

Zebbron™ GC Column Selection Chart

Polarity Scale

The polarity scale is based on their McReynolds value, which provides a systematic approach to ranking GC stationary phases by polarity.

5	ZB-1 Non-polar phase suited for true boiling point separations	100% Dimethylpolysiloxane	100% Dimethylpolysiloxane	Applications: • Essential oils • Gases (refinery) • Hydrocarbons • MFC • Natural gas odorants • Oxygenates and GRDs • Semi-volatiles • Simulated distillation • Sulfur compounds (light) • Solvent impurities	Specifications: Temperature limits: -60 to 360/370 °C (isothermal/TPGC) USP phase: G2 Available lengths (meter): 10, 15, 30, 50, 60, 100 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.10-5.00 <i>*Thicker films (>1.0 µm df) are rated to 340/360 °C (isothermal/TPGC).</i>	Benefits: • Low activity • High efficiency • Excellent resolving power of critical pairs in complex petrochemical samples • Low bleed (MS certified)
5	ZB-1ms Extremely low bleed column for non-polar compounds	100% Dimethylpolysiloxane	100% Dimethylpolysiloxane	Applications: • Drugs of abuse • Amines • Acids • Polychlorinated biphenyls (EPA Method 1668) • Flavors & fragrances • Diesel fuel • Pesticides	Specifications: Temperature limits: -60 to 360/370 °C (isothermal/TPGC) USP phase: G2 Available lengths (meter): 10, 15, 20, 25, 30, 60 Internal diameters (mm): 0.10, 0.25, 0.32, 0.53 Film thickness (µm): 0.10-1.00 Available with Guardian™ integrated guard columns	Benefits: • Lowered bleed (MS certified) especially suited to high sensitivity work using GC/MS • Extremely inert for active compounds such as drugs or pesticides • Improved signal-to-noise ratio for better sensitivity and mass spectral integrity • Identical selectivity to ZB-1
5	ZB-1HT INFERNO™ High temperature stability (430 °C) for non-polar compounds	100% Dimethylpolysiloxane	100% Dimethylpolysiloxane	Applications: • High boiling petroleum products • Simulated distillation methods • Long-chained hydrocarbons • Polymers / Plastics • High molecular weight waxes • Diesel fuel • Motor oils	Specifications: Temperature limits: -60 to 400/430 °C (isothermal/TPGC) USP phase: G2 Available lengths (meter): 15, 20, 30 Internal diameters (mm): 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 0.10-0.25 Available with Guardian™ integrated guard columns <i>*0.53 mm ID columns are rated to 400 °C max operational temperature</i>	Benefits: • Non-metal 100% dimethylpolysiloxane phase stable to 430 °C • Individually tested for low bleed, MS certified • Rugged high temperature, polyimide coated, fused silica tubing • Provides true boiling point separation for hydrocarbon distillation methods • Low activity, provides good peak shape for acidic and basic samples • Provides robust column performance for high temperature bake outs
8	ZB-5 Versatile low polarity column for unknown samples	95% Dimethylpolysiloxane	5% Phenyl	Applications: • Alkaloids • Drugs • FAMES • Halo-hydrocarbons • Phenols • Pesticides/Herbicides • Residual solvents • PCBs/Aroclors • Solvent impurities • Semi-volatiles • Acids	Specifications: Temperature limits: -60 to 360/370 °C (isothermal/TPGC) USP phase: G27 Available lengths (meter): 15, 20, 30, 60 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.10-5.00 Available with Guardian™ integrated guard columns <i>*Thicker films (>1.0 µm df) are rated to 340/360 °C (isothermal/TPGC).</i>	Benefits: • Versatile low polarity column • Low bleed (MS certified) especially suited to high sensitivity work using GC/MS • Extremely inert for active compounds such as drugs or pesticides • Resistant to dirty samples - long column life • Great column for unknown samples
