

#### شـهادة الاعـتمـاد Accreditation Certificate

Conformity Assessment Body's ID: NAL046

Lonestar Technical & Industrial Services LLC OPC Location 1 PO Box 6098, Building # 503 & 505, Inside Industrial City of Abu Dhabi, Abu Dhabi, United Arab Emirates Location 2 Plot 27A17, Abu Dhabi Industrial City ICAD III, Abu Dhabi, Enited Arab Emirates, Abu Dhabi, United Arab Emirates

Accredited according to the International Standard ISO/IEC 17025<sub>1</sub> to undertake tests as specified in the attached Accreditation Scope.

Accredited on: 06/12/2017

Expires on: 14/09/2027

1 Accreditation in accordance with the International Standard ISO/IEC 17025:2017 "General requirements for the competence of testing and calibration laboratories" and the relevant ENAS and ILAC requirements.

This certificate is invalid without the attached scope of accreditation, which subjected to annual surveillances as per ENAS procedure. Certificate can be updated or re-issued until the expiry date defined above. The validity of the certificate is subjected to continuous compliance with the requirements of the accreditation system. The lab is responsible for the results of its testing.

This is an electronic certificate and does not require stamp and signature. Certificate will be invalid in case of any modification.

الرمز التعريفي لجهة تقييم المطابقة: NAL046

لونستارر للخدمات الفنية والصناعية - ذ.م.م - ش.ش.و ص.ب. 6098، مبنى رقم 503 و 505، داخل مدينة أبوظبي الصناعية، أبوظبي، الإمارات العربية المتحدة قطعة الأرض 27A17، مدينة أبوظبي الصناعية، آيكاد 3، أبوظبي، الإمارات العربية المتحدة ، ابوظبي، الإمارات العربية المتحدة

حاصل على الإعتماد لطرق الفحص الواردة في وثيقة المجال المرفقة وفقاً للمواصفة الدولية ISO/IEC 17025<sub>1</sub>

تاريخ منح الاعتماد: 06/12/2017

تاريخ الانتهاء: 14/09/2027

1 وفقاً لمتطلبات المواصفة الدولية ISO/IEC 17025:2017 "المتطلبات العامة لكفاءة مختبرات الفحص والمعايرة" والمتطلبات ذات العلاقة الخاصة بنظام الإعتماد الوطني الإماراتيENAS والمنظمة الدولية لاعتماد المختبرات ILAC.

مجال الاعتماد جزء أساسي من هذه الشهادة حيث تخضع مجالات الاعتماد المذكورة في الوثيقة المرفقة لعمليات متابعة لاحقة من قبل نظام الإعتماد الوطني الإماراتي ENAS، وتعتبر هذه الشهادة صالحة وقابلة للتحديث واعادة الاصدار حتى تاريخ الانتهاء المدون اعلاه شريطة استمرار المختبر المذكور اعلاه في تطبيق متطلبات نظام الاعتماد سالفة الذكر. يتحمل المختبر مسؤولية نتائج الفحص الصادرة عنه.

هذه الشهادة صدرت إلكترونياً ولا تحتاج لختم أو توقيع، أي كشط أو تغيير في هذه الشهادة يلغيها.

تاريخ منح الإعتماد لأول مرة: 2017/12/06

MOIAT T

Initial Accreditation Date: 06/12/2017

هاتف TEL 600565554 ص.ب. P.O.BOX 48666 أبوظبي، دبي، الإمارات العربية المتحدة P.O.BOX 48666 ص.ب









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Testing Field	Materials/ Products Tested	Type of test/ Test parameter/ Properties measured/Range of measurement	Test Method (Standard, Internal Procedure, Technique)	Permanent lab (P) / Client-site (S)
Construction materials and building	Soil	Determination of Dry Density- Moisture Content Relationship Using 4.5 kg Rammer for Coarse and medium size Particles	BS 1377-2:2022, CI 11.5 & 11.6	Р
Construction materials and building	Soil	Determination of Insitu Density by Sand Replacement Method.	BS 1377-9:1990, CI. 2.2	Р
Construction materials and building	Soil	Determination of California Bearing Ratio (CBR)	BS 1377-2:2022, CI 15	Р
Construction materials and building	Soil	Density and unit weight of soil in place by sand cone method	ASTM D1556:2015	Р
Construction materials and building	Soil	Determination of California Bearing Ratio (CBR)	ASTM D1883:2021	Р

