National Institute of Metrology (Thailand)
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Calibration Fee

Chemical Metrology and Biometry

Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
1	Piston pipette		20 µL to 10 mL	0.04 µL	4,000 three point + 500 next point		12032-10201
2	Volumetric apparatus		1 mL to 2000 mL	Class A	2,500 two point + 500 next point	volumetric flask, pipette, burette, pycnometer	12032-10203
3	recalibrate of referene material for calibration UV/VIS spectrophotometer (Photometric accuracy)		20 to 100 mg/kg	0.003 A	7,500/set	potassium dichromate solution, neutral density filter	12032-10301
4	recalibrate of referene material for calibration UV/VIS spectrophotometer (Wavelength accuracy)		200 nm to 900 nm	0.3 nm	5,650/piece		12032-10303
5	recalibrate of referene material for calibration UV/VIS spectrophotometer (stray light)		190 - 280 nm	0.12 nm	6,500/set		12032-10306
6	pH meter with associated electrode		1 - 12 pH (-414.11 mV) to 414.11 mV	0.02 pH 0.06 mV	4,000/set (3 point + 500 next point)		12031-10101
7	Oxygen Analyzer		0.001 -30 cmol/mol	As specification	11,500/item	CIPM-MRA: 3-point calibration	12052-10101
8	Oxygen Detector		18 - 23 cmol/mol	As specification	3,000/item	CIPM-MRA: 1-point calibration	12051-10102
9	Carbon Dioxide Analyzer		0.005-20 cmol/mol	As specification	11,500/item	CIPM-MRA: 3-point calibration	12052-10201
10	Carbon Dioxide Detector		0.005-20 cmol/mol	As specification	3,000/item	CIPM-MRA: 1-point calibration	12051-10202
11	Methane Analyzer		0.005-20 cmol/mol	As specification	11,500/item	CIPM-MRA: 3-point calibration	12052-10301
12	Methane Detector		2.2 -2.5 cmol/mol	As specification	3,000/item	CIPM-MRA: 1-point calibration	12051-10302
13	Carbon Monoxide Analyzer		50 - 65000 µmol/mol	As specification	11,750/item	CIPM-MRA: 3-point calibration	12052-10401
14	Carbon Monoxide Detector		50 - 65000 µmol/mol	As specification	3,000/item	CIPM-MRA: 1-point calibration	12051-10402
15	Iso-butane Detector		0.75 cmol/mol	As specification	3,000/item	1-point calibration	12050-11201
16	Ozone Analyzer		0 - 1000 nmol/mol	As specification	10,500/item	4-point calibration including zero point	12050-15201

