

Gas Purification uHP

... for GC & [GC/MS] see FlipPAGE Catalog Restek; VICI Valco

Prices need
Updating !

Improved Performance
TEE Ball Valve VENT V1



*Helium Gas
Supply
Industrial
99.95% MIN*

GasCon UltraHigh Purity Helium Regulator
(SS Diaphragm Nickel-plated Brass

22605

VICI

22600
HCs
moisture
O2

22475

Click-on

22468

22479

22020

HCs
moisture
O2

22025

Super Clean System

20623 (O2)

High Capacity
Ind. OxyTrap
replaceable cartridge

Indicator
OXYTrap

22010

moisture
O2

Cat.# 22010

Click-on System

Improved Performance
2-Way Ball Valve

V2

GC/MS

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ECHnology Pty Ltd

Australian Distributors
Importers & Manufacturers
www.chromtech.net.au

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Dimensions: 13" x 2" (33 x 5.1 cm)
Moisture capacity: 6 g of water
Maximum flow: 1 L/min

Indicating Moisture Trap

- Reduces water to less than 10 ppb; indicator changes from yellowish-green to blue at 5% relative humidity.
- Prepurged for fast stabilization.
- Reduces noise from high-sensitivity detectors.
- Heavy-walled glass body prevents oxygen and water infusion.
- 10 μ m frit prevents microparticulate damage to needle valves and flow controllers.
- Maximum operating pressure: 100 psi (689 kPa).

Description	Fittings	qty.	cat.#
Indicating Moisture Trap	1/8" Brass	ea.	22014
Indicating Moisture Trap	1/4" Brass	ea.	22015



Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)
Moisture capacity: 16 g of water

High-Capacity Moisture Trap

- Purged with ultra-high-purity helium; ready to use with any carrier gas including hydrogen.
- Reduces water to less than 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Maximum flow: 1.25 L/min.

Description	Fittings	qty.	cat.#
High-Capacity Moisture Trap	1/8" Nickel-Plated Brass	ea.	21997
High-Capacity Moisture Trap	1/4" Nickel-Plated Brass	ea.	20638

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Dimensions: 9 1/4" x 2" (23.5 x 5.1 cm)

High-Capacity Indicating Oxygen Trap

- Indicator changes from dark blue to black as oxygen and water are trapped.
- Lasts longer than three smaller traps.
- Use with all carrier gases.
- Ambient operating temperature, 100 psi (689 kPa) operating pressure.
- Built-in frit traps microparticles.
- Outlet gas purity:

O₂ < 0.1 ppm when inlet does not exceed 15 ppm.

H₂O < 0.5 ppm when inlet does not exceed 10 ppm.

- Maximum operating pressure: 150 psi (1,034 kPa).
- Maximum flow: 16.5 L/min.

Description	Fittings	qty.	cat.#
High-Capacity Indicating Oxygen Trap	1/8" Compression Tube Brass	ea.	20624
High-Capacity Indicating Oxygen Trap	1/4" Compression Tube Brass	ea.	20623
Replacement Cartridge (fits 1/4" or 1/8" housing)		ea.	20625
Replacement O-Rings (5 small O-rings and 5 large O-rings)		kit	22081



Dimensions: 11" x 1 1/2" (27.9 x 3.8 cm)

High-Capacity Oxygen Trap

- Removes up to 600 mg of oxygen or 2 g of water.
- Long life—typically purifies more than five 200 ft³ cylinders.
- Reduces oxygen to 15 ppb.
- Maximum operating pressure: 250 psi (1,724 kPa).
- Flow: 3 L/min @ 32 psi (221 kPa).

Description	Fittings	qty.	cat.#
High-Capacity Oxygen Trap	1/8" Nickel-Plated Brass	ea.	20601

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Super Clean® Gas Filter Kits and Replacements

- High-purity output ensures 99.9999% pure gas (at max. flow of 2 L/min).
- Designed for easy, hassle-free cartridge changes.
- Glass inside to prevent diffusion; polycarbonate housing outside for safety.
- All traps measure 10 ⁵/₈" x 1 ³/₄" (27 x 4.4 cm).
- Each base plate unit measures 4" x 4" x 1 ⁷/₈" (10.2 x 10.2 x 4.8 cm).

Table I: Each Super Clean® gas filter provides high-purity outlet gas.

