


Annex of the Certificate (Page 1/5)
Accreditation Scope


 Reference Material TS EN ISO 17034 AB-0001-RM	TÜBİTAK ULUSAL METROLOJİ ENSTİTÜSÜ	
	Accreditation Nr: AB-0001-RM Revision Nr: 04 Date: 13.08.2024	
Reference Material Producers		
Address : TÜBİTAK ULUSAL MET. ENS. NO:X GEBZE Kocaeli / Türkiye		Phone : +90 262 679 5000 Fax : - Email : ume@tubitak.gov.tr Website : www.ume.tubitak.gov.tr

Reference Material Producer

Material Type (RM / CRM) Material / Matrix	Characterized Values / Parameters	Characterization Procedure / Technique
CRM Chloramphenicol	Purity	Two or more independent reference methods in one or several laboratories / High Performance Liquid Chromatography-Diode Array (HPLC-PDA) Coulometric Karl Fisher (cKFT) Inductively Coupled Plasma Mass Spectrometry (ICP-MS) Quantitative Nuclear Magnetic Resonance (qNMR)
CRM Diesel	Cold Filter Plugging Point (CFPP)	Two or more independent reference methods in one or several laboratories / EN 116
CRM Diesel	Density	Two or more independent reference methods in one or several laboratories / EN ISO 12185
CRM Diesel	Kinematic Viscosity	Two or more independent reference methods in one or several laboratories / EN ISO 3104
CRM Diesel	Distillation (Recovery at 250 °C & 350 °C 5 % recovery temperature 10 % recovery temperature 20 % recovery temperature 30 % recovery temperature 40 % recovery temperature 50 % recovery temperature 60 % recovery temperature 70 % recovery temperature 80 % recovery temperature 90 % recovery temperature 95 % recovery temperature)	Two or more independent reference methods in one or several laboratories / EN ISO 3405
CRM Diesel	Cetane Index	Two or more independent reference methods in one or several laboratories / EN ISO 4264
CRM Diesel	Flash Point	Two or more independent reference methods in one or several laboratories / EN ISO 2719
CRM Diesel	Mass Fraction of Sulfur	A single (primary) method in a single laboratory / High Resolution Inductively Coupled Plasma Mass Spectrometry (HR-ICP-MS) Isotope Dilution Mass Spectrometry (ID-MS)




Annex of the Certificate (Page 2/5)
Accreditation Scope

 <p>Reference Material TS EN ISO 17034 AB-0001-RM</p>	TÜBİTAK ULUSAL METROLOJİ ENSTİTÜSÜ Accreditation Nr: AB-0001-RM Revision Nr: 04 Date: 13.08.2024	
	Reference Material Producers Address : TÜBİTAK ULUSAL MET. ENS. NO:X GEBZE Kocaeli / Türkiye Phone : +90 262 679 5000 Fax : - Email : ume@tubitak.gov.tr Website : www.ume.tubitak.gov.tr	
CRM Spring Water	Mass Fraction of Al As B Ba Ca Cd Co Cr Cu Fe K Mg Mn Na Ni P Pb Sb Sn Sr Zn	Two or more independent reference methods in one or several laboratories / Graphite Furnace Atomic Absorption Spectrometry (GFAAS): As, Ba, Cd, Cr, Cu, Ni, Pb Flame Atomic Absorption Spectrometry (FAAS): Mg, Na, Zn Atomic Emission Spectrometry (AES): Al, B, Ba, Co, Cu, Fe, K, Mg, Na, Ni, P, Sr, Zn Inductively Coupled Plasma Mass Spectrometry (ICP-MS): Al, As, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, P, Pb, Sb, Sn, Sr, Zn Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES): Al, B, Ba, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, P, Pb, Sr, Zn
CRM Reference pH Buffer Solutions	pH	A single (primary) method in a single laboratory / Primary pH Measurements (Harned Cell)
CRM Waste Water	Mass Fraction of As B Cd Cu Co Cr Fe Hg Mn Ni V Zn	Two or more independent reference methods in one or several laboratories and/or A single (primary) method in a single laboratory / Graphite Furnace Atomic Absorption Spectrometry (GFAAS): As, Co, Mn, Ni, V Inductively Coupled Plasma Mass Spectrometry (ICP-MS): As, B, Co, Mn, Ni, V, Zn Isotope Dilution Mass Spectrometry (ID-ICPMS): B, Cd, Cr, Cu, Fe, Hg, Zn
CRM Dried Fig	Mass Fraction of Aflatoxin B1 Aflatoxin B2 Aflatoxin G1 Aflatoxin G2 Total Aflatoxin	Two or more independent reference methods in one or several laboratories and/or A single (primary) method in a single laboratory / High Performance Liquid Chromatography - Fluorescence Detection (HPLC-FLD) Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC-HRMS)
CRM Colemanite	Mass Fraction of Al As B Ca Fe Mg Na Sr S Si	Using two or more independent reference methods in one or more laboratory and/ or Using single reference measurement procedure in a single laboratory/ Flame Atomic Absorption Spectrometry(FAAS): Ca, Mg, Na, Si Graphite Furnace Atomic Absorption Spectrometry (GFAAS): Al Hydride Generation Atomic Absorption Spectrometry (HGAAS): As Inductively Coupled Plasma Mass Spectrometry(ICP-MS): Al, As, Ca, Fe, Mg, Na, Si Isotope Dilution Inductively Coupled Plasma Mass Spectrometry(ID-ICPMS): B, Fe, S, Sr
CRM Soil	Mass Fraction of As Cd Co Cr Cu Fe Mn Ni Pb Sb Zn Hg V	Using two or more independent reference methods in one or more laboratory and/or Using single reference measurement procedure in a single laboratory/ Atomic Absorption Spectrometry (AAS):Fe Cold Vapor Atomic Absorption Spectrometry(CVAAS): Hg Inductively Coupled Plasma Mass Spectrometry (ICP-MS): As, Cd, Co, Cr, Cu,Fe, Hg, Mn, Ni, Pb, Sb, V, Zn Isotope Dilution Inductively Coupled Plasma Mass Spectrometry(ID-ICPMS): Cd, Cr, Fe, Hg, Ni, Pb, Zn Isotope Dilution Thermal Ionization Mass Spectrometry (ID-TIMS): Cu, Pb Microwave Plasma Atomic Emission Spectrometry (MP-AES): Co, Cr, Cu ,Fe, Mn, Ni, Pb, V, Zn k0-Instrumental Neutron Activation Analysis (k0-INAA): As, Co, Cr, Fe, Hg, Mn, Sb, V, Zn