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RMs/CRMs

Chemical Metrology and Biometry

Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
Standard solution (Code: S)							
17	Pork DNA solution	TRM-S-1001	100,000 copy number/μL	6,000 copy number/μL	5,000		12042-20104
18	MON810 plasmid DNA	TRM-S-1002	1.04 copy number ratio	0.061 copy number ratio	12,500		12042-20101
19	TRM-enzyme α-amylase	TRM-S-1003	382.8-457.2 U/L	37.2 U/L	12,500		12042-20105
20	Beef DNA solution	TRM-S-1004	102,000 copies/μL	9,500 copies/μL	5,000		12042-20107
21	Blank papaya DNA solution	TRM-S-1005	18861.5 copies/μL	2348.7 copies/μL	5,000		12042-20110
22	Secondary pH standard (tetroxalate)	TRM-S-2002	1.66-1.70 pH	0.006 pH	8,000/set (5 x 100 mL)	Differential cell method	12032-20109
23	Secondary pH standard (tetroxalate)	TRM-S-2002s	1.66-1.70 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20110
24	Secondary pH standard (Phthalate)	TRM-S-2003	3.990 - 4.020 pH	0.006 pH	8,000/set (5 x 100 mL)	Differential cell method	12032-20101
25	Secondary pH standard (Phthalate)	TRM-S-2003s	3.990 - 4.020 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20105
26	Secondary pH standard (Equipmolal phosphate)	TRM-S-2004	6.850 - 6.880 pH	0.006 pH	8,000/set (5 x 100 mL)	Differential cell method	12032-20102
27	Secondary pH standard (Equipmolal phosphate)	TRM-S-2004s	6.850 - 6.880 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20106
28	Secondary pH standard (Tetraborate)	TRM-S-2006	9.17 - 9.20 pH	0.007 pH	8,000/set (5 x 100 mL)	Differential cell method	12032-20103
29	Secondary pH standard (Tetraborate)	TRM-S-2006s	9.17 - 9.20 pH	0.007 pH	1,700/100 mL	Differential cell method	12032-20107
30	Secondary pH standard (Carbonate)	TRM-S-2007	9.99 - 10.02 pH	0.006 pH	8,000/set (5 x 100 mL)	Differential cell method	12032-20104
31	Secondary pH standard (Carbonate)	TRM-S-2007s	9.99 - 10.02 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20108
32	Potassium Dichromate Solution 1 concentration	TRM-S-2009a	20, 40, 60, 80 and 100 mg/kg (each set choose from the	0.01 A	22,600/set		12031-20205
33	Potassium Dichromate Solution 2 concentrations	TRM-S-2009b	20, 40, 60, 80 and 100 mg/kg (each set choose from the	0.01 A	27,700/set		12031-20204
34	Potassium Dichromate Solution 3 concentrations	TRM-S-2009c	20, 40, 60, 80 and 100 mg/kg (each set choose from the	0.01 A	32,800/set		12031-20203
35	Potassium Dichromate Solution 4 concentrations	TRM-S-2009d	20, 40, 60, 80 and 100 mg/kg (each set choose from the	0.01 A	38,000/set		12031-20202
36	Potassium Dichromate Solution 5 concentration	TRM-S-2009e	20, 40, 60, 80 and 100 mg/kg (each set choose from the	0.01 A	43,000/set		12031-20201
37	Potassium Iodide Standard Solution	TRM-S-2010	10 g/L	0.5 nm	20,000/set		12031-20206

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38	Zinc standard solution	TRM-S-2011	10,000 ppm	1% relative	1,250/100 ml		12031-20301
39	Cadmium standard solution	TRM-S-2012	10,000 ppm	1% relative	1,250/100 ml		12031-20302
40	Chloride standard solution	TRM-S-2013	100 ppm	1% relative	1,250/100 ml		12031-20401
41	Sodium standard solution	TRM-S-2014	100 ppm	1% relative	1,250/100 ml		12031-20501
42	Arsenic standard solution	TRM-S-2015	1000 ppm	0.2% rlative	2,000/100 ml		12031-20303
43	pH of ethanol	TRM-S-2016	6.0 - 8.0 pH	0.5 pH	2,500 / bottle		12031-20701
44	Secondary electrolytic conductivity solution (0.001mol/l KCl)	TRM-S-2017	147 µS/cm	0.5% relative	5,000/250 ml		12031–20603
45	Secondary electrolytic conductivity solution (0.1 mol/l KCl)	TRM-S-2018	12.88 mS/cm	0.3% relative	5,000/250 ml		12031-20601
46	Secondary electrolytic conductivity solution (0.01mol/l KCl)	TRM-S-2019	1413 µS/cm	0.3% relative	5,000/250 ml		12031-20602
47	Primary Phthalate buffer solution	TRM-S-2020	3.990 - 4.020 pH	0.005 pH	15,000/500 mL		12031-20109
48	Primary Phosphate buffer solution	TRM-S-2021	6.85 - 6.88 pH	0.005 pH	15,000/500 mL		12031-20110
49	Primary Borate buffer solution	TRM-S-2022	9.16 - 9.20 pH	0.005 pH	15,000/500 mL		12031-20111
50	electrolytic conductivity of ethanol	TRM-S-2023	0.1-1 uS/cm	5%relative	2,500/bottle	capacity 50 ml	12031-20702
51	Working pH standard (Phthalate)	TRM-S-2027	3.99 - 4.02 pH	0.01 pH	1,000/500 mL		12031-20121
52	Working pH standard (Equipmolal phosphate)	TRM-S-2028	6.85 - 6.88 pH	0.01 pH	1,000/500 mL		12031-20122
53	Working pH standard (Tetraborate)	TRM-S-2029	9.17 - 9.20 pH	0.01 pH	1,000/500 mL		12031-20123
54	Primary Carbonate buffer solution	TRM-S-2030	9.990 - 10.020 pH	0.006 pH	15,000/500 mL		12031-20120
55	Working pH standard (Carbonate)	TRM-S-2031	9.99 - 10.02 pH	0.01 pH	1,000/500 mL		12031-20124
56	Working pH standard (0.01 N Hydrochloric acid)	TRM-S-2032	1.08 - 1.12 pH	0.02 pH	1,000/500 mL		12031-20126
57	Working pH standard (Tetroxalate)	TRM-S-2033	1.66 - 1.70 pH	0.02 pH	1,000/500 mL		12031-20127
58	Working pH standard (phosphate)	TRM-S-2034	6.99 - 7.03 pH	0.01 pH	1,000/500 mL		12031-20125
59	Working pH standard (alkaline phosphate)	TRM-S-2035	11.70 - 11.74 pH	0.02 pH	1,000/500 mL		12031-20128
60	Electrolytic conductivity standard solution (0.0001mol/l KCl)	TRM-S-2036	84 µS/cm	1% relative	5,000/250 ml		12031–20604