Type of Filter	Outlet Gas Quality (%)	Maximum Pressure/ Maximum Flow Rates	Use for:	Indicator Color Change	Capacity			Estimated Lifetime (Years)
					H ₂ O (g)	O ₂ (mL)	Hydrocarbons (g) (n-Butane)	
Moisture cat.# 22028	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	Yellow/orange to clear	12	—	—	>2
Oxygen cat.# 22029	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas	Green to grey	—	1,000	—	>2
Hydrocarbons cat.# 22030	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	No indicator	—	—	12	>2
Fuel Gas ¹ cat.# 22022	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas Air Hydrogen	Yellow/orange to clear	3.5	—	6	>1.5
Triple ² cat.# 22020	>99.9999	11 bar 159 psi/ 7 L/min	Inert carrier gas	Yellow/orange to clear Green to grey	1.8	500	4	>1
Helium Specific ² cat.# 21982	>99.9999	11 bar 159 psi/ 7 L/min	Helium	Yellow/orange to clear Green to grey	1.8	500	4	>1

¹Removes hydrocarbons and moisture.

²Removes hydrocarbons, moisture, and oxygen.



22022

did you know?

All Super Clean® gas filter cartridges (except the hydrocarbon filter cat.# 22030) feature easy-to-read indicators. The indicator code is shown on every trap, so there is no confusion about when to replace it.



22020



22022



base plate

Description

Description	qty.	cat.#
Carrier Gas Cleaning Kit	kit	22019
Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon triple gas filter		
Fuel Gas Purification Kit	kit	22021
Includes: mounting base plate, 1/8" inlet/outlet fittings, and hydrocarbon/moisture fuel gas filter		
Ultra-High Capacity Hydrocarbon Filter	ea.	22030
Ultra-High Capacity Moisture Filter	ea.	22028
Ultra-High Capacity Oxygen Filter	ea.	22029
Replacement Triple Gas Filter (removes oxygen, moisture, and hydrocarbons)	ea.	22020
Replacement Fuel Gas Filter (removes moisture and hydrocarbons)	ea.	22022
Helium-Specific Carrier Gas Cleaning Kit	kit	21983
Includes: mounting base plate, 1/8" inlet/outlet fittings, and oxygen/moisture/hydrocarbon helium-specific filter		
Replacement Helium-Specific Gas Filter (removes oxygen, moisture, and hydrocarbons)	ea.	21982
Gas Filter Bundle Kit	kit	22031
Includes: one triple gas filter (cat.# 22020) and two fuel gas filters (cat.# 22022)		

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Prices need
Updating !



22026



22025



22027

Filter Base Plates

- End fittings available in brass or stainless steel.
- Base plates fit all stand alone Super Clean® gas filters offered.

Each single-position base plate unit measures:

4" x 4" x 1 7/8" (10.2 x 10.2 x 4.8 cm)

Each 2-position base plate unit measures:

8" x 4" x 1 7/8" (20.3 x 10.2 x 4.8 cm)

Each 3-position base plate unit measures:

12" x 4" x 1 7/8" (30.5 x 10.2 x 4.8 cm)

Standard base plate inlet/outlet fittings accept 1/8" tubing. To adapt to 1/4" tubing, order 1/8" to 1/4" tube end reducers.

Restek® Super Clean® Gas Trapping System for LC-MS

A Super Clean® quick-change cartridge system efficiently removes hydrocarbons from nitrogen!

- Designed for easy, hassle-free cartridge changes.
- Up to 20 L of hydrocarbon-free nitrogen per minute.
- Filters connected in parallel to handle high flows for LC-MS.

Super Clean® gas filters provide high-purity outlet gas

Type of filter: Hydrocarbon (charcoal)

Max. Flow: 20 L/min

Outlet Gas Quality %: 99.9999%

Maximum Pressure: 11 bar/159 psi

Estimated Lifetime: 3 to 6 months

All traps measure:

10 5/8" x 1 3/4" (27 x 4.4 cm)

Each 2-position base plate unit measures:

8" x 4" x 1 7/8" (20.3 x 10.2 x 4.8 cm)

Standard base plate inlet/outlet fittings accept 1/4" tubing.

To adapt to 1/8" tubing, order 1/4" to 1/8" tube end reducers.



