



Agilent
CrossLab

From Insight to Outcome

Agilent J&W Ultra Inert GC Columns
and Agilent Standards For Blood Alcohol Analysis

**RAPID RESULTS,
DEFENSIBLE DATA**



 **Agilent Technologies**

MEET YOUR DEMANDS FOR HIGH-THROUGHPUT ANALYSIS AND PRECISE, ACCURATE DATA

Blood alcohol concentration (BAC) is routinely analyzed in both ante-mortem and post-mortem samples. To minimize errors and produce defensible BAC results, you need inert, high-throughput GC columns that can separate t-Butanol and n-Propanol from all common interferences. DB-BAC1 and DB-BAC2 Ultra Inert columns are part of the Agilent J&W Ultra Inert GC column family and are the only blood alcohol columns on the market that can separate t-Butanol and n-Propanol from frequently encountered interferences in blood matrix.

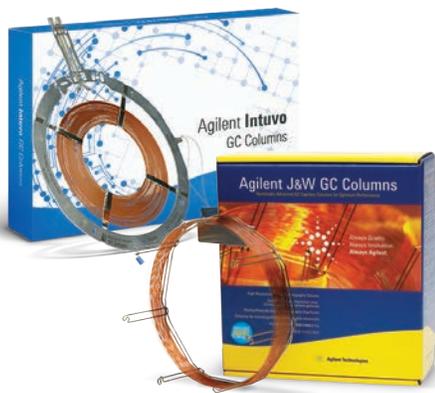
Together with ethanol calibration standards, traceable to both NIST and European Reference Materials (ERM), Agilent now offers a complete solution for the analysis of blood alcohol concentration.

Generate data that withstand cross-examination with NEW Agilent J&W DB-BAC Ultra Inert GC columns

DB-BAC1 and DB-BAC2 Ultra Inert columns are part of the Agilent J&W Ultra Inert GC column family, which pushes industry standards for consistent column inertness. Like every Ultra Inert GC column, Agilent J&W Ultra Inert BAC GC columns are rigorously tested to ensure optimal active analyte delivery to the GC or MS detector. That means you can count on:

- Optimized resolution and baseline separation of critical blood alcohol peaks
- Excellent peak shape and accurate integration of low-concentration compounds
- Accurate identification of challenging polar analytes, even at trace levels
- Accurate, credible quantitation with NIST- and ERM-traceable Agilent ethanol calibration standards

What's more, each column is tested with a uniquely designed QC test mixture to verify column performance according to strict specifications. An application test is also performed to ensure the right selectivity and resolution for BAC applications. The results of the application test are shown on the Performance Summary Sheet which is shipped with every column.



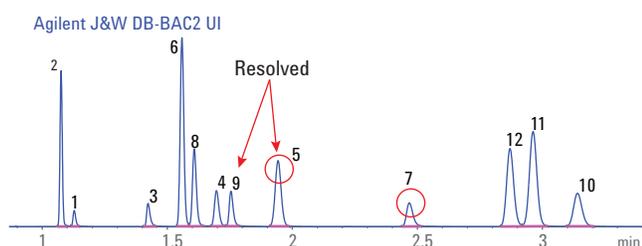
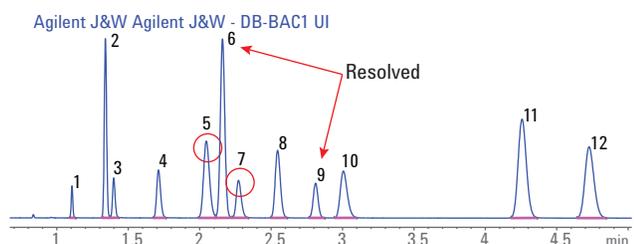
Chemical Standards for accurate BAC qualification and quantification

The **Agilent Blood Alcohol Checkout Mix** is uniquely formulated to highlight the right selectivity and resolution of DB-BAC1 and DB-BAC2 Ultra Inert GC columns.—and to verify the performance of the blood alcohol workflow.

We also understand that accurate calibration standards are critical to the quality and credibility of BAC test results. That is why **Agilent ethanol calibration standards** for quantitative blood alcohol analysis are traceable to both NIST and European Reference materials (ERM).