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Construction materials and building	Soil	Density/moisture content relationship	ASTM D 1557-12 RA 2021	Р
Construction materials and building	Soil	Sampling	ASTM D75 / D75M:2019	Р
Construction materials and building	Hardened concrete	Determination of Compressive strength of Hardened Concrete	BS EN 12390- 3:2019	Р
Construction materials and building	Hardened concrete	Determination of density of hardened concrete	BS EN 12390- 7:2019	Р
Construction materials and building	Hardened concrete	Making and curing specimens for strength tests	BS EN 12390- 2:2019	Р
Construction materials and building	Hardened concrete	Shape, dimensions and other requirements for specimens andmolds	BS EN 12390- 1:2021	Р
Construction materials and building	Hardened concrete	Determination of Depth of Penetration of Water Under Pressure in Hardened Concrete	BS EN 12390- 8:2019	Р
Construction materials and building	Hardened concrete	Electrical Indication of concretes Ability to Resist Chloride Ion Penetration	ASTM C 1202:2022	Р

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Construction materials and building	Hardened concrete	Determination of Water Absorption of Hardened Concrete	BS 1881- 122:2011+A1:2020	Р
Construction materials and building	Aggregates	Determination of Particle Size Distribution (Wet and dry Sieving)	BS 812-103.1:1985 Cl. 7.2 & 7.3	Р
Construction materials and building	Aggregates	Determination of Particle Size Distribution, Sieving Method	BS EN 993-1:2012	С
Construction materials and building	Aggregates	Density, Relative Density (specific gravity) and Absorption of CoarseAggregates	ASTM C 127:2015	Р
Construction materials and building	Aggregates	Determination of particle Shape, Flakiness index	BS EN 933-3-2012	Р
Construction materials and building	Aggregates	Determination of Elongation Index of Coarse Aggregates	BS 812-105:1990, Section 105.2	Р
Construction materials and building	Aggregates	Determination of Aggregates Crushing value	BS 812-110:1990	Р

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Construction materials and building	Aggregates	Soundness of Aggregates by Use of Sodium Sulfate & MagnesiumSulfate	ASTM C88/ C 88 M- 2018	Р
Construction materials and building	Aggregates	Percentage of Fine Clay, Silt and Dust	BS EN 933-1:2012	Р
Construction materials and building	Aggregates	Clay Lumps and Friable Particles	ASTM C142 / C142M-17	Р
Construction materials and building	Aggregates	Ten Percent Fines Value	BS 812-111:1990	Р
Construction materials and building	Aggregates	Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine	ASTM C131 / C131M-2020	Р
Construction materials and building	Aggregates	Sieve Analysis of Fine and Coarse Aggregates	ASTM C136:2019	Р
Construction materials and building	Asphalt	Asphalt Content of Hot-Mix Asphalt by Ignition Method	ASTM D6307-2019	Р

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Construction materials and building	Soil	Standard Penetration Test Determination of the penetration resistance using the split-barrel sampler (Standard penetration test - SPT)	BS 1377-9:1990; AMD 8264-1995 CI.3.3 Partially Replaced, Superseded	S
Construction materials and building	Soil	Soil Sampling Obtaining disturbed samples from boring tools & excavating equipment	BS 5930:2015+A1:2020, Clause 25.3	S
Construction materials and building	Soil	Soil Sampling Open- tube sampling techniques	BS 5930:2015+A1:2020, Clause:25.4	S
Construction materials and building	Rock	Rock Sampling Rotary core sampling techniques	BS 5930:2015+A1:2020, Sec. 4 Cl. 24.11 & 25.7	S
Construction materials and building	Rock	Rock Quality Designation & Rock Core Recovery	BS 5930:2015+A1:2020, Section 6 Clause:36	P/S
Construction materials and building	Soil & Rock	Soil and Rock description	BS 5930:2015+A1:2020, Section 6, CI 32 to CI 36	P/S

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Construction materials and building	Ground Water	Ground water sampling	BS 5930:2015+A1:2020, Section 4 Clause:26	S
Construction materials and building	Ground Water	Ground Water Level Measurements	BS 5930:2015+A1:2020, Section 8 Clause 52 (Clause 52.5 Standpipe Piezometer)	S
Construction materials and building	Soil	Determination of Particle Size Distribution	BS 1377-2:2022, Clause 10 and BS EN ISO 17892- 4:2016, Clauses 5.2	Р
Construction materials and building	Soil	Hydrometer Sedimentation by the hydrometer method	BS 1377-2:2022, Clause 10 and BS EN ISO 17892- 4:2016, Clauses 5.3	Р
Construction materials and building	Soil	Liquid Limit, plastic Limit and Plasticity Index	ASTM D4318- 17e1	Р
Construction materials and building	Soil	Liquid Limit, plastic Limit and Plasticity Index	BS 1377-2:2022, Clause 5.2 5.3 & 6 and BS EN ISO 17892- 12:2018+A2:2022, Clauses 5.3,5.5 & 6.5	Р