20 L of purified
nitrogen per
minute!

The Super Clean® gas trapping system purifies nitrogen and is ideal for use in LC-MS systems. The two-position base plate (installed in the gas line; standard base plate inlet/outlet fittings accept 1/4" tubing) allows cartridges to be exchanged without introducing impurities into the system. Spring-loaded check valves seal when a cartridge is removed and open only when a new cartridge has been locked in place. There is no need for loosening and tightening fittings every time you change cartridges, and your system cannot become contaminated during the changing process.

To meet the high flow needs of the LC-MS system, the activated charcoal-filled cartridges are positioned and connected in parallel. The incoming gas stream is split equally between the cartridges, and the two streams are rejoined after purification but before the gas exits the base plate. This approach allows longer contact between the nitrogen and the adsorbent, ensuring higher gas purity and eliminating a potential source of contaminants to your analyses.

A handy date wheel, included with the system, indicates the cartridge installation date and the recommended replacement date.

Description	qty.	cat.#
Super Clean Gas-Trapping System (2-position base plate, 2 charcoal filters)	ea.	22062
Replacement Hydrocarbon (Charcoal) Filters	2 pk.	22061
Particle Drop-In Filter, 0.5 µm	2-pk.	22367

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Simple Helium Gas Purifier System Options for GC/MS

99.95% Start He Gas > <<1ppM O2 hopefully

1

1 VICI-Matsen Helium Purifier (High Capacity ~4 Cylinders) #22600
In-line Indicating OxyTrap #22019

2

2 Click-On System (self-piercing connectors - minimum Air ingress)
#22475 Click-on End-Connector
High Capacity Click-On OxyTrap #22468
#22479 Click-on Double Trap Connector
Click-On Indicator Trap #22474

3

3 Super-Clean System
3x Adsorbent Replacement Cartridge #22020
Fixed Base Plate #22025

4

4 High Capacity Oxytrap #20623
(replacement Cartridges #20625 are self-piercing - minimum Air ingress)

Ultra High Purity Gascon Helium Regulator HD5S-A-700-GGP-T10-F/A-He

A10 Bottle spigot Fitting

Option (but redundant Diaphragm or Needle Valve)

SS Ball Valve Improved design

V1

(MAX 0.1cc/min N2 @1000psi leak tested / certified)

2-Way Gas Isolation > when GC/MS Off-line

Tee-Valve > for venting

V2

Assumptions : for a Basic Capillary GC /MS

Single column 5cc./min He Max operating, "spasmodic" Splitter operation
@ 50ml/min

NO leaks >220cubft cylinder should last 400 days if left running 24/7

Changing of cylinder and venting will help preserve Oxytraps

Indicator trap on outlet of Main OxyTrap (non-see thru') is essential

Assume Commercial Helium is suspect and 99.95% purity is OK but triple traps recommended to ensure <1ppM moisture, HCs clean up

High Purity Helium assumed 10-100ppM impurities
but NO guarantees commercially in practice

Gas Purification UHP

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Some Hints

Re Installation :

Use a High Purity Gas Regulator - Ni-plated brass body is OK

- SS diaphragm is essential.

Optional : On/off Valve allows isolation of the Regulator during trap replacement etc.

Mount Traps in a vertical position (or at an angle) packing settles in time .

and channelling can occur where Helium may tend to by pass the absorbent.

Always use Chromatography Grade (heat-cleaned) SS tubing for transfer lines.

