available Monday through Friday from 8:00 am to 6:00 pm Eastern Standard Time. Orders may be placed by mail, phone, fax, email or on our Web site. Every order placed receives an order confirmation sent via fax that includes line items ordered, pricing, shipping method and estimated shipping date.

By Mail:	GFS Chemicals, Inc. Sales & Administration Facility PO Box 245 Powell, Ohio 43065
By Phone:	800-858-9682 (U.S. and Canada) 740-881-5501 (International)
By Fax:	740-881-5989
By Email	gfschem@gfschemicals.com
On the Web:	www.GFSChemicals.com

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For latest products and pricing information visit www.AmcoClear.com

GFS Chemicals, Inc. | PO Box 245 | Powell, Ohio | 43065