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Construction materials and building	Soil	Determination of water content	BS 1377-2:2022, Clause 4.1 and BS EN ISO 17892-1- 2014+A1:2022	Р
Mechnical / Physical	Soil & Rock	Natural Water Content Determination of Water (Moisture) Content of Soil and Rock by Mass	ASTM D 2216-2019	Р
Mechnical / Physical	Rock	Preparing Rock Core Specimens and Determining Dimensional andShape Tolerances	ASTM D4543-2019	Р
Mechnical / Physical	Rock	Compressive Strength of Intact Rock Core Specimens	ASTM D 7012-14	Р
Mechnical / Physical	Rock	Reporting	BS 5930:2015+A1:2020, Section 10, Cl 63	Р

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Mechnical / Physical	Steel	Steel for the Reinforcement of Concrete: Weldable ReinforcingSteel: Bar, Coil and Decoiled Product: Specification Tensile Properties	BS 4449: 2005+A3 :2016, Clause 7.2.3	Р
Mechnical / Physical	Steel	Steel for the reinforcement and prestressing of concrete. Test methods.Part 1: Reinforcing bars, wire rod and wire	BS EN ISO 15630- 1:2019, Clause 5	Р
Mechnical / Physical	Steel	Metallic materials. Tensile testing. Method of test at room temperature	BS EN ISO 6892- 1:2019	Р
Mechnical / Physical	Steel	Steel for the reinforcement of concrete. Weldable reinforcing steel. Bar, coil and Decoiled product. Specification	BS 4449: 2005+A3 :2016, Clause 7.2.5	Р

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Mechnical / Physical	Steel	Steel for the reinforcement and prestressing of concrete. Test methods. Part 1: Reinforcing bars, wire rod and wire	BS EN ISO 15630- 1:2019, Clause 6 & 7	Р
Civil Engineering	Deep Foundation	Low Strain Impact Integrity Testing of Deep Foundations	ASTM D5882-16	P/S
Mechnical / Physical	NDT	Determination of Ultrasonic Pulse Velocity	BS EN 12504-4- 2021	S
Mechnical / Physical	NDT	Determination of Rebound Number	BS EN 12504-2- 2021	S
Mechnical / Physical	NDT	Determination of Compressive Strength of Concrete Cores	BS EN 12504-1- 2019	P/S
Mechnical / Physical	NDT	Half-Cell Potentials of Uncoated Reinforcing Steel in Concrete	ASTM C 876-22b	S
Mechnical / Physical	NDT	Depth of Carbonation in Concrete	BS EN 14630-2006	S
Mechnical / Physical	NDT	Cover Meter Survey	BS 1881 – 204-1988	S

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Chemical	Aggregates	Organic Impurities of fine aggregates for concrete	CHM-SOP- 273 based on ASTM C40 / C40M-20	Р
Chemical	Aggregates	Acid Soluble Chlorides as Cl	CHM-SOP- 274 based on BSEN 1744- Part 5 2006	Р
Chemical	Aggregates	Acid Soluble Sulphates as SO3	CHM-SOP- 252 based on BSEN 1744-1 2009 + A1 2012 Clause 12	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	рН	CHM-SOP-119 B, CHM-SOP-119 C & CHM-SOP 119 D based on APHA- AWAA-WEP-24th Ed 2023 Method 4500 H+ B.	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Oil & Grease	CHM-SOP-30E & CHM-SOP 30F based on APHA- AWAA-WEP-24th Ed 2023 Method 5520 B	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Total Dissolved Solids at 180 °C	CHM-SOP-068C& CHM-SOP-068D based on APHA- AWAA-WEP-24th Ed 2023 Method 2540 C	Р

