



# Accreditation Scope

**Al-Hoty Stanger Laboratories, NAL 013**  
**Testing Laboratory, (ISO/IEC 17025:2017)**

**ICAD 1, Mussafah, Abu Dhabi, UAE**

**Issue Date: 05-05-2022**

**Expiry Date: 04-02-2025**

**Issue No: 13**

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	Steel	Steel for the reinforcement of Concrete – Weldable reinforcing steel – Bar, Coil and decoiled product Tensile Test, bend & rebend test.	BS 4449:2005+A3:2016, Cls. 7.2.3 & 7.2.5 (specifications) BS EN ISO 15630-1:2019, Cls. 5-7 BS EN ISO 6892-1:2019	P	
		Tensile Testing of Steel Products	ASTM A370:20		
		Tensile Testing of Metallic Materials	BS EN ISO 6892-1:2019		
	Polyethylene Pipes	Tensile Strength and failure mode of butt-fused Joints	ISO 13953:2001	P	
	Ceramic Tiles	Modulus of rupture and Breaking Strength	BS EN ISO 10545-4:2019		
		Water absorption	*BS EN 10545-3:1997 (Cl. 5.1.1) Boiling Method		
	Plastics	Tensile Properties	ASTM D 638 -14	P	
	Geosynthetics - Geotextiles	Geosynthetics - Geotextilewide width tensile test	BS EN ISO 10319:2015		
		Geosynthetics - Static Puncture Test (CBR TEST)	BS EN ISO 12236:2006		
		Characteristic opening size	BS EN ISO 12956:2020		
		Mass per unit area	BS EN ISO 9864:2005		
		Thickness at specified pressures	BS EN ISO 9863-1:2016		
	Bitumen sheet for waterproofing	Tensile Properties	DIN EN 12311-1:1999		P
	Bituminous Sheet Material	Tear Strength	ASTM D 5147/ D5147 M-2018 (Clause 8)		
	Water Vapor Retarders	Puncture Resistance (Water vapor retarders)	ASTM E154/E154M- 08a (2019) Cl.10		P
Geo Membrane	Determining the Integrity of Non-reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods (Shear & Peel Test)	ASTM D 6392-12 (2018)			
	Plastics	Water absorption	ASTM D 570-98 (2018)		



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Construction Materials	Vulcanized Rubber And Thermoplastic Elastomers	Tension	ASTM D 412:16, Method A (2021)	P
	Plastics	Tensile Properties	ISO 527-1:2019	
	Plastics films and sheet	Tensile Properties	ISO 527-3:2018	
	Thermoplastics pipes	Tensile Properties	ISO 6259-1:2015	
	Thermoplastics pipes - PVC-U, PVC-O, PVC-C,PVC-HI	Tensile Properties	ISO 6259-2:2020	
	Thermoplastics pipes – Polyolefin pipes	Tensile Properties	ISO 6259-3:2015	
	Geotextiles	Grab Breaking Load and Elongation	ASTM D 4632/ D4632 M-15a	
	Plastic film & sheeting	Tear Resistance (Graves Tear)	ASTM D 1004 : 2021	
	Thermoplastic	- Melt mass-flow rate Melt (MFR) and volume flow rate (MVR)	ISO 1133 -1 : 2011	
	Aggregates		Flakiness index	BS 812-105.1:1989
Elongation index			*BS 812-105.2:1990	
Ten percent fines value			BS 812-111:1990	
Sieve analysis of fines & coarse aggregate			ASTM C136/C136 M-14/2019	
Particle density & absorption of coarse & fine aggregate			BS 812-2:1995 (AMD 9195-1996) Part 2: 5.3, 5.4 & 5.5	



