

UOP LABORATORY TEST METHODS

Table of Contents in Numeric Sequence

UOP Method Number	Title	Pages
1-87	Distillation Range of Heavy Petroleum Oils and Determination of Coke Residue	5
6-82	Induction Period of Gasolines using the UOP Oxygen Pressure Vessel	6
9-85	Hydrogen Sulfide in Gases by the Tutwiler Method	4
33-82	Peroxide in Gasoline	6
41-74	Doctor Test for Petroleum Distillates	2
46-85	Paraffin Wax Content of Petroleum Oils and Asphalts	6
77-85	Crude Oil Evaluation by Hempel Distillation	8
79-87	Fractionation of Petroleum Distillates	18
99-82	Pentane-Insoluble Matter in Petroleum Oils Using a Membrane Filter	8
114-86	Relative Density of Gas by Schilling Effusion Method	6
144-88	Copper in Gasoline and Naphtha	6
163-89	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons	7
172-89	Flue Gas Analysis	6
174-84	Storage Stability of Residual Fuel Oils	4
197-89	Mercaptan Sulfur - Copper Number	5
202-00	Disulfide Sulfur in Light Petroleum Distillates and LPG	11
209-00	Alkalinity, Sulfide and Mercaptide Analyses of Used Refinery Caustic Solutions	16
210-76T	Caustic Solution Analysis - Double Indicator	4
211-79	Caustic Solutions Analysis - Liberation Method	4
212-77	Hydrogen Sulfide, Mercaptan Sulfur and Carbonyl Sulfide in Hydrocarbon Gases by Potentiometric Titration	15
248-92	Alkalinity and Fluoride in Alkaline Solutions	8
254-87	Apparent Bulk Density of Fluid Cracking Catalyst	4
262-99	Phenols and Thiophenols in Petroleum Products by Spectrophotometry	13
269-90	Nitrogen Bases in Hydrocarbons by Potentiometric Titration	6
274-94	Platinum in Fresh Catalysts by Non-Differential Spectrophotometry	19
275-98	Loss on Ignition of Catalysts at 900°C	5
276-85	Pyrrole Nitrogen in Petroleum Distillates by Visible Spectrophotometry	5
286-89	Free Sulfur in Distillates by Mercury Number	3
291-02	Total Chloride in Alumina and Silica-Alumina Catalysts by Potentiometric Titration	11
294-93	Apparent Bulk Density of Catalyst Particles	5
296-82	Arsenic in Petroleum Naphthas	9

UOP Method Number	Title	Pages
300-61	Water in Glycol	6
303-87	Impurities in Catalysts by ICP-AES	7
304-90	Bromine Number and Bromine Index of Hydrocarbons by Potentiometric Titration	10
311-02	Hydrocarbon Types by Fluorescent Indicator Adsorption (FIA)	14
313-89	Nitrogen Bases in Petroleum Distillates by Color Indicator Titration	5
314-97	Analysis of Refinery Waters for ph, Iron and Copper	7
315-59	Basic Nitrogen in Gases by Low Temperature Acid Scrubbing	10
317-66T	Chlorine in Hydrogen Gas by a Colorimetric Procedure	8
320-86	Sulfate in Alumina or Silica-Alumina Base Catalysts-Turbidimetric Method	6
326-82	Diene Value by Maleic Anhydride Addition Reaction	4
333-89	Fines in 1.6-mm (1/16-inch) Spherical Catalysts and Bases by Sieve Analysis	2
344-87	Moisture in Hydrocarbon Streams Using an on-line Analyzer	5
350-82	Trace Concentrations of Lead in Gasoline or Petroleum Naphthas	5
357-80	Trace Sulfur in Petroleum Distillates by the Nickel Reduction Method	6
358-64	Bromine Index of Liquid Butane and Petroleum Distillates by Coulometric Titration	6
364-85	Trace Dissolved Oxygen in Liquids	11
373-83	Composition of C ₂ through C ₅ Hydrocarbon Mixtures by Gas Chromatography	5
374-90	<i>p</i> -Phenylenediamine Type Inhibitors in Gasoline	4
375-86	Calculation of UOP Characterization Factor and Estimation of Molecular Weight of Petroleum Oils	14
377-90	Free Sulfur in Liquefied Petroleum Gases by Mercury Number	5
379-81	Hydrogen Fluoride in BF Alkylation Regenerator Bottoms	3
381-63	Traces of Sulfur in Liquefied Petroleum Gases by the Nickel Reduction Method	8
382-81	Water in Regenerator Bottoms from Hydrogen Fluoride Alkylation	8
384-76	Nitrogen in Petroleum Distillates and Heavy Oils by Acid Extraction or Direct Kjeldahl Procedure	11
387-62	Arsenic in Petroleum Stocks and Catalysts by Spectrophotometry	6
389-86	Trace Metals in Oils by Wet Ash/ICP-AES	5
391-91	Trace Metals in Petroleum Products or Organics by Atomic Absorption Spectrophotometry	8
394-85	Aromatics in Hydrocarbons by Gas Chromatography	7
395-95	Total Chloride in Petroleum Distillates by Colorimetry	8
405-67T	Hydrogen Chloride in Gas Streams by Potentiometric Titration	6
410-85	Sodium in Catalysts by Flame Emission or Atomic Absorption Spectrophotometry	5