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Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Total Suspended Solids at 103 °C- 105 °C	CHM-SOP-047D based on APHA- AWAA-WEP -24th Ed 2023 Method 2540 D	Р
Chemical	Water, Natural Waters	Chemical Oxygen Demand	CHM-SOP-019 D based on APHA- AWAA-WEP-24th Ed 2023 Method 5220 B	Р
Chemical	Water, Natural Waters	Biochemical Oxygen Demand (5 days Incubation @ 20°C)	CHM-SOP-020 D based on APHA- AWAA-WEP-24th Ed 2023 Method 5210 B	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Chlorides	CHM-SOP-017 C& CHM-SOP-017 D based on APHA- AWAA-WEP-24th Ed 2023 Method 4500 CI B	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Sulphates as SO4	CHM-SOP-004 D& CHM-SOP-004 bases on APHA- AWAA-WEP-24th Ed 2023 Method SO4- 2E	Р

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Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Metals: Cd, Cr, Cu, Pb, Ni, Zn, Hg, Ca, Mg, Mo, Na, K, Ba, Be, Al, Si, Se, V, Ag, Mn, Fe, Co, As, Sb, Sr, B, Li, Tl	CHM-SOP-79 E based on APHA- AWAA-WEP-24th Ed 2023 Method 3120 B CHM-SOP-076 E Based on APHA- AWAA-WEP-24th Ed 2023 Method 3112 B (for Hg)	Р
Chemical	Soil & Sediments	Metals: Al, Ba, Cd, Ca, Cr, Cu, Co, Fe, Pb, Mg, Mn, Mo, Ni, K, Ag, Na, V, Zn, Hg, As, Be, Se, Ti, Sb, Sr, B, Li, Tl	CHM-SOP-079 D based on US EPA SW 846/3010A US EPA CE 81-1-1981, US EPA SW 846/6010 B, CHM- SOP-076 C based on US EPA SW 846/7471 A (for Hg)	Р
Chemical	Soil	рН	CHM-SOP-250 based BS 1377- 3:2018 + A1:2021 CI 12	Р
Chemical	Soil	Water Soluble Chlorides	CHM-SOP-243 based on BS 1377- 3:2018 + A1:2021 CI 9.2 (Volhard's method)	Р

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Chemical	Soil	Acid Soluble Chlorides	CHM-SOP-244 based on BS 1377- 3:2018 + A1:2021 CI 9.3	Р
Chemical	Soil	Acid Soluble Sulphates as SO4	CHM-SOP-245 based on BS 1377- 3:2018 + A1:2021 CI 7.2, 7.6, 7.9	Р
Chemical	Soil	Water Soluble Sulphates as SO4	CHM-SOP-246 based on BS 1377- 3:2018 + A1:2021 CI 7.2, 7.3, 7.6	Р
Chemical	Ground Water	Sulphate as SO4	CHM-SOP-248 based on BS 1377- 3:2018 + A1: 2021 Cl 7.2, 7.6, 7.8	Р
Chemical	Ground Water	Chloride	CHM-SOP-247 based on BS 1377- 3:2018 + A1:2021, Cl 9.2 (Volhard's method)	Р
Chemical	Ground Water	рН	CHM-SOP-249 based on BS 1377- 3:2018 + A1:2021, CI 12	Р
Mechnical / Physical	Low Alloy Steel	Low Alloy Steel: C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, V, Nb, Ti, N	Documented In- house method CHM- SOP-117	Р

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Mechnical / Physical	High Alloy Steel	High Alloy Steel: C, Si, Mn, P, S, Cr, Mo, Ni, Al, Cu, V, N	Documented In- house method CHM- SOP-138	Р
Environment. Health protection. Safety	Ambient Air	PM 10	CHM-SOP-257 based on MASA- 501:2016 (3rd edition)	P/S
Environment. Health protection. Safety	Ambient Air	TSP	CHM-SOP-257 based on MASA- 501:2016 (3rd edition)	P/S
Environment. Health protection. Safety	Ambient Air	SO2	CHM-SOP-258 based on MASA-704 A:2016 (3rd edition)	P/S
Environment. Health protection. Safety	Ambient Air	NOX	CHM-SOP-162 based one MASA- 406:2016 / Federal Register Vol. 36: No 84: title 42 chapter :IV:1971	P/S
Environment. Health protection. Safety	Stack Emission	РМ	CHM-SOP-170 based one US EPA Method # 2, 5 and 17	P/S
Environment. Health protection. Safety	Stack Emission	со	CHM-SOP 188 based on US EPA CTM 030 / 034:1997	P/S