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Construction Materials	Aggregates	Determination of Aggregate Crushing Value	BS 812-110:1990	P
		Determination of Sand Equivalent	ASTM D 2419-14	
		Determination of Clay Lumps & Friable Particles in aggregates	ASTM C142/C142M-17	
		Soundness of aggregate	ASTM C88/C88M-18	
		Los Angeles	ASTM C 131/131M-14/ 2020	
		Drying Shrinkage	*BS 812 -120:1995 BS EN 1367-4:2008	
		Determination of Aggregate Impact Value (AIV)	BS 812-112:1990	
		Particle Size Distribution	*BS 812-103.1:1985 BS EN 933-1:2012	
		(Specific Gravity) & Absorption of Coarse Aggregate	ASTM C 127-15	
		(Specific Gravity) & Absorption of Fine Aggregate	ASTM C 128-15	
		Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test	AASHTO T 176-2017	
	Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine (ASTM C 131-01)	AASHTO T 96-02 (2019)		
	Glass beads - Aggregate	Standard Test Method for Sieve Analysis of Glass Spheres-	ASTM D1214 - 10(2020)	P
A-Cutback Asphalt(MC 70)	Distillation at Different Temperature	ASTM D 402/D402M-14	P	
Asphalt / Bitumen	Bitumen Extraction – Quantitative Extraction of Bitumen from Bituminous Paving mixture	ASTM D 2172/D2172M-17	P	



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Construction Materials	Asphalt / Bitumen	Quantitative Extraction of Bitumen from Bituminous Paving mixture	AASHTO T 164:2014	P
		Softening point of Bitumen (Ring & ball apparatus)	ASTM D 36 /D 36 M -14	
		Penetration of Bituminous Material	*ASTM D 5/D5M-13	
	Asphalt	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Asphalt Mixtures	ASTM D2041 / D2041M - 19	P
	B-Bitumen SS1H	Distillation at Different Temperature	ASTM D 6997-12	P
	Thermoplastic Road Marking Material	Standard Method of Test for Thermoplastic Traffic Line Material- Flowability (Percent Residue)	AASHTO T 250 Section 11	P
		Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)-- (Thermoplastic Road Marking)	ASTM D36 / D36M - 14(2020)	P
	Concrete Masonry & Related Units- Paving Blocks	Water absorption & density -Concrete Interlocking Paving Units	ASTM C 140/C140M-18a, Cl. A4.4	P
		Compressive Strength of Precast, concrete paving blocks	BS 6717-1:1993, Annex B	
		Measurement of dimensions and plan area of Precast concrete paving blocks	BS 6717-1:1993, Annex A	
	Fresh Concrete	Sampling	BS EN 12350-1-2019	P
		Density	BS EN 12350-6-2019	
		Air Content	BS EN 12350-7-2019	
		Slump and Temperature	BS EN 12350-2-2019	



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Construction Materials	Concrete	Normal curing of test specimens (20°C method)	*BS 1881-111:1983 AMD. 9387:1997	P
		Density of hardened concrete	*BS 1881-114:1983 AMD 6721:1991	
		Compressive strength of Concrete cubes	*BS 1881-116:1983 AMD. 6720 :1991	
		Shape, dimensions and other requirements for specimens and molds	BS EN 12390-1:2021	
		Making and curing specimens for strength test	BS EN 12390-2:2019	
		Compressive Strength of Concrete Cube	BS EN 12390-3: 2019	
		Density of hardened concrete	BS EN 12390-7:2019	
		Water Absorption of Hardened Concrete	BS 1881-122:2011+A1:2020	
		Water Permeability	DIN 1048-5:1991, CI 6.4	
		Depth of penetration of water under pressure	BS EN 12390-8:2019	
		Electrical Indication of Concrete ability to resist Chloride ion penetration	ASTM C 1202:2019	
		Standard Test Method for Abrasion Resistance of Concrete by Sandblasting	ASTM C418 - 20	
	Cement	Compressive Strength of hydraulic cement mortar	ASTM C 109/C109M-21	P
		Determination of Strength, Compressive Strength	BS EN 196-1:2016	
		Determination of fineness, Air permeability method	BS EN 196-6:2018	
		Fineness of Hydraulic Cement by Air-Permeability	ASTM C 204:2018e1	
		Determination of setting times: 1- Methods for testing Cement Determination of setting times soundness, setting time test	BS EN 196-3:2016, CI. 6	