8	ZB-5ms Arylene phase for enhanced resolution of PAHs and multi-ring aromatic compounds	95% Dimethylpolysiloxane	5% Phenyl-Arylene	Applications: • Drugs • Amines • Phenols • FAMES • Halo-hydrocarbons • Diacids • Polychlorinated hydrocarbons (PAHs) • Polychlorinated biphenyls (PCBs) / Aroclors • Acids • Pesticides / Herbicides	Specifications: Temperature limits: -60 to 325/350 °C (isothermal/TPGC) USP phase: G27 Available lengths (meter): 10, 15, 20, 30, 60 Internal diameters (mm): 0.10, 0.18, 0.25, 0.32, 0.52 Film thickness (µm): 0.10-1.00 Available with Guardian™ integrated guard columns	Benefits: • Low bleed (MS certified) especially suited to high sensitivity work using GC/MS • Extremely inert for active compounds such as drugs or pesticides • Great column for unknown samples • Fully conditioned within 35 minutes • Enhanced resolution of PAHs and other multi-ring aromatic compounds • The perfect choice for EPA Methods 525, 610, 625, 8100, and 8270
8	ZB-5MSI Low bleed column with the same selectivity as the ZB-5	95% Dimethylpolysiloxane	5% Phenyl	Applications: • Drugs of Abuse • Nitroamines • Phenols • FAMES • Pesticides • EPA Methods	Specifications: Temperature limits: -60 to 360/370 °C (isothermal/TPGC) USP phase: G27 Available lengths (meter): 15, 30, 60 Internal diameters (mm): 0.25, 0.32 Film thickness (µm): 0.25-0.50 Available with Guardian™ integrated guard columns	Benefits: • Highly inert - improved peak shape for acidic/basic compounds • MS certified low-bleed levels provide maximum sensitivity • Industry leading GC specifications ensure column-to-column performance • ESC bonding results in phase stability and high temperature limits • Traditional bonding chemistry provides the same selectivity as the ZB-5 columns
8	ZB-5HT INFERNO™ High temperature stability (430 °C) for high boiling compounds	95% Dimethylpolysiloxane	5% Phenyl	Applications: • High boiling petroleum products • Simulated distillation methods • Polymers / Plastics • High molecular weight waxes • Diesel fuel • Motor oils • Surfactants • Long-chained hydrocarbons	Specifications: Temperature limits: -60 to 400/430 °C (isothermal/TPGC) USP phase: G27 Available lengths (meter): 15, 20, 30 Internal diameters (mm): 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 0.10-0.25 Available with Guardian™ integrated guard columns <i>*0.53 mm ID columns are rated to 400 °C max operational temperature</i>	Benefits: • Non-metal 5% - phenyl - 95% - dimethylpolysiloxane phase stable to 430 °C • Individually tested for low bleed, MS certified • Rugged high temperature, polyimide coated, fused silica tubing • Provides true boiling point separation for hydrocarbon distillation methods • Low activity, provides good peak shape for acidic and basic samples • Provides robust column performance for high temperature bake outs
9	ZB-XLB Low polarity arylene column with bleed and sensitivity levels designed for MS detectors	Proprietary	Proprietary	Applications: • Polychlorinated Biphenyls (PCBs) • Pesticides • Herbicides	Specifications: Temperature limits: -60 to 340/360 °C (isothermal/TPGC) Available lengths (meter): 15, 20, 30, 60 Internal diameters (mm): 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 0.18-1.5 Available with Guardian™ integrated guard columns <i>*Thicker films (>1.0 µm df) are rated to 320/340 °C (isothermal/TPGC).</i>	Benefits: • Unique low polarity arylene column • Engineered specifically for use with bleed sensitive detectors such as MS • Provides alternative selectivity to standard 5-type phases • Often used for confirmation of pesticide, PCB, or other environmental samples • Good tool for sample screening to identify unknown contaminants