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Environment. Health protection. Safety	Stack Emission	NOX	CHM-SOP 188 based on US EPA CTM 030 / 034:1997	P/S
Environment. Health protection. Safety	Stack Emission	SO2	CHM-SOP 188 based one US EPA # 6C:1997	P/S
Environment. Health protection. Safety	Stack Emission	NO2	CHM-SOP 188 based on US EPA CTM 030 / 034:1997	P/S
Environment. Health protection. Safety	Environmental Noise	Noise	CHM-SOP-255 based on ISO 1996- 2:2017 Acoustic Part 2 Cl:7.5	P/S
Environment. Health protection. Safety	Ambient Air	Sulphur dioxide	AS 3580.4.1: 2023 Determination of sulphur dioxide - Direct reading instrumental method	P/S
Environment. Health protection. Safety	Ambient Air	Oxides of Nitrogen	AS 3580.5.1:2023 Determination of oxides of nitrogen— Direct-reading instrumental method.	P/S
Environment. Health protection. Safety	Ambient Air	Ozone	AS 3580.6.1:2023  Method 6.1:  Determination of ozone— Direct reading instrumental method	P/S

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Environment. Health protection. Safety	Ambient Air	Carbon Monoxide	AS 3580.7.1— 2011  Method 7.1:  Determination of carbon monoxide—  Direct-reading instrumental method	P/S
Environment. Health protection. Safety	Ambient Air	Hydrogen Sulfide	In House Validated Method CHM-SOP- 407	P/S
Environment. Health protection. Safety	Ambient Air	Ammonia	In House Validated Method CHM-SOP- 407	P/S
Environment. Health protection. Safety	Ambient Air	Particulate Matter 2.5	AS/NZS 3580.12.1:2015 Methods for sampling and analysis of ambient air Determination of light scattering - Integrating nephelometer method.	P/S

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Environment. Health protection. Safety	Ambient Air	Particulate Matter 10	AS/NZS 3580.12.1:2015 Methods for sampling and analysis of ambient air Determination of light scattering - Integrating nephelometer method.	P/S
Environment. Health protection. Safety	Ambient Air	Total Suspended Particle	AS/NZS 3580.12.1:2015 Methods for sampling and analysis of ambient air Determination of light scattering - Integrating nephelometer method.	P/S
Environment. Health protection. Safety	Ambient Air	Wind Speed	AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications	P/S

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Environment. Health protection. Safety	Ambient Air	Wind Direction	AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications	P/S
Environment. Health protection. Safety	Ambient Air	Relative Humidity	AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications	P/S
Environment. Health protection. Safety	Ambient Air	Ambient Temperature	AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications	P/S

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Environment. Health protection. Safety	Ambient Air	Total Volatile Organic Compounds	In House Validated Method CHM-SOP- 408	P/S
Construction materials and building	Soil	Plate Loading Test	BS 1377-9 : 1990, Clause 4.1	P/S
Construction materials and building	Soil	Determination of the in-situ California Bearing Ratio (CBR)	BS 1377-9 : 1990, Clause 4.3	P/S
Construction materials and building	Aggregate	Mechanical Size Analysis of Extracted Aggregate	ASTM D5444-15	Р
Construction materials and building	Fine Aggregates	Relative Density (Specific Gravity) and Absorption of Fine Aggregates	ASTM C128-15	Р
Construction materials and building	Aggregates	Methods for determination of Aggregate Impact Value (AIV)	BS 812:Part 112:1990	Р
Geotechnical	Soil	Electrical Cone and Piezocone Penetration Test	BS EN ISO 22476- 1:2023	S
Geotechnical	Soil	Standard Test Method for Standard Penetration Test (SPT) and Split- Barrel Sampling of Soils	ASTM D1586/D1586M- 18e1	S

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Chemical	Concrete	Determination of Chloride Content in Hardened Concrete	BS 1881- 124:2015+A1:2021 Cl.12.1	Р
Chemical	Concrete	Determination of Sulphate Content in Hardened Concrete	BS 1881- 124:2015+A1:2021 Cl.12.2	Р
Chemical	Soil	Determination of Carbonate as CO2	BS 1377- 3:2018+A1:2021 Cl.8.3	Р
Chemical	Soil	Determination of Organic Matter Content	BS 1377- 3:2018+A1:2021 Cl.4.0	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Dissolved Oxygen	APHA 24th Ed 2023 Method 4500-O C	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Fluoride	APHA 24th Ed 2023 Method 4500-F D	Р
Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Total Hardness as CaCO3	APHA 24th Ed 2023 Method 2340 B (Calculation Method)	Р

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Chemical	Water, Waste Water, Sea Water, Potable Water, Ground Water	Conductivity	APHA 24th Ed 2023 Method 2510 B	Р
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