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Construction Materials	Cement	Time of setting of hydraulic Cement by Vicat Needle	ASTM C 191:2019	P	
		Standard Test Method for Amount of Water Required for Normal Consistency of Hydraulic Cement Paste	ASTM C 187 - 16		
		Methods of testing cement. Determination of setting times and soundness	BS EN 196 - 3:2016.CI 7		
	Soil	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2,700 kN-m/m <sup>3</sup> ))	Standard Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils	ASTM D1557 - 12	P
			Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	ASTM D1883 - 16	
			Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method	ASTM D4318 - 17e1	
			In Situ Density	ASTM D1556 / D1556M - 15e1	
		California Bearing Ratio	BS 1377-9:1990, CI 2.2	S	
		Standard Penetration Test (SPT)	BS 1377-4:1990, CI 7	P	
	Geo-technical	Soil	Soil Sampling	*BS 1377- 9:1990, CI 3.3	S
Groundwater Level Measurement			BS 5930:2015, Section: 4		
Ground Water		Groundwater Sampling			
		Soil	Dry density - moisture content relationship of soil with medium sized gravel	BS 1377-4:1990, Section:3.5	P
Dry density- moisture content relationship of soil with coarse sized gravel			BS 1377-4:1990, Section:3.6		



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Geo-technical	Soil	Determination of Water Moisture Content of Soil	*BS 1377-2:1990, sec 3	P
		Particle Size Distribution	*BS 1377-2:1990, CI 9.2 & 9.3: AMD 1996	
		Hydrometer	*BS 1377-2:1990, CI 9.5	
		Method for Liquid limit, Plastic Limit & Plasticity Index	*BS 1377 -2:1990, CI 4.5, 5.3 & 5.4	
	Soil & Rock	Determination of Water Moisture Content of Soil & Rock by Mass	ASTM D 2216-19	P
	Rock Core	Unconfined Compressive Strength	ASTM D-7012-2014e1	P
		Preparation of Rock Core	ASTM D 4543-19	
		Core Recovery, TCR, SCR	BS 5930:2015, CI 36.4.4	
	Soil – Rock Core	Soil & Rock description	BS 5930:2015, CI 33 & 36	P
	Reporting	Reporting	BS 5930:2015, CI 63	P
Chemical	Sludge	Moisture content	By difference/ calculation Technical Committee Work Instructions (TC WI date 2003-08)	P
		Electrical Conductivity at 25 °C on water extract	APHA 2510B; 23 <sup>rd</sup> Ed 2017	
		pH at 25 °C	APHA 4500 H B; 23 <sup>rd</sup> Ed 2017	
		Total solids	APHA 2540G; 23 <sup>rd</sup> Ed 2017	
		Volatile solids		
		Fixed solid		
		Arsenic (As)	APHA 3120B; 23 <sup>rd</sup> Ed 2017	
		Copper (Cu)		
		Nickel (Ni)		
		Chromium (Cr)		
		Lead (Pb)		
		Cadmium (Cd)		
		Zinc (Zn)		
		Molybdenum (Mo)		
Selenium (Se)				