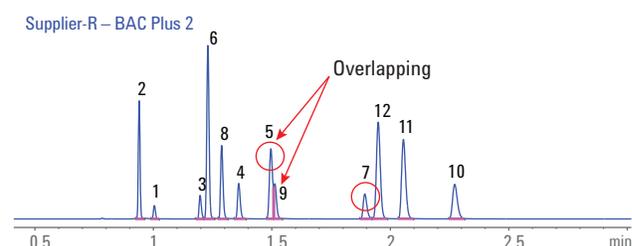
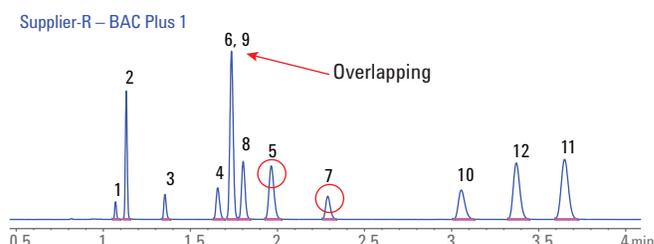
The Agilent J&W DB-BAC1 and DB-BAC2 columns show sharp, highly-resolved, well-separated peaks for the Blood Alcohol Checkout Mix as compared to corresponding columns from Supplier-R under identical conditions.

GC Method: 500 µL res mix (50 mg/dL); 60 cm/sec, He, 40 °C; Split: 1:20



The separation of t-butanol and n-propanol is particularly important, as these compounds are used as internal standards for BAC headspace analysis. In the chromatograms above, both compounds are separated from all other analytes of interest—as well as common interferences.

The Agilent J&W DB-BAC Ultra Inert column set also delivers excellent peak shape performance, which allows more accurate integration for compounds at low concentration levels.



Blood Alcohol Checkout Mix

Compound

- | | |
|-----------------|-------------------|
| 1. Methanol | 7. n-Propanol |
| 2. Acetaldehyde | 8. Acetone |
| 3. Ethanol | 9. Acetonitrile |
| 4. Isopropanol | 10. 2-Butanol |
| 5. t-Butanol | 11. Ethyl Acetate |
| 6. Propanol | 12. 2-Butanone |



COLUMNS AND SUPPLIES FOR GC/FID/FID AND GC/FID/MSD CONFIGURATIONS

BAC analysis is typically carried out in one of two ways:

- By headspace injection and a GC dual-FID system, which uses primary and confirmatory columns.
- By GC/MS, where a single column can be used, since MS detection confirms the results.

The new Agilent J&W DB-BAC1 Ultra Inert primary column and DB-BAC2 Ultra Inert confirmatory column have optimized selectivities, which maximize target compound resolution and confirm elution order changes. Both columns also ensure baseline separation for all critical compounds.

Inlet Supplies

| Description | Part No. |
|---|-----------|
| Ultra Inert liner, splitless, straight, 2 mm id | 5190-6168 |
| Non-stick Advanced Green septa | 5183-4759 |
| Ultra Inert split/splitless inlet gold seals | 5190-6144 |

Nuts and Ferrules

| Description | Part No. |
|--|-----------|
| Self tightening column nut, for inlet/detector | 5190-6194 |
| Graphite/vespel short ferrules, 10/pk | 5062-3512 |

Retention Gap to Unpurged or Purged Splitter

| Description | Part No. |
|---|------------|
| Deactivated fused silica, 5 m x 0.45 mm | 160-2455-5 |

