

**National Institute of Metrology (Thailand)**

3/4-5 Moo 3, Klong 5, Klong Luang, Pathumthani, 12120, Thailand

Tel. +66 2577 5100 (Please contact : Customer Service Section Ext. 3101, 3102) Fax. +66 2577 3659 E-mail : cs@nimt.or.th Website : http://www.nimt.or.th

Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
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**Calibration Fee****Chemical Metrology and Biometry**

1	Piston pipette		20 $\mu$ L to 10 mL	0.04 $\mu$ L	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	3-point calibration	12052-10101
8	Oxygen Detector		18 - 23 cmol/mol	As specification	3,000/item	1-point calibration	12051-10102
9	Carbon Dioxide Analyzer		0.005-20 cmol/mol	As specification	11,500/item	3-point calibration	12052-10201
10	Carbon Dioxide Detector		0.005-20 cmol/mol	As specification	3,000/item	1-point calibration	12051-10202
11	Methane Analyzer		0.005-20 cmol/mol	As specification	11,500/item	3-point calibration	12052-10301
12	Methane Detector		2.2 -2.5 cmol/mol	As specification	3,000/item	1-point calibration	12051-10302
13	Carbon Monoxide Analyzer		50 - 65000 $\mu$ mol/mol	As specification	11,750/item	3-point calibration	12052-10401
14	Carbon Monoxide Detector		50 - 65000 $\mu$ mol/mol	As specification	3,000/item	1-point calibration	12051-10402
15	Sulfur Dioxide Analyzer		30 - 5,000 $\mu$ mol/mol	As specification	14,500/Item	3-point calibration	12050-10501
16	Propane Detector		0.85 cmol/mol	As specification	3,000/item	1-point calibration	12050-10601
17	Nitrogen Monoxide Analyzer		30 - 5,000 $\mu$ mol/mol	As specification	14,500/Item	3-point calibration	12050-10701
18	Iso-butane Detector		0.75 cmol/mol	As specification	3,000/item	1-point calibration	12050-11201

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19	Multi Gas Detectors for Carbon Monoxide, Methane, Oxygen and Hydrogen Sulfide		CO: 100 µmol/mol CH <sub>4</sub> : 2.2 cmol/mol O <sub>2</sub> : 18 cmol/mol H <sub>2</sub> S: 25 µmol/mol	As specification	6,000/item	1-point calibration	12050-11301
20	Ammonia Detector		50 µmol/mol	As specification	3,000/item	1-point calibration	12050-11401
21	Ozone Analyzer		0 - 1000 nmol/mol	As specification	10,500/item	4-point calibration including zero point	12050-15201

**RM/CRMs****Chemical Metrology and Biometry**

Standard solution (Code: S)							
22	Pork DNA solution	TRM-S-1001	100,000 copy number/µL	6,000 copy number/µL	5,000		12042-20104
23	MON810 plasmid DNA	TRM-S-1002	1.04 copy number ratio	0.061 copy number ratio	12,500		12042-20101
24	TRM-enzyme α-amylase	TRM-S-1003	382.8-457.2 U/L	37.2 U/L	12,500		12042-20105
25	Beef DNA solution	TRM-S-1004	102,000 copies/µL	9,500 copies/µL	5,000		12042-20107
26	Blank papaya DNA solution	TRM-S-1005	18861.5 copies/µL	2348.7 copies/µL	5,000		12042-20110
27	Roundup ready plasmid DNA	TRM -S-1006	1.09 copy number ratio	0.18 copy number ratio	12,500		12042-20114
28	Bt63-Rice plasmid DNA	TRM -S-1007	2.3 x 10 <sup>4</sup> copies/µL	4.7 x 10 <sup>3</sup> copies/µL	12,500		12042-20115
29	Papaya line 55-1 plasmid DNA	TRM -S-1008	8.8 x 10 <sup>5</sup> copies/µL	1.8 x 10 <sup>5</sup> copies/µL	12,500		12042-20116
30	0.1% (w/w) beef in feed	TRM -F-1010	1 g/kg	0.15 g/kg	3,500		12042-20117
31	1 % Pork in meatball matrix	TRM -F-1009	10.1 g/kg	1.1 g/kg	3,500		12042-20118
32	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
33	Secondary pH standard (tetroxalate)	TRM-S-2002s	1.66-1.70 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20110
34	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
35	Secondary pH standard (Phthalate)	TRM-S-2003s	3.990 - 4.020 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20105
36	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