Annex of the Certificate (Page 3/5)
Accreditation Scope

 <p>Reference Material TS EN ISO 17034 AB-0001-RM</p>	TÜBİTAK ULUSAL METROLOJİ ENSTİTÜSÜ Accreditation Nr: AB-0001-RM Revision Nr: 04 Date: 13.08.2024	
	Reference Material Producers Address : TÜBİTAK ULUSAL MET. ENS. NO:X GEBZE Kocaeli / Türkiye Phone : +90 262 679 5000 Fax : - Email : ume@tubitak.gov.tr Website : www.ume.tubitak.gov.tr	
CRM River Water	Mass Fraction of As Cd Ni Pb Se	Using two or more independent reference methods in one or more laboratory and / or Using single reference measurement procedure in a single laboratory / Anodic Stripping Voltammetry (ASV): Cd, Pb Inductively Coupled Plasma Mass Spectrometry (ICP-MS): As, Cd, Ni, Pb Isotope Dilution Inductively Coupled Plasma Mass Spectrometry (ID-ICPMS): Cd, Ni, Pb, Se Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES): As, Cd, Ni, Pb
CRM Sea Water	Mass Fraction of As Cd Cr Cu Fe Ni Pb Zn	Using single reference measurement procedure in a single laboratory / Isotope Dilution Inductively Coupled Plasma Mass Spectrometry (ID-ICPMS) : Cd, Cr, Cu, Fe, Ni, Pb, Zn Matrix Matched Standard Addition Inductively Coupled Plasma Mass Spectrometry (SA-ICPMS): As
CRM Ground Water	Mass Fraction of PFOS and PFOA	Using single reference measurement procedure in a single laboratory and / or Using two or more independent reference methods in one or more laboratory / Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC-HRMS)
CRM Hazelnut	Mass Fraction of B Ca Cd Co Cu Fe Mg Mn Ni Sr Zn	Two or more independent reference methods in one or several laboratories and/or A single (primary) method in a single laboratory / Flame Atomic Absorption Spectrometry (FAAS): Ca, Mg Graphite Furnace Atomic Absorption Spectrometry (GFAAS):Co, Mn, Ni, Sr Inductively Coupled Plasma Mass Spectrometry (ICP-MS): B, Ca, Co, Cu, Fe, Mg, Mn, Ni, Sr, Zn Isotope Dilution Inductively Coupled Plasma Mass Spectrometry (ID-ICP-MS): B, Cd, Cu, Fe, Zn
CRM Lyophilized Serum	Mass Fraction of 25-hydroxy vitamin D ₂ 25-hydroxy vitamin D ₃	A single (primary) method in a single laboratory / Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC-HRMS)
CRM Colemanite	LOI	Using single reference measurement procedure in a single laboratory/ Modified TS 3245 Standard Gravimetric Measurement of mass loss after ignition at 950 °C
CRM Fish	Mass Fraction of As Ca Cu Fe Hg K Mg Na P Se Zn	Using two or more independent reference methods in one or more laboratory and / or Using single reference measurement procedure in a single laboratory / Isotope Dilution Inductively Coupled Plasma Mass Spectrometry (ID-ICPMS) : Cu, Fe, Hg, Se, Zn Inductively Coupled Plasma Mass Spectrometry (ICPMS): As, Ca, Mg, K, P Hydride Generation Atomic Absorption Spectrometry (HG-AAS):As Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES): Ca, Mg, K, P
CRM Sucrose Fructose Glucose Honey (unadultrated) Honey (adulterated)	Ratio of Stable Isotopes ¹³ C Delta values	Two or more independent reference methods in one or several laboratories / Elemental Analyser-Isotope Ratio Mass Spectrometry (EA-IRMS)