UOP Method Number	Title	Pages
411-92	Normal Paraffins by Subtractive Gas Chromatography	20
412-87	Loss on Ignition of Catalysts at 500°C	3
413-82	One Day Fuel Oil Stability Test	8
422-66	Particle Size Distribution by Micromesh Sieves	6
423-85	Thiosulfate in Used Refinery Caustics	3
425-86	Surface Area, Pore Volume and Pore Diameter of Porous Substances by Nitrogen Adsorption	13
430-70T	Basic Nitrogen in Gases by Acid Scrubbing	11
432-65T	Total Nitrogen in Liquefied Petroleum Gases by Acid Extraction- Kjeldahl Procedure	9
434-83	Free Water and Volatile Hydrocarbon Content of Molecular Sieves	9
436-87	Silica in Catalysts by Gravimetric Procedure	4
437-81	Size Distribution of Molecular Sieve Particles	2
438-81	Attrition of Molecular Sieve Particles	2
456-80	Chlorides in Refinery Waters	3
464-00	Phenol in Light Aromatic Hydrocarbons and Cyclohexane by Spectrophotometry	6
481-91	Water in Liquid Hydrocarbons by Coulometry	9
495-00	Aromatics in Molex <i>n</i> -Paraffin Products by Ultraviolet Spectrometry	8
496-63T	Carbonyl Compounds in Light Hydrocarbon Gases	3
501-02	Hydrocarbon Types by Fluorescent Indicator Adsorption (FIA) at Elevated Temperatures	12
515-68T	Residue and Organic Residue in Waste Waters	2
516-00	Sampling and Handling of Gasolines, Distillate Fuels and C ₃ .C ₄ Fractions	12
523-96	Glycol and Carom Solvent Distribution in Mixtures by Gas Chromatography	7
537-91	Alcohol and Ketone Mixtures by Gas Chromatography	10
539-97	Gas Analysis by Gas Chromatography	17
542-88	Trace Diolefins, Acetylenes and Non-condensable Hydrocarbons in LPG by Gas Chromatography	8
543-97	Non-Aromatic Hydrocarbons in High-Purity Aromatics by Gas Chromatography	8
547-97	Laboratory Hydrogen Sulfide and Mercaptan Extraction	8
549-81	Sodium in Petroleum Distillates by Flame Emission, using an Atomic Absorption Spectrophotometer	6
551-86	Hexanes and Lower-Boiling Hydrocarbons in Olefin-Free Gasolines by Gas Chromatography	7
555-96	Trace Impurities in High-Purity Benzene and Cyclohexane by Gas Chromatography	8
563-90	Packed Apparent Bulk Density of Molecular Sieves	3
565-92	Acid Number by Potentiometric Titration	9