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61	Nitrate standard solution	TRM-S-2037	100 mg/kg	1% relative	1,500 / bottle		12031-20402
62	Fluoride standard solution	TRM-S-2038	1000 mg/kg	1% relative	1,500 / bottle		12031-20403
63	Water content in Ethanol	TRM-S-2039	0.1 - 1.0 mg/g	5% relative	3,000/5 ampoule		12031-20703
64	Working electrolytic conductivity solution (0.1 mol/l KCl)	TRM-S-2040	12.88 mS/cm	1.5 %relative	3,000/250 ml		12031-20606
65	Working electrolytic conductivity solution (0.01 mol/l KCl)	TRM-S-2041	1413 μS/cm	1.5 %relative	3,000/250 ml		12031-20607
66	Electrolytic conductivity standard solution 50 μS/cm	TRM-S-2042	50 μS/cm	1% relative	5,000/250 ml		12031-20605
67	5% Brix Sucrose Standard Solution	TRM-S-5001	5.00 % Brix, 1.34026 nD	0.01 % Brix, 0.00007 nD	3,600/15 mL		12012-20201
68	10% Brix Sucrose Standard Solution	TRM-S-5002	10.00 % Brix, 1.34782 nD	0.01 % Brix, 0.00007 nD	3,600/15 mL		12011-20202
69	20% Brix Sucrose Standard Solution	TRM-S-5003	20.00 % Brix, 1.36384 nD	0.01 % Brix, 0.00007 nD	3,600/15 mL		12011-20203
70	30% Brix Sucrose Standard Solution	TRM-S-5004	30.00 % Brix, 1.38115 nD	0.01 % Brix, 0.00007 nD	3,600/15 mL		12011-20204
71	50% Brix Sucrose Standard Solution	TRM-S-5005	50.00 % Brix, 1.42006 nD	0.01 % Brix, 0.00008 nD	3,600/15 mL		12011-20205
72	60% Brix Sucrose Standard Solution	TRM-S-5006	60.00 % Brix, 1.44190 nD	0.01 % Brix, 0.00007 nD	3,600/15 mL		12011-20206
73	Benzene in methanol	TRM-S-5007	1,000 mg/L	1.4 % relative	4,750/8 mL		12011-20207
74	Ethylbenzene in methanol	TRM-S-5008	1,000 mg/L	1.1 % relative	4,750/8 mL		12011-20208
75	Toluene in methanol	TRM-S-5009	1,000 mg/L	1.4 % relative	4,750/8 mL		12011-20209
76	o-xylene in methanol	TRM-S-5010	1,000 mg/L	2.2 % relative	4,750/8 mL		12011-20210
77	m-xylene in methanol	TRM-S-5011	1,000 mg/L	1.0 % relative	4,750/8 mL		12011-20211
78	p-xylene in methanol	TRM-S-5012	1,000 mg/L	1.3% relative	4,750/8 mL		12011-20212
79	Organochlorine Pesticide Mix set 1	TRM-S-5013	100 mg/kg	3% relative	11,600/1.1 mL		12011-20213
80	Organophosphate Pesticide Mix set 1	TRM-S-5014	100 mg/kg	5% relative	7,700/1.1 mL		12011-20214
81	Organophosphate Pesticide Mix set 2	TRM-S-5015	100 mg/kg	3% relative	13,300/1.1 mL		12011-20215
82	Acaricide Pesticide Mix set 1	TRM-S-5016	100 mg/kg	3% relative	7,000/1.1 mL		12011-20216
83	Carbamate Pesticide Mix set 1	TRM-S-5017	100 mg/kg	3% relative	8,100/1.1 mL		12011-20217
84	Pyrethroid Pesticide Mix set 1	TRM-S-5018	100 mg/kg	2 % relative	11,000/1.1 mL		12011-20218