- *When leak checking > Human Nature is to over-tighten adfinitum.*
- DON'T—eventually the cone on Swagelok will "bell out" and seal will be compromised
- *Do Not mix and match different brands of fittings and ferrules Swagelok and Parker maybe > but NOT good practice.*
- *NEVER use Sulfonert/Silcosteel ferrules in similarly treated fittings they just do NOT seal at all*
— like sand paper on sand paper !
- *Teflon Thread sealing Tape can be of marginal use Teflon tends to be air porous at trace levels.*
Ultra High Purity threads generally use industrial thread "goo" wax such fittings can be very difficult to disassemble without proper tools (WE don't do it due to risk of damaging scoring expensive fittings regulators etc DO IT AT YOUR OWN RISK !
- *Use old fittings ferrules tubing sets at YOUR RISK !*
You can ruin expensive Oxytraps and GC columns and Mass Spec filament if ANY leaks.
- *Never use industrial Regulators these have rubber diaphragms and infuse air badly (albeit at "trace" levels but disastrous long term for Oxytraps columns etc.*
- *An Oxytrap properly used will absorb up to 1000cc of O2 depending on size of trap etc.*
Manually changing traps etc can easily ingress 10cc of Air if you are not careful.
- *Regulators can have a dead volume of 100 to 500ul and should be sensibly purged when changing cylinders and traps.*
- *For both GC and particularly GC/MS use an isolation valve on inlet of GC.*
On standby/closedown the GC System can back diffuse air throughout the system.
Any dead pockets in fittings, Tees gauges can act as exponential dilution flask and take "hours" to slowly diffuse air out.
- *Of course any rubber diaphragm, O-rings Teflon Components will slowly release absorbed air/O2.*
 - *30mins purge time from start-up is recommended before heating columns or activating a Mass Spec*
- *NEVER EVER use water or SNOOP Leak Detector solution on ANY fitting columns connectors etc*
Even against positive pressure this "contamination can diffuse in.
- *Use a Electronic Leak Detector.*
MORE > Use a bit of "common sense" !
- *DON'T Let a "bean counter" or "bush mechanic" anywhere near your GC/MS with a 24" Shifter spanner.*
"False Economy" by skimping on maintenance and old parts - you are dealing with expensive delicate instrument (100's of 1000's of \$\$\$'s maybe " think of the consequence due to ANY down time !
- *ALWAYS use a secondary Indicator Trap DON'T rely on Unsight(ly) manifold systems mounted Traps*
- *Install Oxytrap (preferably an Indicating type) close to the GC AND actually look at the indicator as they get used Change the "Main" Trap on the first change in color.*

despite the high cost they can be still ultimately COST EFFECTIVE !

Capillary GC

FERRULES

Graphite : Whilst 100% Graphite are perfectly satisfactory for conventional GC and the "crushed semi laminated" structure can diffuse "trace" amounts of air in a much more sensitive GC/Mass system.

for GC/MS use **15%Graphite/Vespel(polyimide)** for ALL column connections.

MAX recommended temperature (320degC) > they tend to shrink/crack/leak etc

or column High Temperature Application use MXT Columns (as inert as fused silica) use graphite ferrules in a

"Capture-type" fitting configuration (custom).

- precondition at maximum Column Temperature in the GC oven - to minimise any potential bleed finger-handling contamination

100% Vespel tends to shrink on heating and the harder material requires more finesse in tightening onto fused silica columns

For glass (packed) GC Columns 100% Graphite is the preferred material (re softness/malleability

- minimise columns breakage etc or with care **15%Graphite/Polyimide)** -

- **never use Teflon** (transition point at about room temperature columns can even actually fall out on cooling if mounted in a vertical position.

Inlet Liners

- **Siltek Deactivated Liners** : highly inert ! ... similar to Restek column deactivation Rxu-1m Rxu-5 etc

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UHP Gas Regulator

HD5S-A-700-GGP-T10-F/A-He \$780

SS Diaphragm Ni-plated Brass Body

A10 Spigot Helium Australian

1/8 Swagelok Fitting Outlet

300psig Max

Outlet 100psi(or optional)

Optional On/OFF Valve



UltraHigh Purity Helium

(UHP) Multi GC/MS

System Purifier - **High(er) Capacity**

Use a "getter" System

VICI-Valco see [FlipPAGE Catalog](#)