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Chemical	Water, Waste Water	Langelier Saturation Index (LSI)	By calculation Hach method 8073 (ISO 10523:2008, ISO 6059:1984, ISO 9963:1994)	P
		Sodium Absorption Ratio	By Calculation Agriculture Handbook 60, US Department of Agriculture	
		Electrical Conductivity at 25 °C	APHA 2510; 23rd Ed 2017	
		pH at 25 °C	APHA 4500 – H+B; 23rd Ed.	
		Total Suspended Solids (TSS)	APHA 2540D; 23rd Ed 2017	
		Total Dissolved Solids at 180 °C (TDS)	APHA 2540C; 23rd Ed 2017	
		Oil & Grease	APHA 5520B; 23rd Ed 2017	
		Bicarbonate (HCO <sub>3</sub> )	APHA 2320B; 23rd Ed 2017	
		Total Alkalinity to pH 4.5	APHA 2320B; 23rd Ed 2017	
		Chemical Oxygen Demand (COD)	APHA 5220B; 23rd Ed 2017	
		Dissolved Oxygen	APHA 4500O; C 23rd Ed 2017	
		Biochemical Oxygen Demand (BOD) (5 days @ 20 °C)	APHA 5210B; 23rd Ed 2017	
		Free chlorine	APHA 4500 Cl G; 23rd Ed.	
		Turbidity	APHA 2130B; 23rd Ed 2017	
		Barium (Ba)	APHA 3120B; 23rd Ed 2017	
		Cobalt (Co)		
		Antimony (Sb)		
		Vanadium (V)		
		Aluminum (Al)		
		Silver (Ag)		
		Iron (Fe)	APHA 3120B; 23rd Ed 2017	
		Manganese (Mn)		
		Cadmium (Cd)		
Arsenic (As)				
Mercury (Hg)				
Selenium (Se)				
Sodium (Na)				
Potassium (K)				
Boron (B)				





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Chemical	Water, Waste Water	Copper (Cu), Nickel (Ni), Zinc (Zn)	APHA 3120B; 23 <sup>rd</sup> Ed 2017	P
		Chromium (Cr)		
		Lead (Pb), Beryllium (Be), Molybdenum (Mo)	APHA 3120B; 23 <sup>rd</sup> Ed 2017	
		Lithium (Li)		
		Chloride (Cl)	HACH 8113/ 02/2018 Ed 9	
		Chloride (Cl)	APHA 4500- Cl <sup>-</sup> B; 23 <sup>rd</sup> Ed.	
		Sulphate (SO <sub>4</sub> )	HACH 8051/ 02/2018/ Ed 2	
		Sulphate (SO <sub>4</sub> )	APHA 4500-SO <sub>4</sub> - C; 23 <sup>rd</sup> Ed.	
		Ammonia-Nitrogen	HACH 8038/04/2017 Ed 9	
		Nitrate-Nitrogen	HACH 8039/01/2019 Ed 10	
		Phosphate	HACH 8178/01/2014 Ed 9	
		Fluoride	HACH 8029/08/2018 Ed 10	
		Phosphorus	HACH 8048/ HACH 8178/HACH8114	
		Cyanide	HACH 8027	
		Color	HACH 8025/ APHA 2120 23 <sup>rd</sup> Ed 2017	
		Formaldehyde	HACH 8110	
		Odor	APHA 2150A 23 <sup>rd</sup> Ed 2017	
		Calcium (Ca)	APHA 3120B; 23 <sup>rd</sup> Ed 2017	
		Calcium (Ca)	APHA 3500 Ca B; 23 <sup>rd</sup> Ed.	
		Magnesium (Mg)	APHA 3120B; 23 <sup>rd</sup> Ed 2017	
		Magnesium (Mg)	APHA 3500Mg B; 23 <sup>rd</sup> Ed.	
		Total Hardness as (CaCO <sub>3</sub> )	APHA 2340C; 23 <sup>rd</sup> Ed 2017	
		Total Organic Carbon	APHA 5310B; 23 <sup>rd</sup> Ed 2017	
		Total Kjeldahl Nitrogen	APHA 4500B; 23 <sup>rd</sup> Ed 2017	
		Chloride, Sulphate, Bromide, Nitrate, Nitrite, Fluoride, Phosphate	Ion Chromatography APHA 4110 B; 23 <sup>rd</sup> Ed 2017	
		Bromate	Ion Chromatography APHA 4110D; 23 <sup>rd</sup> Ed 2017/ EPA 300.0 Rev 2.1 (Aug 1993)	
		Benzo(a)Pyren	EPA 525.2 Rev 2.0 (1995)/ APHA6440B; 23 <sup>rd</sup> Ed 2017	
		Formaldehyde (HCOH)	APHA 6252B; 23 <sup>rd</sup> Ed 2017	
Total petroleum hydrocarbons	EPA 8015B Rev 2:1996			