MS Supplies

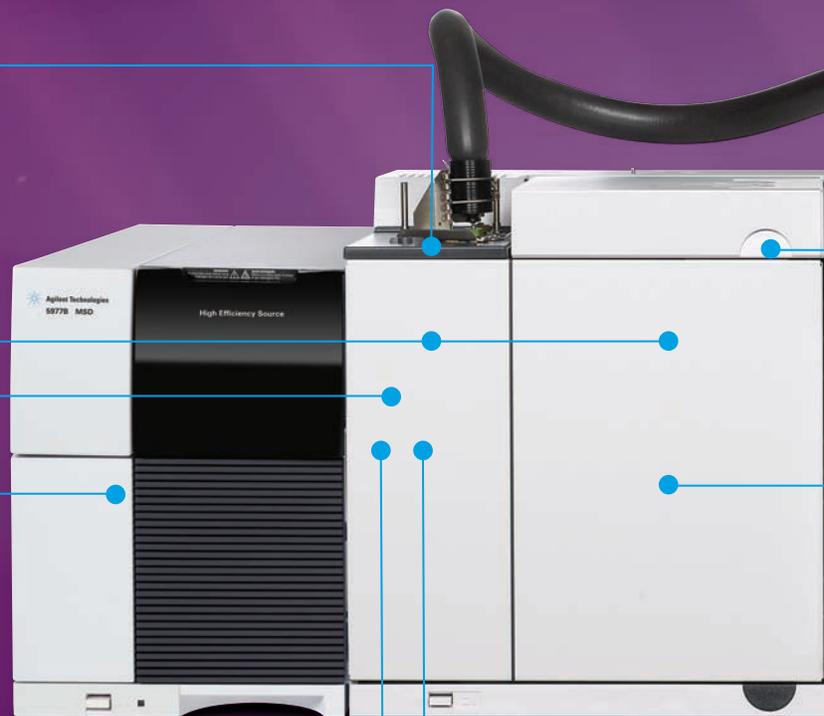
| Description | Part No. |
|---|-------------|
| Self tightening column nut, for mass spec interface transfer line | 5190-5233 |
| Ferrule, 15% graphite/ 85% Vespel, for 0.32 mm id column, 10/pk | 5062-3514 |
| Filament | G7005-60061 |

Purged Splitter (for GC/FID/MS)

| Description | Part No. |
|--|-------------|
| Purged three-way effluent splitter | G3183B |
| Internal nut, CFT capillary fitting | G2855-20530 |
| Flexible Metal ferrule, UltiMetal Plus for 0.53 mm id fused silica tubing, 10/pk | G3188-27503 |
| Flexible Metal ferrule, UltiMetal Plus for 0.32 mm id fused silica tubing, 10/pk | G3188-27502 |

Unpurged Splitter (for GC/FID/FID)

| Description | Part No. |
|--|-------------|
| Unpurged effluent splitter | G3181B |
| Internal nut, CFT capillary fitting | G2855-20530 |
| Flexible Metal ferrule, UltiMetal Plus for 0.53 mm id fused silica tubing, 10/pk | G3188-27503 |
| Flexible Metal ferrule, UltiMetal Plus for 0.32 mm id fused silica tubing, 10/pk | G3188-27502 |



Headspace Vials and Closures

Agilent 7697A Headspace Sampler

| Certified Headspace Crimp Top Glass Vials | | |
|--|--------|-----------|
| Description | Unit | Part No. |
| Headspace vial 10 mL, 23 x 46 mm | | |
| Clear, flat bottom | 100/pk | 5182-0838 |
| Amber, flat bottom | 100/pk | 5067-0227 |
| Clear, graduation marks and write-on spot, flat bottom | 100/pk | 5190-2285 |
| Amber, graduation marks and write-on spot, flat bottom | 100/pk | 5190-2287 |
| Headspace vial 20 mL, 23 x 75 mm | | |
| Clear, flat bottom | 100/pk | 5182-0837 |
| Amber, flat bottom | 100/pk | 5067-0226 |
| Clear, graduation marks and write-on spot, flat bottom | 100/pk | 5190-2286 |
| Amber, graduation marks and write-on spot, flat bottom | 100/pk | 5190-2288 |
| Headspace Crimp Caps and Septa | | |
| 20 mm steel crimp cap with high performance septa | 100/pk | 5190-3987 |