UOP Method Number	Title	Pages
569-79	Methanol in Petroleum Distillates and LPG by Gas Chromatography	8
578-84	Automated Pore Size Distribution of Porous Substances by Mercury Porosimetry	10
586-71	Sulfur in Hydrocarbons by Oxy-Hydrogen Combustion	12
587-92	Acid Number and Naphthenic Acids by Colorimetric Titration	8
588-94	Total, Inorganic and Organic Chloride in Hydrocarbons by Potentiometric Titration	9
592-85	Palladium in Catalysts by Visible Spectrophotometry	6
602-89	Soxhlet Extraction of Catalysts	4
603-88	Trace CO and CO ₂ in Hydrogen and Light Gaseous Hydrocarbons by Gas Chromatography	6
606-78	Chloride in Hydrocarbons by Oxy-Hydrogen Combustion	12
614-02	Heptane-Insoluble Matter in Petroleum Oils Using a Membrane Filter	10
619-83	Fluorine in Hydrocarbons by Oxy-Hydrogen Combustion	12
621-98	Boiling Point Distribution of Hydrocarbons by Gas Chromatography	10
624-94	Chemical Analysis for Carbonyl	7
627-85	Silica and Sodium in Water Glass	5
629-90	Analysis of Hydrogen Fluoride Alkylation Catalysts and Regenerator Bottoms	18
649-74	Total Oxygen in Organic Materials by Pyrolysis - Gas Chromatographic Technique	10
666-82	Precision Statements in UOP Methods	5
670-68	Carbon Structure Of C ₇ and Lower-Boiling Hydrocarbons in Olefinic Samples by Hydrogenation and Capillary Column Gas Chromatography	8
672-84	Aromatic Hydrocarbon Types in Detergent Alkylates by Low Voltage Mass Spectrometry	18
673-88	Linear Alkylbenzene Isomer Distribution in Detergent Alkylate by Gas Chromatography	6
676-84	Molecular Weight by Vapor Pressure Osmometry	5
678-88	Dissolved Molecular Oxygen in Liquid Hydrocarbons by Electrochemical Detection	5
682-84	Total Cyanide in Refinery Waters by Visible Spectrophotometry	11
683-86	Sulfide in Refinery Waste Water	3
688-92	Normal Olefins and Normal Paraffins by Gas Chromatography	8
690-99	Octanes and Lower Boiling Hydrocarbons in Olefin Free Gasolines by Gas Chromatography	15
699-91	Sodium in Liquefied Petroleum Gas by Atomic Absorption Spectrophotometry	6
700-70	Free Sulfur in Petroleum Distillates and LPG by the AC Polarograph	6

UOP Method Number	Title	Pages
702-90	Impurities in Distilled High Purity Cumene by Gas Chromatography	6
703-98	Carbon on Catalysts by Induction Furnace Combustion and Infrared Detection	4
704-70	Equivalent Weights of Heavy Organic Amines by Non-Aqueous Potentiometric Titration	2
709-70	Gas Analysis by Gas Chromatography Using a Two-Injection Technique	9
714-87	Metals in Miscellaneous Samples by ICP-AES	6
715-85	Rhenium in Catalysts by Spectrophotometry	7
720-93	Impurities in High Purity <i>p</i> -Xylene by Gas Chromatography	7
725-86	Pentenes and Lower Boiling Hydrocarbons in Olefinic Gasolines by Gas Chromatography	7
727-72	Total Sulfur in Naphthas and Petroleum Distillates by Oxidative Pyrolysis and Microcoulometric Titration	15
729-76T	Phenols in Light Distillates by Direct Titration	6
731-74	Total Sulfur in Heavy Oils, Tars and Solids by Microcoulometric Titration Single Entry Boat Technique	11
735-73	Hydrogen Content of Gases by Gas Chromatography	3
740-79T	Volatile Nitrogen Bases, Including Ammonia, in Solids and Aqueous Solutions	3
741-86	Paraffin and Naphthene Distribution by Carbon Number of Saturated Petroleum Distillates by Gas Chromatography	8
742-86	Sulfate in Catalyst by a Gravimetric Method	5
743-73T	Acid Oils in Refinery Caustic by Liberation	4
744-98	Aromatics in Hydrocarbons by Gas Chromatography	10
755-92	Trace Impurities in High Purity Ethylbenzene by Gas Chromatography	6
759-76	Trace Oxygen in Gases by Gas Chromatography	3
762-76	Apparent Bulk Density of Solid Phosphoric Acid Catalyst	2
766-91	Piece Density by Mercury Displacement	10
772-77	Mercaptan Sulfur in LPG by Microcoulometry	9
777-77	Hydrocarbon Types in Petroleum Fractions by Chromatography	9
778-81	Apparent Bulk Density of Extruded Catalyst	3
779-92	Chloride in Petroleum Distillates by Microcoulometry	9
780-92	Carbohydrates by High Performance Liquid Chromatography	11
787-78	Silicones in Petroleum Distillates by Atomic Absorption Spectroscopy	4
791-94	Sulfur Components in LPG or C ₅ , minus Hydrocarbon Fractions by Gas Chromatography - Sulfur Chemiluminescence Detector	14
792-78	Colorimetric Determination of Silica in Aqueous Solutions	3
793-82	Color Stability of Petroleum Distillates	2