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Chemical	Dialysis Water	Electrical Conductivity at 25 °C	APHA 2510; 23 <sup>rd</sup> Ed 2017	P	
		Chlorine	APHA 4500; CI G 23 <sup>rd</sup> Ed 2017		
		Fluoride (F <sup>-</sup> )	APHA 4110B; 23 <sup>rd</sup> Ed 2017		
		Nitrate Nitrogen (NO <sub>3</sub> -N)			
		Sulphate (SO <sub>4</sub> )			
		Food	Sodium (Na)		APHA 3120B; 23 <sup>rd</sup> Ed 2017
			Potassium (K)		
			Calcium (Ca)		
	Magnesium (Mg)				
	Food	Total Sugar (Fructose, glucose, Sucrose, lactose, maltose)	AHSL/SOP/FCL/07		
	Milk and Milk products	Fat	AHSL/SOP/FCL/03		
	Food – Feed	Moisture	AHSL/SOP/FCL/01		
		pH	AHSL/SOP/FCL/13		
		Fat	AHSL/SOP/FCL/08		
		Total Protein	AHSL/SOP/FCL/02		
		Carbohydrates	AHSL/SOP/FCL/04		
		Energy			
		Energy from Fat			
		Minerals Ca,Mg,K,Fe,Na,Zn,Cu,Mn	AHSL/SOP/FCL/31		
	Ash	AHSL/SOP/FCL/05			
	Animal feeds	Acid Insoluble ash	AOAC 975.12; 21 <sup>st</sup> Ed 2019		
	Food	Sorbic Acid	AHSL/SOP/FCL/21		
		Benzoic acid			
		Caffeine	AHSL/SOP/FCL/20		
Acidity		AHSL/SOP/FCL/11			
Solid Non-fat		AOAC 990.21; 21 <sup>st</sup> Ed 2019			
Free Fatty Acid		AHSL/SOP/FCL/24			



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Chemical	Steel	Carbon & Sulfur	ASTM E 1019 -18	P
		Manganese	ASTM E 415 -17	
		Silicon		
		Carbon		
		Sulfur		
		Phosphorous		
		Nickel		
		Chromium		
		Vanadium		
		Nitrogen		
		Molybdenum		
	Stainless Steel	Carbon	ASTM E 1086 - 14	P
		Silicon		
		Manganese		
		Phosphorous		
		Sulfur		
		Nickel		
		Chromium		
	Molybdenum			
	Ground Water	pH of Ground Water	BS 1377-3:2018 Cl 12	P
Sulphate Content of Ground Water		BS 1377-3:2018 Cl 7.8/7.6		
Chloride Content of Ground Water		BS 1377-3:2018 Cl 9.2		
Soil	Acid Soluble Sulphate Content of Soil	BS 1377-3:2018 Cl 7.9/7.6	P	
	Water Soluble Sulphate Content of Soil	BS 1377-3:2018 Cl 7.3/7.6		
	Acid Soluble Chloride Content of Soil	BS 1377-3:2018 Cl 9.3		
	Water Soluble Chloride Content of Soil	BS 1377-3:2018 Cl 9.2		
	pH of Soil	BS 1377-3:2018 Cl 12		
Disinfectants and hand sanitizers	Determination of Alcohol (Ethanol, Methanol, & Isopropanol content in Disinfectants and Sanitizers) by GC-FID	SOP CHEM#17:2020 Rev#02	P	