11	ZB-MultiResidue™-1 Novel phase designed for pesticides, herbicides, and insecticides	Proprietary	Proprietary	Applications: • Organochlorine pesticides • Organophosphorus pesticides • Nitrogen containing pesticides • Herbicides • Insecticides • Aroclors/PCBs • Multi-pesticide residue method	Specifications: Temperature limits: -60 to 320/340 °C (isothermal/TPGC) EPA Method: 8081A, 8141, 8151 Certified Available lengths (meter): 30 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.25-0.50	Benefits: • Designed for the separation of all types of pesticides, herbicides, and insecticides • Provides baseline resolution and confirmation of all 20 chlorinated pesticides regulated under EPA Method 8081 in <10 min • MS Certified phase provides low bleed performance for pesticide confirmation by MS • Low activity, decreased breakdown of sensitive pesticides such as DDT
13	ZB-624 Optimized for separating volatile organic compounds (VOCs)	94% Dimethylpolysiloxane	6% Cyanopropylphenyl	Applications: • Volatile organic compounds (VOCs) • Residual solvents in pharmaceutical products (VOCs) • US EPA Methods 501.3, 502.2, 503.1, 524.2, 601, 602, 624, 8010, 8015, 8020, 8240, 8260, 8021	Specifications: Temperature limits: -20 to 260 °C USP phase: G43 Available lengths (meter): 20, 30, 60, 75, 105 Internal diameters (mm): 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 1.0, 1.4, 1.8, 3.0 Available with Guardian™ integrated guard columns	Benefits: • Formulated for low bleed • Increased temperature limit speeds run times and re-equilibration • Available in Fast GC dimensions • Separates volatile organic flavor and fragrance additives and residual solvents in industrial or pharmaceutical products (VOCs)
15	ZB-MultiResidue™-2 Novel phase designed for pesticides, herbicides, and insecticides analysis	Proprietary	Proprietary	Applications: • Organochlorine pesticides • Organophosphorus pesticides • Nitrogen containing pesticides • Herbicides • Insecticides • Aroclors/PCBs • Multi-pesticide residue method	Specifications: Temperature limits: -60 to 320/340 °C (isothermal/TPGC) EPA Method: 8081A, 8141, 8151 Certified Available length (meter): 30 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.20-0.50	Benefits: • Designed for the separation of all types of pesticides, herbicides, and insecticides • Provides baseline resolution and confirmation of all 20 chlorinated pesticides regulated under EPA Method 8081 in <10 min • MS Certified phase provides low bleed performance for pesticide confirmation by MS • Low activity, decreased breakdown of sensitive pesticides such as DDT
18	ZB-35 Intermediate polarity column for high molecular weight analysis	65% Dimethylpolysiloxane	35% Phenyl	Applications: • Pesticides • Aroclors • Drugs of Abuse • Amines • Semi-volatiles • Steroids	Specifications: Temperature limits: -50 to 340/360 °C (isothermal/TPGC) USP phase: G42 Available lengths (meter): 15, 30, 60 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.25-1.00	Benefits: • Intermediate polarity column for high molecular weight analysis • Inert to minimize analyte adsorption, improve efficiency, and reproducibility • More rugged (longer column life) than other polar phases • Excellent for trace analysis with bleed-sensitive detectors • Often resolves compounds that co-elute on ZB-1 or ZB-5 phases
19	ZB-1701 Unique selectivity providing an alternate selectivity to phenyl phases with similar polarity	86% Dimethylpolysiloxane	14% Cyanopropylphenyl	Applications: • PCBs • Solvents • Esters • Phenols • Pharmaceutical intermediates • Drugs • HPLC derivatized sugars • Amines	Specifications: Temperature limits: -20 to 280/300 °C (isothermal/TPGC) USP phase: G46 Available lengths (meter): 15, 30, 60 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.25-1.00 <i>*Thicker films (>1.0 µm df) are rated to 260/280 °C (isothermal/TPGC).</i>	Benefits: • Intermediate polarity column • Provides alternate selectivity to phenyl phases with similar polarity • Unique selectivity - good column to screen in method development • Enhanced stability and low activity • Fast run and re-equilibration times for enhanced sample throughput and productivity