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85	Organophosphate Pesticide Mix set 3	TRM-S-5019	100 mg/kg	4% relative	14,500/1.1 mL		12011-20219
86	Organophosphate Pesticide Mix set 4	TRM-S-5020	100 mg/kg	4% relative	11,000/1.1 mL		12011-20220
87	Organochlorine Pesticide Mix set 2	TRM-S-5021	100 mg/kg	2% relative	16,000/1.1 mL		12011-20221
88	Pyrethroid Pesticide Mix set 2	TRM-S-5022	100 mg/kg	3 % relative	10,000/1.1 mL		12011-20222
89	Organophosphate Pesticide Mix set 5	TRM-S-5023	100 mg/kg	3% relative	12,100/1.1 mL		12011-20225
90	Acaricide Pesticide Mix set 2	TRM-S-5024	100 mg/kg	2 % relative	14,000/1.1 mL		12011-20224
91	Insecticide Pesticide Mix set 1	TRM-S-5025	100 mg/kg	2 % relative	10,000/1.1 mL		12011-20225
92	0.01% Brix Sucrose Standard Solution	TRM-S-5026	0.01%	2.0% relative	3,700/ 15mL		12011-20226
93	0.02% Brix Sucrose Standard Solution	TRM-S-5027	0.02%	1.4% relative	3,700/ 15mL		12011-20227
94	0.03% Brix Sucrose Standard Solution	TRM-S-5028	0.03%	0.5% relative	3,700/ 15mL		12011-20228
95	0.04% Brix Sucrose Standard Solution	TRM-S-5029	0.04%	0.6% relative	3,700/ 15mL		12011-20229
96	0.05% Brix Sucrose Standard Solution	TRM-S-5030	0.05%	0.8% relative	3,700/ 15mL		12011-20230
97	40% Brix Sucrose Standard Solution	TRM-S-5031	40.00% Brix, 1.39986 nD	0.01 %Brix, 0.00007 nD	3,600/ 15mL		12011-20231
98	Sucrose Standard for Optical Measurements	TRM-S-5032	Purity 997.4 mg/g	1.1 mg/g	6,000/bag		12011-20101
99	Ethanol-Water Standard Solution (0.45 mg/g)	TRM-S-5033	0.45 mg/g	1% Relative	1,000/bottle		12011-20233
100	Ethanol-Water Standard Solution (0.55 mg/g)	TRM-S-5034	0.55 mg/g	1% Relative	1,000/bottle		12011-20234
101	Ethanol-Water Standard Solution (1.0 mg/g)	TRM-S-5035	1.00 mg/g	1% Relative	1,000/bottle		12011-20235
102	Aflatoxin B1 Standard Solution	TRM-S-5036	2.60 µg/g	2% relative	3,000/bottle		12011-20236
103	Aflatoxin B2 Standard Solution	TRM-S-5037	2.72 µg/g	4% relative	3,000/bottle		12011-20237
104	Platinum electrode for pH measurement				25,000 /piece (1,000 USD)	For differential cell and Harned cell method	12031-20801
Food (Code: F)							
105	Pure pork meat	TRM-F-1001	1000 g/kg		3,500		12042-20102
106	Pure beef meat	TRM-F-1002	>998.8 g/kg		3,500		12042-20103