UOP Method Number	Title	Pages
798-96	Trace <i>p</i> -Diethylbenzene and/or Indane in C ₈ Aromatics, or Trace C ₈ Aromatics in <i>p</i> -Diethylbenzene by Gas Chromatography	8
800-79	Vanadium, Nickel and Iron in Petroleum Oils by Atomic Absorption Spectrophotometry	11
801-80	Size Distribution of Charcoal Particles	2
802-80	Attrition of Charcoal Particles	2
803-84	Chlorination Color of Phenol by Spectrophotometry	3
804-83	Carbonyl Content of Phenol by Visible Spectrophotometry	4
806-84	Alcoholic Impurities in Acetone	2
808-84	Alkalinity of Acetone	2
809-84	Acidity of Acetone	2
810-84	Residue on Evaporation of Acetone	2
815-87	Acid Insolubles in Catalysts	5
816-80	Refractive Index of Hydrocarbon Liquids	4
818-81	Thiosulfate in Lean Amine Solutions	3
821-81	Automated Micro Pore Size Distribution of Porous Substances by N ₂ Adsorption and/or Desorption Using a Micromeritics Analyzer	14
822-81	Specific Gravity of Coke and Powdered Asphalts	4
823-90	Platinum in Fresh Platinum-Rhenium Catalysts by Spectrophotometry	11
824-81	Diethanolamine in Solutions by Color Indicator Titration	2
825-81	Monoethanolamine in Solutions by Color Indicator Titration	2
826-81	Carbon Dioxide in Amine Solution	7
827-81	Apparent Hydrogen Sulfide in Amine Solutions	4
828-81	Total Amine in Solutions	7
829-82	Titrimetric Determination of CO ₂ in Ethanolamines	3
832-83	Carbon Structure of C ₉ and Lower Boiling Hydrocarbons by Gas Chromatography	7
833-82	Molybdenum in Platforming Catalysts and Fines by Atomic Absorption Spectrophotometry	5
834-82	Arsine in Ethylene by Electrothermal Atomic Absorption Spectrophotometry	5
835-82	Accelerated Fuel Oil Stability	5
836-82	Sulfur in Distillate and Residual Oils by X-Ray Fluorescence	4
841-83	Trans Olefins in Fatty Acids, Esters or Triglycerides by Infrared Spectroscopy	5
842-83	Nickel, Iron, Sulfur and Vanadium in Distillate, Residual Oils and Pitches by X-Ray Fluorescence	6
845-90	Trace Alcohols in Liquefied Petroleum Gas by Gas Chromatography	6
846-83	Composition of C ₄ Olex Effluent by Gas Chromatography	6
847-86	Dewaxing of Petroleum Products	5

UOP Method Number	Title	Pages
848-84	Nickel, Vanadium, Iron, Lead, Copper and Sodium in Gas Oils by Atomic Absorption Spectrophotometry	10
851-84	Density of Powders and Solids by Helium Displacement	4
854-85	Size Distribution of Solid Phosphoric Acid Catalyst	3
856-85	Particle Size Distribution of Powders by Laser Light Scattering	6
863-01	Trace Desorbent in C ₁₀ -C ₁₈ Molex Products by GC	6
864-89	Sulfur in Organic and Inorganic Materials by Combustion and IR Detection	5
865-86	Phosphorus in Catalysts by Visible Spectrophotometry	5
866-86	Carbon, Hydrogen and Nitrogen by Oxidative Pyrolysis	6
868-88	Trace Saturates in High Purity Aromatics by Gas Chromatography	7
870-90	Carbon Number Distribution of Paraffins, Naphthenes and Aromatics by Gas Chromatography	8
873-86	Nobel Metals and Modifiers in Catalysts by ICP-AF-S	6
874-88	Pore Size Distribution of Porous Substances by Nitrogen Adsorption Using a Quantachrome Analyzer	12
876-93	Platinum in Chloroplatinic Acid by Spectrophotometry	9
878-87	Potassium in Catalysts by Atomic Absorption	5
879-87	Aluminum in Catalysts by Atomic Absorption	5
880-96	Hydrocarbon Types in Low Olefin Distillates by Gas Chromatography	5
883-95	Purity of UOP No. 5 Inhibitor by Capillary Column Gas Chromatography	8
887-89	Rhenium in Perrhenic Acid and Ammonium Perrhenate by Spectrophotometry	7
888-88	Precision Statements in UOP Methods	15
894-91	Mercury in Catalysts by GF-Atomic Absorption Spectrophotometry	6
896-93	Platinum in Spent Catalyst	21
899-97	Trace Hydrocarbons in Hydrogen or LPG by Gas Chromatography	12
905-91	Platinum Agglomeration by X-Ray Diffusion	12
909-98	Loss on Ignition of Catalyst at 700°C	4
912-94	Fluoride in Catalysts, Molecular Sieves and Aqueous Solutions by Ion Selective Electrode	13
913-92	Impurities in Styrene by Gas Chromatography	7
914-92	Automated Crush Strength of Catalysts or Molecular Sieves	9
915-92	Normal Paraffins by Capillary Gas Chromatography	10
916-93	Palladium, Gold and Potassium in Silica Catalyst by Inductively Coupled Plasma-Atomic Emission Spectrometry	10
917-93	Palladium in Fresh and Spent Aluminum Catalyst by Spectrophotometry	11
918-92	Collection and Grinding of Adsorbents and Catalysts for Analysis	8
923-97	Total Sulfur in Liquefied Petroleum Gas by Hydrogenolysis	5
924-00	Nickel, Tungsten and Aluminum in Fresh Catalysts by Inductively Coupled Plasma-Atomic Emission Spectrometry	8