Headspace Vials and Closures

CombiPAL Headspace Sampler

| CombiPAL Headspace Screw Top Vials | | |
|---|--------|-----------|
| Description | Unit | Part No. |
| Headspace vial 10 mL, 23 x 46 mm | | |
| Clear | 100/pk | 5188-5392 |
| Amber | 100/pk | 5188-6538 |
| Headspace vial 20 mL, 23 x 75 mm | | |
| Clear | 100/pk | 5188-2753 |
| Amber | 100/pk | 5188-6537 |
| CombiPAL Screw Top Caps with Septa | | |
| CombiPAL 18 mm screw top caps with PTFE/silicone septa (top white, bottom blue) | 100/pk | 5188-2759 |

Chemical Standards

| Description | Concentration | Unit | Part No. |
|----------------------------|---------------|--------------|-----------|
| Ethanol standard in water | 0.02 g/dL | 1 mL x 10 | 5190-9756 |
| | 0.05 g/dL | 1 mL x 10 | 5190-9757 |
| | 0.08 g/dL | 1 mL x 10 | 5190-9758 |
| | 0.10 g/dL | 1 mL x 10 | 5190-9759 |
| | 0.15 g/dL | 1 mL x 10 | 5190-9760 |
| | 0.20 g/dL | 1 mL x 10 | 5190-9761 |
| | 0.30 g/dL | 1 mL x 10 | 5190-9762 |
| Blood Alcohol Checkout Mix | 0.40 g/dL | 1 mL x 10 | 5190-9763 |
| | 0.50 g/dL | 1 mL ampoule | 5190-9765 |

FID Supplies

| Description | Part No. |
|-------------|-------------|
| FID jet | G1531-80560 |

7697A Headspace Sampler Supplies

| Description | Dimensions | Part No. |
|-----------------------------|-------------------|------------|
| Deactivated fused silica | 5 m x 0.53 mm | 160-2535-5 |
| Fitting-internal reducer | 1/16 to 1/32 inch | 0100-2594 |
| Ferrule, polyamide/graphite | 1/32 inch | 0100-2595 |

GC Columns

| Phase | Dimensions | Part No. |
|------------|-------------------------|------------|
| DB-BAC1 UI | 30 m x 0.32 mm x 1.8 µm | 123-9334UI |
| | 30 m x 0.53 mm x 3.0 µm | 125-9334UI |
| DB-BAC2 UI | 30 m x 0.32 mm x 1.2 µm | 123-9434UI |
| | 30 m x 0.53 mm x 2.0 µm | 125-9434UI |



DREAM BIGGER: COLUMNS AND SUPPLIES FOR AGILENT INTUVO 9000 GC SYSTEM

Comprising a fully integrated solution of instrument, consumables, software, and services, Intuvo introduces enabling technologies you simply won't find anywhere else. It's the ideal choice to help your analytical laboratory meet the challenges of high-demand BAC analysis.

Inlet Supplies

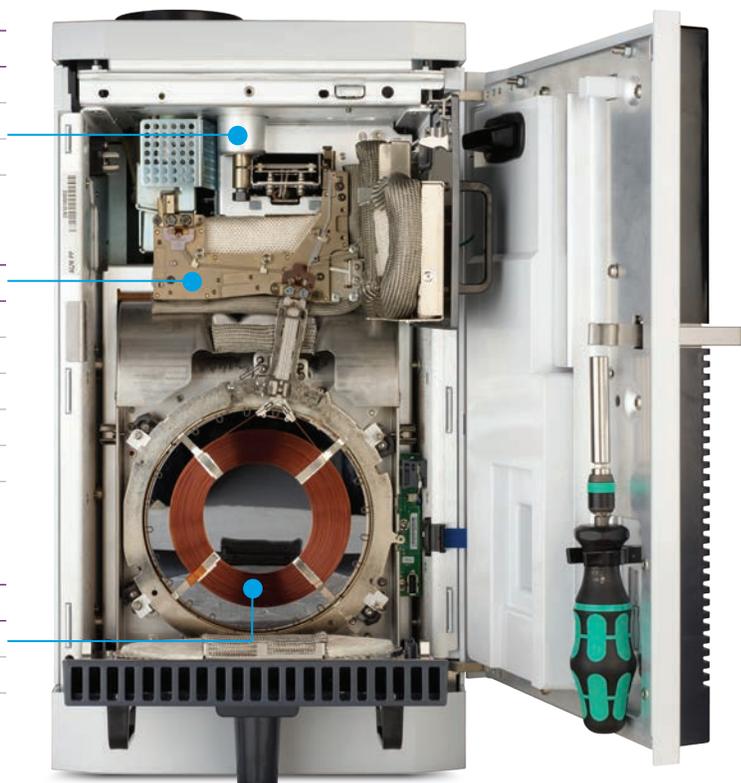
| Description | Part No. |
|---|-----------|
| Ultra Inert liner, splitless, straight, 2 mm id | 5190-6168 |
| Non-stick Advanced Green septa | 5183-4759 |
| Ultra Inert split/splitless inlet gold seals | 5190-6144 |