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107	Blank soybean GTS 40-3-2 matrix	TRM-F-1003	<0.2 g/kg	N/A	3,500		12042-20106
108	1% Pork in beef matrix	TRM-F-1004	10 g/kg	2.20 g/kg	3,500		12042-20108
109	10% Pork in beef matrix	TRM-F-1005	100 g/kg	11 g/kg	3,500		12042-20109
110	Blank meatball matrix	TRM-F-1006	1 000g/kg	N/A	3,500		12042-20111
111	0.1% Pork in beef matrix	TRM-F-1007	1 g/kg	0.33 g/kg	3,500		12042-20112
112	1% beef in feed matrix	TRM-F-1008	10 g/kg	0.1 g/kg	3,500		12042-20113
113	Elements in Glutinous Rice Powder ปริมาณธาตุในข้าวเหนียว	TRM-F-2001	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		4,000/ bottle	30 g/bottle	12022-20001
114	Trace and Essential Elements in Prawn ปริมาณธาตุในกุ้ง	TRM-F-2002	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,000/ bottle	5 g/bottle	12022-20002
115	Arsenic in White Rice Flour ปริมาณสารหนูในผงข้าวขาว	TRM-F-2003	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,700/bottle	25 g/bottle	12022-20007
116	Elements and MeHg in Tuna Tissue	TRM-F-2004	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		4,000/bottle	20 g/bottle	12022-20010
117	Total malachite green in shrimp	TRM-F-5001	18.35 µg/kg	4.00 % relative	5,000/ bottle		12011-20601
118	Aflatoxins in peanut butter	TRM-F-5002	2-10 ng/g	8-10% relative	4,500 /bottle	30 g/bottle	12011-20602
119	Melamine in cracker	TRM-F-5003	1.56 mg/kg	9% relative	3,000/bottle		12011-20603
120	Clenbuterol in feed	TRM-F-5004	71.9 µg/kg	5.43 % relative	2,850/bottle		12011-20901
121	Salbutamol in feed	TRM-F-5005	79.5 µg/kg	14.21 % relative	2,850/bottle		12011-20902
122	Melamine in Milk Powder	TRM-F-5006	1.03 mg/kg	16% relative	3,000/20g bottle		12011-20604
123	Fatty Acid in Cooking Oil	TRM-F-5007	Palmitic acid 106 mg/g,11.4% Stearic acid 33 mg/g, 4.1%	7-10% relative	6000/bottle		12011-20605
124	Organophosphates pesticides in rice flour	TRM-F-5008	Diazinon 15 ng/g Chlopyrifos 18 ng/g	6-8% relative	4000/bottle	30g/bottle	12011-60606
Environment (Code: E)							
125	Trace Elements in Water ปริมาณธาตุในน้ำ	TRM-E-2002	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,000/bottle	100 mL/bottle	12022-20008
126	Mercury in Water ปริมาณปรอทในน้ำ	TRM-E-2003	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		1,700/bottle	10 mL/bottle	12022-20009
127	Oxygen in Nitrogen	TRM-E-3010	5-30 cmol/mol	0.25 %relative	29,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar	12051-20101
			5-30 cmol/mol	0.25 %relative	39,000/cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20102