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Microbiology	Water	Detection of Legionella sp	RT-PCR, Kit based. Legionella in water by RT PCR method- The iQ Check-Legionella Real Time PCR Kit Method.	P
		Sampling, Detection & Enumeration of Legionella (Matrix A, B & C) & Identification/detection of Legionella pneumophila	BS7592:2008 & ISO 11731: 2017/ SOP-11	P / S
		Total Aerobic Count	CCFRA 1.1.4:2003	
		Enumeration Enterococci	APHA 9230C; 23rd Ed 2017 / IDEXX Enterolert	P
		Enumeration of Pseudomonas aeruginosa	BS EN 16266:2008 / IDEXX Psuedolert	
		Heterotrophic plate count	CMMEF 60.42; 5th Ed / APHA 9215B, 23rd Ed 2017	
		Enumeration of Total coliform, E.coli	IDEXX Colilert -18, APHA 9223 B; 23rd Ed 2017	
		Fecal coliform	In-house SOP-71 based on IDEXX Colilert -18, APHA 9223 B; 23rd Ed 2017	
	Water, Waste Water	Enumeration Escherichia Coli	APHA 9222B & APHA 9221F; 23rd Ed 2017	P
		Enumeration Fecal Coliforms	APHA 9221 E.1; 23rd Ed 2017	
		Enumeration Coliforms	APHA 9222B & APHA 9221B – 23rd Ed 2017	
	Waste Water, Sludge	Detection of Helminth Ova	Lab-SOP-70 based on TT322-08, Water research Commission.	P
	Swab	Aerobic Plate Count	USFDA BAM Chapter 3; Jan. 2001	P
		Enumeration of Coliforms	CCFRA 2.2.1:2007	
		Detection of Salmonella	CCFRA: Salmonella sp. 3.1.2 & 5:2007	



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Microbiology	Swab	Detection of Listeria	Reveal Test Kit - Neogen	P	
		Enumeration of Yeast & Mould	CMMEF Chapter 21.5; 5th Ed 2015		
	Air	Total Bacterial Count (TBC)	In-house SOP-59.2 based on CCFRA 2.2.1:2003 Guide # 45	P / S	
		Yeast & Mould			
	Food		Enumeration Vibrio Parahaemolyticus	USFDA BAM Chapter 9; May 2004	P
			Enumeration Yeast & Mould	CMMEF Chapter 21.5; 5th Ed 2015	
			Detection E.coli 0157:H7	AOAC 2000.14 (20 Hours) 20th Ed 2008 (Reveal Test Kit - Neogen Corporation)	
			Detection Salmonella spp	CCFRA Salmonella sp. 3.1.2 & 5:2007	
			Enumeration Enterobacteriaceae	CCFRA 2.3.1:2007	
			Detection Listeria spp	In-house SOP-20 / Reveal Test Kit 2.0 - Neogen	
			Enumeration of Bacillus Cereus	CMMEF 31.6; 5th Ed 2015	
			Enumeration Clostridium Perfringens	CCFRA 3.6.1:2007	
			Anaerobic Colony Count	CCFRA 1.1.1:2007	
			Aerobic Plate Count	USFDA BAM Chapter 3; Jan. 2001	
			Enumeration Coliforms	CCFRA 2.2.1:2007	
			Enumeration Coliforms	CMMEF 9.71 & 9.72; 5th Ed 2015	
			Enumeration Fecal Coliform	CMMEF 9.81; 5th Ed 2015	
	Enumeration E.coli	CMMEF 9.91 & 9.92; 5th Ed 2015			
	Enumeration Staphylococcus aureus	USFDA BAM Chapter 12; Jan 2001			
	Swab	Swab : SARS-COV-2 in surface by real Time PCR method-EURO Real Time SARS-COV-2Kit using ABI 7500 platform	SOP#11:2020Rev#01 SOP#12:2020Rev#01 SOP#13:2020Rev#01	P	