Intuvo Supplies

| Description | Part No. |
|---------------------------|-------------|
| Gasket | G4581-60575 |
| Jumper chip | G4587-60575 |
| Flow chip, inlet splitter | G4588-60601 |
| Flow chip, D2 | G4583-60621 |
| Flow chip, FID-TCD tail | G4583-60331 |

GC Column modules for Intuvo GC

| Phase | Dimensions | Part No. |
|---------------------|-------------------------|----------------|
| DB-BAC1 Ultra Inert | 30 m x 0.32 mm x 1.8 µm | 123-9334UI-INT |
| DB-BAC2 Ultra Inert | 30 m x 0.32 mm x 1.2 µm | 123-9434UI-INT |



Ordering information for BAC Chemical Standards

Agilent Blood Alcohol Checkout Mix and ethanol calibration standards are Certified Reference Materials (CRM) manufactured in an ISO Guide 34 facility and certified in an ISO/IEC 17025 testing laboratory.

These CRMs include a Certificate of Analysis (CoA) confirming the ISO conformity, actual concentration values, measurement uncertainty, and NIST and ERM traceability.



Chemical Standards

| Name | Description | Part No. |
|------------------------------------|--|-----------|
| Ethanol 20 mg/dL | Ethanol 20 mg/dL or 0.2 g/L, in water, (1mL x 10) | 5190-9756 |
| Ethanol 50 mg/dL | Ethanol 50 mg/dL or 0.5 g/L, in water, (1mL x 10) | 5190-9757 |
| Ethanol 80 mg/dL | Ethanol 80 mg/dL or 0.8 g/L, in water, (1mL x 10) | 5190-9758 |
| Ethanol 100 mg/dL | Ethanol 100 mg/dL or 1.0 g/L, in water, (1mL x 10) | 5190-9759 |
| Ethanol 150 mg/dL | Ethanol 150 mg/dL or 1.5 g/L, in water, (1mL x 10) | 5190-9760 |
| Ethanol 200 mg/dL | Ethanol 200 mg/dL or 2.0 g/L, in water, (1mL x 10) | 5190-9761 |
| Ethanol 300 mg/dL | Ethanol 300 mg/dL or 3.0 g/L, in water, (1mL x 10) | 5190-9762 |
| Ethanol 400 mg/dL | Ethanol 400 mg/dL or 4.0 g/L, in water, (1mL x 10) | 5190-9763 |
| Agilent Blood Alcohol Checkout Mix | Methanol, Acetaldehyde, Ethanol, Isopropanol, t-Butanol, Propanal, n-Propanol, Acetone, Acetonitrile, 2-Butanol, Ethyl Acetate, 2-Butanone, in water, 1 mL | 5190-9765 |

Unit Conversion Table

| mg% or mg/100 mL or mg/dL | g/dL | g/L |
|---------------------------|------|-----|
| 20 | 0.02 | 0.2 |
| 50 | 0.05 | 0.5 |
| 80 | 0.08 | 0.8 |
| 100 | 0.10 | 1.0 |
| 150 | 0.15 | 1.5 |
| 200 | 0.20 | 2.0 |
| 300 | 0.30 | 3.0 |
| 400 | 0.40 | 4.0 |



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Agilent CrossLab—the world leader in innovative analytical laboratory services, software, and consumables—delivers vital, actionable insights to drive improved economic, operational, and scientific outcomes.

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