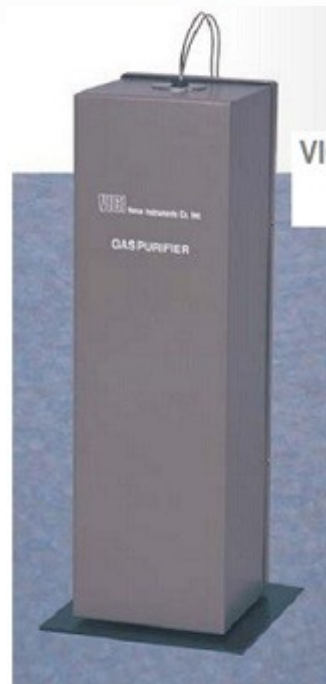
Standard Helium HP2-220 \$1750

mini Helium Purifier HPM-220 \$1230

UltraHighPurity **2-stage for High Purity** Gas Analysers

LDetek LDP1000 ~\$7500

see [PDF](#) inc **APP Note**

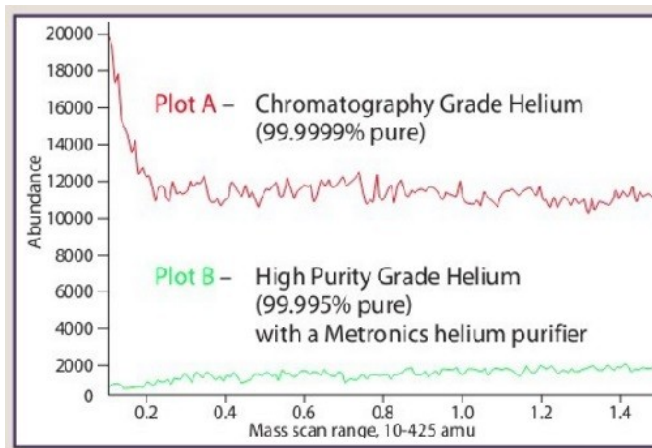


VICI Gas Purifier
He (& N2)
HP2-220 (NP2-220)

mini Gas Purifier
HPM-220 (& NPM-220)



Gas purifier : perfect !
for any trace gas
analysis system



V1
V2

Ball Valve Isolation & Venting

To be advised Standard Industrial Ball are **ABSOLUTELY USELESS !**

Even most Precision Engineered versions have Teflon Ball CTFE Seats or Teflon-coated internal components whilst the better ones are certified to MAX N2 leak test of 0.1cc/min at 1000psi.

Few if ANY OEMS are "game enough" to rate them for GC/MS use re Air in-diffusion.

Chromtech is independantly "sourcing" similarly Valves with PEEK innards to absolutely Minimise these potential problems

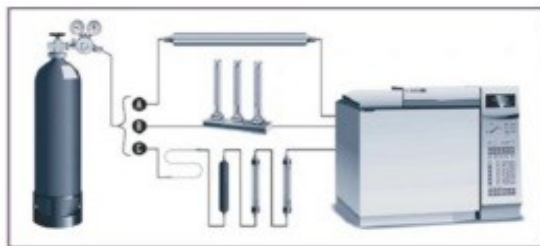
ASK for more details !

INVEST IN PROPERLY DESIGNED Quick-Connect Traps such as Click-on or Easy-Clean . . .

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Some Pricing : Ex GST etc July 2017 USD/AUD 0.72) Indicative ONLY Call or ASK for QUOTATION see details / more [Restek FlipPAGE Catalog](#) Gas Management Systems

22600 Purifier Module Helium 1/4in Fittings : \$610 see also [VICIValco FlipPAGE](#) MS-P100-1 \$575 minimises number of fittings but use with an Indicating Trap as well

22010 Trap Oxygen Indicating 1/8in Fittings \$337

22019 Super-Clean Gas Filters Complete Carrier Gas Filter Kit. Baseplate and Triple Filter. Oxygen ,Moisture and Hydrocarbon trap (1/8in) :\$932

22468 Super-Clean Click-on Trap Replacement Oxygen Trap Ultra High Capacity : \$295

22479 Click-On Trap Connectors Double Connector : \$535

22474 Super-Clean Click-on Trap Indicating Cartridge : \$306

22020 Super-Clean Gas Filters Replacement Triple Trap for Carrier Gas. Filters Oxygen, Moisture & Hydrocarbons :\$395 22025

Super-Clean Baseplate Single Position Baseplate for One Cartridge Filter 1/8in Brass Fittings : \$547

20623 Trap Oxygen Indicating High Capacity 1/4" Fittings : \$747

UHP Gas Regulator

HD5S-A-700-GGP-T10-F/A-He \$780

SS Diaphragm Ni-plated Brass Body Helium Australian A10 Spigot On/OFF Valve 1/8 Swagelok Fitting Outlet

UltraHigh Purity Helium (UHP) Multi GC/MS System Purifier - **High(er) Capacity**

Use a "getter" System

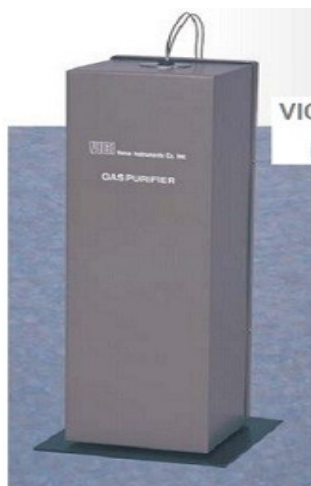
[VICI-Valco](#) see [FlipPAGE Catalog](#)

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He (& N2)
HP2-220 (NP2-220)



mini Gas Purifier
HPM-220 (& NPM-220)



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V2