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128	Oxygen in Nitrogen	TRM-E-3011	5-30 cmol/mol	0.5 %relative	18,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20103
			5-30 cmol/mol	0.5 %relative	28,000/cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20104
129	Oxygen in Nitrogen	TRM-E-3012	100 µmol/mol -5 cmol/mol	1.0 %relative	25,400/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20109
			100 µmol/mol -5 cmol/mol	1.0 %relative	35,400/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20110
130	Oxygen in Nitrogen	TRM-E-3013	10 - 100 µmol/mol	2.0 %relative	25,400/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20111
			10 - 100 µmol/mol	2.0 %relative	35,400/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20112
131	Carbon Dioxide in Nitrogen	TRM-E-3020	0.005-20 cmol/mol	0.5 %relative	30,000 refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20201
			0.005-20 cmol/mol	0.5 %relative	40,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20202
132	Carbon Dioxide in Nitrogen	TRM-E-3021	0.005-20 cmol/mol	1.0 %relative	20,000 refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20203
			0.005-20 cmol/mol	1.0 %relative	30,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20204
133	Methane in Nitrogen	TRM-E-3030	0.005-50 cmol/mol	0.5%relative	30,000 refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20301
			0.005-50 cmol/mol	0.5%relative	40,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20302
134	Methane in Nitrogen	TRM-E-3031	0.005-50 cmol/mol	1.0%relative	20,000 refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20303
			0.005-50 cmol/mol	1.0%relative	30,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12052-20304
135	Methane in Air	TRM-E-3032	0.05-2.5 cmol/mol	1.0 %relative	24,100/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20305
			0.05-2.5 cmol/mol	1.0 %relative	34,100/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20306
136	Carbon Monoxide in Air	TRM-E-3040	50 - 65000 µmol/mol	1.0 %relative	24,100/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20401
			50 - 65000 µmol/mol	1.0 %relative	34,100/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20402

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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
137	Sulfur Dioxide in Nitrogen	TRM-E-3050	100 -5 000 µmol/mol	1.0% relative	23,000/refill per cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20501
			100 -5 000 µmol/mol	1.0 %relative	38,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20502
138	Sulfur Dioxide in Nitrogen	TRM-E-3051	30 - 100 µmol/mol	2% relative	23,000/refill per cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20503
			30 - 100 µmol/mol	2% relative	38,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20504
139	Propane in Nitrogen	TRM-E-3060	0.001- 50 cmol/mol	0.7% relative	31,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20601
			0.001- 50 cmol/mol	0.7 %relative	41,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20602
140	Propane in Nitrogen	TRM-E-3061	0.001- 50 cmol/mol	1.0 %relative	20,500 refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20603
			0.001- 50 cmol/mol	1.0 %relative	30,500/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12051-20604
141	Propane in Air	TRM-E-3062	0.5-10 cmol/mol	1.0 %relative	24,100/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20605
			0.5-10 cmol/mol	1.0 %relative	34,100/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-20606
142	Nitrogen Monoxide in Nitrogen	TRM-E-3070	100 - 5 000 µmol/mol	1.0% relative	23,000/refill per cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20701
			100 - 5 000 µmol/mol	1.0% relative	38,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20702
143	Nitrogen Monoxide in Nitrogen	TRM-E-3071	30 - 100 µmol/mol	2% relative	23,000/refill per cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20703
			30 - 100 µmol/mol	2% relative	38,000/ Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-20704
144	Oxygen, Carbon monoxide and Methane in Nitrogen	TRM-E-3100	O_2 : 18 cmol/mol CH_4: 2.2-2.5 cmol/mol CO: 100 µmol/mol	1.0 %relative	30,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-21001
					40,000/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-21002

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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
145	Hydrogen Sulfide in Nitrogen	TRM-E-3110	20 - 100 µmol/mol	4% relative	25,500/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-21101
			20 - 100 µmol/mol	4% relative	40,500/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 660	12050-21102
146	Iso-butane in Air	TRM-E-3120	0.1- 10 cmol/mol	1% relative	24,500/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-21201
			0.1- 10 cmol/mol	1% relative	34,500/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-21202
147	Organochlorine Pesticides in Soil	TRM-E-5001	Endosulfan II 0.43 mg/kg Endosulfan sulfat 0.56 mg/kg	14% Relative 15% Relative	3,000/bottle		12011-20801
Material (Code: M)							
148	Elements in Acrylonitrile Butadiene Styrene (ABS) Plastic, Low Levels ปริมาณธาตุระดับต่ำในพลาสติกชนิด ABS	TRM-M-2001	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		5,000/ bottle	30 g/bottle	12022-20003
Clinical (Code: C)							
149	Elements in Human Serum ปริมาณธาตุในซีรั่ม	TRM-C-2001	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		1,000/bottle	4 mL/bottle	12022-20006
150	Ethanol in Air	TRM-C-3090	50 - 200 µmol/mol	1.0 %relative	35,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-110 bar CGA Valve: 580	12050-20901
			50 - 200 µmol/mol	1.0 %relative	45,000/Al cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-110 bar CGA Valve: 580	12050-20902