Annex of the Certificate (Page 4/5)
Accreditation Scope



TÜBİTAK ULUSAL METROLOJİ ENSTİTÜSÜ

Accreditation Nr: AB-0001-RM
Revision Nr: 04 Date: 13.08.2024

Reference Material Producers


Address :
TÜBİTAK ULUSAL MET. ENS. NO:X GEBZE Kocaeli / Türkiye

Phone : +90 262 679 5000
Fax : -
Email : ume@tubitak.gov.tr
Website : www.ume.tubitak.gov.tr

<p>CRM Lyophilized Plasma</p>	<p>Mass Fraction and Molar Concentration of</p> <p>Alanine 2-Aminoadipic acid 2-Aminobutyric acid Anserine Arginine Argininosuccinic acid Asparagine Aspartic acid Beta-alanine Citrulline Cystathionine 4-Aminobutyric acid Glutamic acid Glycine Histamine Histidine Hydroxyproline Isoleucine Leucine Lysine Methionine N-methylhistidine Ornithine Phenylalanine Proline Serine Threonine Tyrosine Valine Ethanolamine Creatinine Sarcosine</p>	<p>Using single reference measurement procedure in a single laboratory / Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC-HRMS)</p>
<p>CRM Urine</p>	<p>Mass Fraction and Molar Concentration of</p> <p>2-Methylcitric acid 3-Hydroxy-3-methylglutaric acid N-(3-Methylcrotonyl)glycine Adipic acid 2-Hydroxyglutaric acid 2-Ketoglutaric acid 3-Hydroxybutyric acid 3-Hydroxyisovaleric acid Citric acid Fumaric acid Glutaric acid Glycolic acid 2-Ketoisovaleric acid Lactic acid Methylmalonic acid 3-Methylglutaric acid N-Acetylaspartic acid Orotic acid 2-Hydroxyphenylacetic acid Pimelic acid Pyruvic acid Sebacic acid Suberic acid Succinic acid N-Suberylglycine N-Tiglylglycine Mandelic acid 5-Hydroxyindole-3-acetic acid N-Hexanoylglycine N-(3-Phenylpropionyl)glycine Mevalonolactone 2-Ketobutyric acid 2-Ketoisocaproic acid Propionylglycine 2-Keto-3-methylvaleric acid Malic acid Benzoic acid Tartaric acid Arabitol Kynurenic acid 4-Hydroxybenzoic acid Hippuric acid 2-Methylhippuric acid Xanthurenic acid 3-Indoleacetic acid Vanillomandelic acid Phenylglyoxylic acid</p>	<p>Using single reference measurement procedure in a single laboratory / Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC-HRMS)</p>



Annex of the Certificate (Page 5/5)
Accreditation Scope

 Reference Material TS EN ISO 17034 AB-0001-RM	TÜBİTAK ULUSAL METROLOJİ ENSTİTÜSÜ	
	Accreditation Nr: AB-0001-RM Revision Nr: 04 Date: 13.08.2024	
	Reference Material Producers	
	Address : TÜBİTAK ULUSAL MET. ENS. NO:X GEBZE Kocaeli / Türkiye	Phone : +90 262 679 5000 Fax : - Email : ume@tubitak.gov.tr Website : www.ume.tubitak.gov.tr
CRM Certified Conductivity Solutions	Conductivity (25 °C)	A single reference measurement procedure in a single laboratory Primary level electrolytic conductivity measurement system
CRM Porous SiO ₂	BET Specific Surface Area	Two or more independent reference methods in one or several laboratories ISO 9277 Brunauer, Emmett and Teller (BET) model
CRM Benzoic Acid	Gross Calorific Value and Purity	A single reference measurement procedure in a single laboratory Gross Calorific Value: Oxygen Bomb Method (Calorimetry) Purity: Potentiometric Titration Purity: Quantitative Nuclear Magnetic Resonance Spectroscopy (qNMR)
CRM Multi Anion Standards	Cl ⁻ , NO ₃ ⁻ , SO ₄ ²⁻ and F ⁻ , Br ⁻ , PO ₄ ³⁻ anions mass fractions	Combination of a single reference measurement procedure in a single laboratory and value assignment through formulation by gravimetrically added content High Performance Ion Chromatography (HP-IC) and gravimetric solution preparation
CRM C-Reactive Protein Solution	CRP molar concentration	A single reference measurement procedure in a single laboratory Isotope Dilution Liquid Chromatography High Resolution Mass Spectrometry (ID-LC/HRMS) Containing Amino Acid Analysis

This document has been signed by Gülden Banu Müderrisoğlu with a secure electronic signature in accordance with the electronic signature law numbered 5070. Use the QR code to verify the e-signed document.