# Accreditation Scope

**Al-Hoty Stanger Laboratories, NAL 013**  
**Testing Laboratory, (ISO/IEC 17025:2017)**

**ICAD 1, Mussafah, Abu Dhabi, UAE**

**Issue Date: 05-05-2022**

**Expiry Date: 04-02-2025**

**Issue No: 13**

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)
Environment	Indoor Air Quality-Air Particulate	Total Suspended Particulate Matter (TSPM) Respirable Suspended Particulate Matter (RSPM-PM10, 2.5 & 1) 0.01 to >1000 µg/m <sup>3</sup>	AHSL SOP AQ 003 (Rev04: 15 <sup>th</sup> Feb 2018) in combination with BS EN 481:1993	S
	Indoor Air Quality - Gaseous Pollutants	Sulphur Dioxide (SO <sub>2</sub> ) / < 0.1 to 10 ppm Volatile Organic Compound (VOC) / < 0.005 to 10 ppm Formaldehyde (HCOH) / 20 to 1000 ppb Methane (CH <sub>4</sub> -LEL) / < 0.01 to 100 % Carbon Monoxide (CO) / < 0.3 to 300 ppm Carbon Dioxide (CO <sub>2</sub> )/ <1-5000ppm Oxygen (O <sub>2</sub> ) /< 0.2 to 23 % Ozone (O <sub>3</sub> )< 0.02 to 1 ppm Ammonia (NH <sub>3</sub> )< 1 to 15 ppm Hydrogen Sulphide (H <sub>2</sub> S) / < 0.03 to 10 ppm Temperature / -10 °C to 50 °C	AHSL SOP AQ002 (Rev05: 15 <sup>th</sup> Feb 2018) in combination with BS EN 60079-29-2:2015	S
	Indoor Air Quality – Occupational Health Exposure	Personal Dust Exposure	MDHS 14/3:2000, OSHA Technical Manual: Section II - Chapter 1: 2014	S



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Environment	Indoor Air Quality -Particle Count	Classification of air cleanliness by particle concentration RSPM (PM 0.3, 0.5, 1.0, 2.5, 5.0, 10.0) 0.01 to >1000 µg/m <sup>3</sup>	AHSL SOP AQ005 (Rev01: 15 <sup>th</sup> Feb 2018) in combination with ISO 14644-1:2015 (E)	S
	Outdoor Air Quality -Air Particulate	Total Suspended Particulate Matter (TSPM) Respirable Suspended Particulate Matter (RSPM PM10) RSPM PM2.5	AHSL SOP AQ001 (Rev06: 10 <sup>th</sup> Feb 2018) in combination with USEPA – eCFR: Title 40 Part 50 & 53: 2011	S
	Outdoor Air Quality - Gaseous Pollutants	Ozone (O <sub>3</sub> ) <0.001 to 3 ppm Ammonia (NH <sub>3</sub> ) <0.001 to 10 ppm Hydrogen Sulphide (H <sub>2</sub> S) <0.003 to 10 ppm Sulphur Dioxide (SO <sub>2</sub> )< 0.03 to 10 ppm Nitrogen Dioxide (NO <sub>2</sub> ) <0.001 to 0.2 ppm Volatile organic compound (VOC)/ < 0.1 to 15 ppm Carbon monoxide (CO) < 0.04 to 20 ppm Carbon Dioxide (CO <sub>2</sub> ) < 10 to 1500 ppm	AHSL SOP AQ 002 (Rev05 :15 <sup>th</sup> Feb 2018) in combination with BS EN 60079-29-2:2015	P
	Noise	Ambient / Occupational Noise levels 30 to 140 Db  Personal noise exposure 30 to 140 dB	AHSL SOP NT 001 (Rev. 05: 20 <sup>th</sup> Jan 2018) in combination with ISO 1996-2:2017 (E)-CI 7.5  AHSL SOP NT 001 (Rev05: 20 <sup>th</sup> Jan 2018) in combination with ISO 9612:2009 CI 3.5	P





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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)
Environment	Flue Gas	Carbon monoxide (CO) < 1 to 1000 ppm Oxides of Nitrogen (NO <sub>x</sub> ) < 0.1 to 500 ppm Oxygen (O <sub>2</sub> ) < 0.01 to 25 %	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA CTM 034	S
		Sulphur Dioxide (SO <sub>2</sub> ) < 1 to 500 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 6C	
		Carbon dioxide (CO <sub>2</sub> ) < 1 to 20 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 3A-3	
	Stack Emission	Carbon monoxide (CO) < 1 to 1000 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA CTM 034	S
		Carbon dioxide (CO <sub>2</sub> ) < 1 to 20 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 3A	
		Oxygen (O <sub>2</sub> ) < 0.01 to 25 %	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA CTM 034	
		Moisture Content	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 4	
		Hydrogen Chloride	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 26	