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Analysis Fee

Chemical Metrology and Biometry

Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
151	Determination of organic compounds in biological fluid by IDMS		ng/g - mg/g	2 - 12 %relative	15,000/sample		12012-60501
152	Determination of organic contaminants in food and feed by IDMS		ng/g - µg/g	0.1 - 5 %relative	20,000/sample		12012-60601
153	Determination of contaminants in food and feed by calibration curve		ng/g - µg/g		10,000 /analyte + 5,000 for next analyte		12012-60602
154	Determination of purity of organic compounds (Mass balance method)		as specification	as specification	19,000/sample		12012-60101
155	Determination of ethanol in Food and beverages by GC		0.01 - 30 mg/g	2 - 6 %relative	9,000/sample		12012-60603
156	Determination of fatty acid and trans fatty acid in food (Fat and oil)		1- 1000 mg/g	7 - 8 %relative	12,000/sample		12012-60604
157	Determination of Brix and refractive indices in food and beverages by refractometer		5 - 60 %Brix 1.34026 - 1.44193 nD	0.04 %Brix 0.00008 nD	1,500/sample		12012-60201
158	Determination of polarization in food and beverages by polarimeter		0 - 100 °Z 0 - 40 OR	0.3 - 0.6 °Z 1 - 3 OR	11,000/sample		12012-60202
159	Determination of Aflatoxins in solution by LC		1 - 10 ng/g	3 - 6 %relative	19,000/analyte +3000 for next analyte		12012-60203
160	Determination of sodium chloride by refractometry		0-25 g/100g	1.72 % relative	6,000/sample	calibration curve	12012-60204
161	Determination of amylose in rice by size exclusion chromatography (SEC) technique		0-30%	as specification	6,000/sample		12012-60302
162	Determination of amylose in rice by Iodine binding assay using a plate reader		0-30%	as specification	6,000/sample		12012-60303
163	Determination of dietary suppliment adulteration in food		100-1000 ng/g	7-8 % relative	18000/sample	Exact-matching IDMS	12012-60304
164	Assigned pH value for sample (primary method)		1 - 12 pH	0.003 pH	13,750/sample		12033-60107
165	Assigned pH value for sample (secondary method)		1 - 12 pH	0.004 pH	13,000/sample		12033 - 60109
166	Assigned pH value for sample (working method)		1 - 12 pH	0.01 pH	2,500/sample		12033-60106
167	Assigned electrolytic conductivity value for sample (secondary method)		5 µS/cm - 12.88 mS/cm	0.3% - 1% relative	11,000 /sample		12033-60404
168	Assigned electrolytic conductivity value for sample (commercial cell)		84 - 12880 µS/cm	0.8% - 1.3% relative	2,500/sample		12033-60406
169	Determination of cation and anion in sample		0.5 -50 mg/kg	2%relative	7,000/sample		12033-60103
170	Determination of Elements in sample by ID-ICP/MS		0.0001-30000 mg/kg	1-8%relative	20,000 for first element + 3000 for next element	รายละเอียดโปรดดูในเอกสารแนบ As attachment	12023-60101
171	Determination of Elements in sample by GSA-ICP/MS		0.00095-20000 mg/kg	2-18 %relative	17,500 for first element + 3000 for next element	รายละเอียดโปรดดูในเอกสารแนบ As attachment	12023-60102
172	Determination of Elements in sample by external calibration		0.000002 - 100 mg/kg	5-10%relative	10,000 for first element + 3000 for next element	รายละเอียดโปรดดูในเอกสารแนบ As attachment	12023-60103
173	Determination of Elemental speciation in sample		0.02 - 20 mg/kg	5-10%relative	17,500 for first specy + 3000 for next species	รายละเอียดโปรดดูในเอกสารแนบ As attachment	12023-60104