UOP Method Number	Title	Pages
925-92	Nickel, Molybdenum, Phosphorus, Cobalt and Aluminum in Fresh Catalyst by Inductively Coupled Plasma-Atomic Emission Spectrometry	8
926-92	Aluminum and Silicon in Fresh Catalysts by Lithium Metaborate Fusion/ICP-AES	8
927-92	Trace Metallic Impurities in Fresh Catalysts by Inductively Coupled Plasma-Atomic Emission Spectrometry	7
931-94	Trace Impurities in Mixed Xylenes by Gas Chromatography	8
933-94	Test Procedures for Plant Deposits, Scales and Sludges	16
934-94	Diolefins in C ₅ Olefinic Hydrocarbon Streams by Gas Chromatography	12
935-94	Mercaptan Types in Kerosine by Nuclear Magnetic Resonance	16
936-95	Combined Nitrogen in Liquefied Petroleum Gas by Chemiluminescence	16
938-00	Total Mercury and Mercury Species in Liquid Hydrocarbons	22
939-96	Basic Nitrogen in LPG by Ion Chromatography	12
944-96	Surface Area of Fresh and Regenerated Catalyst	8
945-96	Platinum Dispersion on Platinum or Platinum/Tin Catalyst by Hydrogen-Oxygen Titration	18
946-96	Arsenic in Naphthas by HG-AAS	9
947-96	Length and Diameter Measurement of Extruded Catalyst Using a Semi-Automated Device	5
948-96	Relative Density of Gas by Calculation from Composition	4
952-97	Trace Lead in Gasolines and Naphthas by GF-AAS	5
953-97	Sulfate and Thiosulfate in caustic Aqueous Solutions by ION Chromatography	8
958-98	Ammonia in Hydrocarbons	4
959-98	Ammonium Determination in Aqueous Solutions by ION Chromatography	8
961-98	Elemental Compositions of Zeolites by ICP-AES	11
962-98	Copper in Gasoline and Naphtha by Flame-AAS or ICP-AES	6
963-98	Trace Aromatic Hydrocarbons in 90 to 400°C Boiling Range Petroleum Distillates by HPLC	13
964-98	Surface Area, Pore Volume, Average Pore Diameter and Pore Diameter Distribution of Porous Materials	7
967-00	Automated Crush Strength Of Spherical Catalysts	6
968-00	Foots Oil in Methyl Isobutyl Ketone by GC	8
969-00	Permanganate Fading for Acetic Acid	3
971-00	Trace Nitrogen in Light Aromatic Hydrocarbons by Chemiluminescence	8
972-01	Aluminum, Silicon and Silver in Acetic Acid by ICP-OES	5
973-01	Automated Crush Strength of Extruded Catalysts	6
975-02	Fluorine in Liquid Hydrocarbons and LPG by Oxidative Combustion With Ion-Selective Electrode Detection	8
976-02	Trace C ₄ -C ₉ Saturates in High Purity Aromatics by GC	11
999-97	Precision Statements in UOP Methods	18