19	ZB-1701P Specially tested to ensure good response for DDT and endrin	86% Dimethylpolysiloxane	14% Cyanopropylphenyl	Applications: • Organochlorine pesticides • Aroclors • Organophosphorus pesticides • Nitrogen containing pesticides	Specifications: Temperature limits: -20 to 280/300 °C (isothermal/TPGC) EPA Method: 8081A Certified Available lengths (meter): 30 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.25-1.00 <i>*Thicker films (>1.0 µm df) are rated to 260/280 °C (isothermal/TPGC).</i>	Benefits: • Specially tested to ensure good response for DDT and endrin • Guaranteed column for pesticide analysis <i>Note: Consider using ZB-MultiResidue 1 and 2 as a more rugged alternative for pesticide analysis.</i>
24	ZB-50 High polarity column capable of high-temperature bake-out to remove contaminants	50% Phenyl	50% Dimethylpolysiloxane	Applications: • Drugs of abuse • Pesticides • Aroclors • Cholesterols • Triglycerides • Steroids	Specifications: Temperature limits: 40 to 320/340 °C (isothermal/TPGC) USP phase: G3 Available lengths (meter): 15, 30, 60 Internal diameters (mm): 0.25, 0.32, 0.53 Film thickness (µm): 0.15-1.00	Benefits: • High polarity column capable of high-temperature bake-out to remove contaminants • Inert to minimize analyte adsorption, improve efficiency, and reproducibility • More rugged (longer column life) than other polar phases • Excellent for trace analysis with bleed-sensitive detectors • Often resolves compounds that co-elute on ZB-1 or ZB-5 • Great for drug screening and environmental compounds
52	ZB-WAX^{PLUS} 100% aqueous stable with high retention of alcohols and other chlorinated solvents	100% Polyethylene Glycol	100% Polyethylene Glycol	Applications: • Alkaloids • Aldehydes • Aromatics • Essential oils • Flavors & fragrances • Glycols • Pharmaceutical • Amino • Solvents • Styrene • Xylene isomers	Specifications: Temperature limits: 20 to 250/260 °C (isothermal/TPGC) USP phase: G16 Available lengths (meter): 10, 15, 20, 30, 60 Internal diameters (mm): 0.10, 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 0.10-1.00 <i>*Thicker films (>1.0 µm df) are rated to 230/240 °C (isothermal/TPGC).</i>	Benefits: • 100% aqueous stable • Extremely inert for acidic compounds • Enhanced selectivity for low boiling solvents • High retention of alcohols and other chlorinated solvents • Increased efficiency at 20 °C • Bonded, solvent insoluble
57	ZB-WAX Bonded, solvent insoluble phase excellent for separating polar complex mixtures	100% Polyethylene Glycol	100% Polyethylene Glycol	Applications: • Alcohols • Aldehydes • Aromatics • Essential oils • Flavors & fragrances • Glycols • Pharmaceutical • Amino • Solvents • Styrene • Xylene isomers	Specifications: Temperature limits: 40 to 250/260 °C (isothermal/TPGC) USP phase: G16 Available lengths (meter): 10, 15, 20, 30, 60 Internal diameters (mm): 0.10, 0.18, 0.25, 0.32, 0.53 Film thickness (µm): 0.10-1.00	Benefits: • Low bleed, MS certified • Highly stable, long lifetime • Low activity for amines • Excellent chromatography of polar complex mixtures • Widely used for profiling and "fingerprinting" • Bonded, solvent insoluble
58	ZB-FFAP Provides better peak shape for underivatized acids	Nitroterephthalic Acid Modified Polyethylene Glycol	Nitroterephthalic Acid Modified Polyethylene Glycol	Applications: • Acrylates • Alcohols • Aldehydes • Ketones • Free fatty acids • Alkynes • Organic Acids • Phenols • Nitro Free Acids	Specifications: Temperature limits: 40 to 250/260 °C (isothermal/TPGC) USP phase: G35 Available lengths (meter): 15, 30, 50, 60 Internal diameters (mm): 0.25, 0.32, 0.53 Film Thickness (µm): 0.25-1.00	Benefits: • High polarity column • Provides better peak shape for underivatized acids • Bonded, solvent insoluble • Replaces OV-351