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Item No.	Description TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
174	Catalytic activity concentration of enzyme by microplate reader	U/L	U/L	6,000/sample		12043-60101
175	Qualification/quantification of DNA concentration in Foodstuffs and feed by droplet digital Polymerase Chain Reaction (ddPCR)	copy number or ratio		12,500/sample		12043-60102
176	DNA Quantification in Foodstuffs and feed by quantitative real-time PCR (qPCR)	copy number or ratio		8,500/sample		12043-60103
177	DNA Qualification in Foodstuffs by and feed quantitative real-time PCR (qPCR)	detection or not detection		5,000/sample		12043-60104
178	Qualification of protein in Foodstuffs and feed by MALDI-TOF MS	detection or not detection		2,000/sample		12043-60105
179	qualification of protein in Foodstuffs and feed by LC Q-TOF MS	detection or not detection		3,500/sample		12043-60106
180	Nanoparticle size measurement in solution	10 - 1000 nm		2,000/sample		12043-60108
181	Identificaton of volatile oil in herb by GC/MS	as specification	as specification	2,000/sample		12043-60109
182	Confocal Laser Scanning Microscopes ZEISS LSM880	Cell imaging	Cell imaging	2,500/hr		12043-60107
183	Oxygen in Nitrogen	5-30 cmol/mol	0.25%relative	23,000/cylinder	Cylinder Volume: approx. 10 Liters	12051-60101
		0.01 -5 cmol/mol	0.7%relative	30,500/cylinder	Cylinder Volume: approx. 10 Liters	12050-60102
		10-100 µmol/mol	1.2%relative	30,500/cylinder	Cylinder Volume: approx. 10 Liters	12050-60103
184	Carbon Dioxide in Nitrogen	0.05-20 cmol/mol	0.5%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12054-60201
185	Methane in Nitrogen	0.05-50 cmol/mol	0.5%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12053-60301
186	Carbon Monoxide in Nitrogen	5-100 µmol/mol	1.0%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12052-60401
		0.005 - 20 cmol/mol	0.5%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12051-60402
187	Sulfur Dioxide in Nitrogen	100 -5 000 µmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60501
188	Sulfur Dioxide in Nitrogen	30 - 100 µmol/mol	1.2% relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60502
189	Propane in Nitrogen	0.001- 50 cmol/mol	0.7%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12051-60601
190	Nitrogen Monoxide in Nitrogen	50 - 5 000 µmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60701
191	Nitrous Oxide in Nitrogen	0.05-10 cmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60801
192	Carbon monoxide, Carbon dioxide in Nitrogen	1-15 cmol/mol	0.5%relative	28,800/cylinder	Cylinder Volume: approx. 10 Liters	12051-61001
193	Hydrogen Sulfide in Nitrogen	25 - 100 µmol/mol	2.5% relative	30,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-61101
194	Particulate Matter as $PM_{2.5}$, PM_{10} (Analysis)	0 - 500 µg/m3	As air volume specification (≥2.0 %relative)	2,700/3 filter samples-47mm	By gravimetric analyis of filter sample	12051-65001
195	Organic and Elemental Carbon (OC/EC) in Particulate Matter	0 - 200 µg C/m^3	As air volume specification (≥2.0 %relative)	2,100/3 filter samples	By thermal-optical analyis of filter sample	12051-65101
196	Purity assessment of high purity nitrogen Measurand: O_2, CO, CO_2, CH_4, Ar, H_2O	0.1-100 µmol/mol	2-30%relative	16,000/cylinder		12050-66001
197	Purity assessment of high purity oxygen Measurand: N_2, CO, CO_2, CH_4, Ar, H_2O	0.1-100 µmol/mol	2-30%relative	18,000/cylinder		12050-66101
198	Purity assessment of high purity carbon monoxide Measurand: O_2, N_2, CO_2, CH_4, H_2O	0.1-100 µmol/mol	2-30%relative	13,000/cylinder		12050-66201
199	Purity assessment of high purity methane Measurand: O_2, CO, CO_2, THC, H_2O	0.1-100 µmol/mol	2-30%relative	13,000/cylinder		12050-66301