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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)
Environment	Stack Emission	Total Suspended Particles (TSP)	US EPA EMC Method 17	S
		Oxides of Nitrogen (NO <sub>x</sub> ) < 0.1 to 500 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA CTM 034	
		Sulphur Dioxide (SO <sub>2</sub> ) < 1 to 500 ppm	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 6C	
		Hydrogen Fluoride	AHSL SOP SET 001 (Rev07: 09 <sup>th</sup> Nov 2019) in combination with US EPA EMC Method 26	
	Illuminance	Lux 0 to 50,000 lux	AHSL SOP IT001 (Rev04: 12 <sup>th</sup> Jan 2020) in combination with "Lighting Assessment in the Work Place" by Occupational Safety & Health Branch, Labor Department, UK: 2008	S
	Heat Stress	Wet Bulb Temperature (WBT) : -20 °C to 60 °C Global Temperature (GT) : -20 °C to 120 °C	AHSL SOP HSM 001 (Rev02: 21 <sup>st</sup> Feb 2018) in combination with ISO 7243:2017 & OSHAD-SF Technical Guideline: Safety in the Heat: Version 3.0, July 201	S
		Dry Bulb Temperature (DBT) : -20 °C to 60 °C	AHSL SOP HSM 001 (Rev02: 21 <sup>st</sup> Feb 2018) in combination with ISO 7243:2017 & OSHAD-SF Technical Guideline: Safety in the Heat: Version 3.0, July 2016	



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Environment	Heat Stress	Thermal Work Limit (TWL)	AHSL SOP HSM 001 (Rev02: 21 <sup>st</sup> Feb 2018) in combination with ISO 7243:2017 & OSHAD-SF Technical Guideline: Safety in the Heat: Version 3.0, July 2016	S
	Dust Vacuum Test	Total Particulate	NADCA ACR - 2013	S
	Air Validation	Air Pressure Difference test	ISO 14644-3:2019	S
	Air Quality	Odor Monitoring (Hydrogen Sulphide)	BSEN 60079-29-2:2015	S
		Odor Monitoring (Ammonia)	BSEN 60079-29-2:2015	
	Air Validation	Airflow Test	ISO 14644-3:2019	S
		Temperature Test	ISO 14644-3:2019	
		Humidity Test	ISO 14644-3:2019	



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Chemical	Water - Wastewater	Chlorate	APHA 4110D 23rd Ed 2017	P
		Chlorite	APHA 4110D 23rd Ed 2017	
Chemical	Water - Wastewater	Volatile Organic Compounds (VOCs) Benzene Carbon tetrachloride 1,2- Dichlorobenzene 1,4- Dichlorobenzene 1,2- Dichloroethane cis 1,2- Dichloroethene trans 1,2- Dichloroethene Dichloromethane Ethyl benzene Hexachlorobutadiene Styrene Tetrachloroethene Toluene 1,1,1 Trichloroethane o-Xylene p-Xylene m-Xylene 1,2 - Dibromo- 3-chloropropane 1,2 – Dibromoethane	SOP-Chemical# 16 based on EPA 5030-B Rev 2 (Dec 1996)	S
		1,2 – Dichloropropane 1,3 – Dichloropropane Bromoform Chloroform Bromodichloromethane (BDCM) Dibromochloromethane (DBCM) Trichloroethene Chlorobenzene Vinyl Chloride	SOP-Chemical# 16 based on EPA 5030-B Rev 2 (Dec 1996)	
<b>END</b>				

\* Standards are Partially replaced, Superseded / Withdrawn / No replacement.