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37	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
38	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
39	Secondary pH standard (Tetraborate)	TRM-S-2006s	9.17 - 9.20 pH	0.007 pH	1,700/100 mL	Differential cell method	12032-20107
40	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
41	Secondary pH standard (Carbonate)	TRM-S-2007s	9.99 - 10.02 pH	0.006 pH	1,700/100 mL	Differential cell method	12032-20108
42	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
43	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
44	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
45	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
46	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
47	Potassium Iodide Standard Solution	TRM-S-2010	10 g/L	0.5 nm	20,000/set		12031-20206
48	Zinc standard solution	TRM-S-2011	10,000 ppm	1% relative	1,250/100 ml		12031-20301
49	Cadmium standard solution	TRM-S-2012	10,000 ppm	1% relative	1,250/100 ml		12031-20302
50	Chloride standard solution	TRM-S-2013	100 ppm	1% relative	1,250/100 ml		12031-20401
51	Sodium standard solution	TRM-S-2014	100 ppm	1% relative	1,250/100 ml		12031-20501
52	Arsenic standard solution	TRM-S-2015	1000 ppm	0.2% rlative	2,000/100 ml		12031-20303
53	pH of ethanol	TRM-S-2016	6.0 - 8.0 pH	0.5 pH	2,500 / bottle		12031-20701
54	Secondary electrolytic conductivity solution (0.001mol/l KCl)	TRM-S-2017	147 $\mu$ S/cm	0.5% relative	5,000/250 ml		12031-20603
55	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
56	Secondary electrolytic conductivity solution (0.01mol/l KCl)	TRM-S-2019	1413 $\mu$ S/cm	0.3% relative	5,000/250 ml		12031-20602
57	Secondary electrolytic conductivity solution (nominal 25 $\mu$ S/cm)	TRM-S-2043	25 $\mu$ S/cm	1% relative	5,000 /250 ml		12031-20608
58	Electrolytic conductivity standard solution (0.001 mol/l KCl)	TRM-S-2044	147 $\mu$ S/cm	1.5% relative	2,500/ 250 ml		12031-20609



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59	Electrolytic conductivity standard solution (Nominal 84 $\mu\text{S/cm}$ )	TRM-S-2045	84 $\mu\text{S/cm}$	2% relative	2,500/ 250 ml		12031-20610
60	Electrolytic conductivity standard solution (Nominal 50 $\mu\text{S/cm}$ )	TRM-S-2046	50 $\mu\text{S/cm}$	2% relative	2,500/ 250 ml		12031-20611
61	Primary Phthalate buffer solution	TRM-S-2020	3.990 - 4.020 pH	0.005 pH	15,000/500 mL		12031-20109
62	Primary Phosphate buffer solution	TRM-S-2021	6.85 - 6.88 pH	0.005 pH	15,000/500 mL		12031-20110
63	Primary Borate buffer solution	TRM-S-2022	9.16 - 9.20 pH	0.005 pH	15,000/500 mL		12031-20111
64	electrolytic conductivity of ethanol	TRM-S-2023	0.1-1 uS/cm	5%relative	2,500/bottle	capacity 50 ml	12031-20702
65	Working pH standard (Phthalate)	TRM-S-2027	3.99 - 4.02 pH	0.01 pH	1,000/500 mL		12031-20121
66	Working pH standard (Equipmolal phosphate)	TRM-S-2028	6.85 - 6.88 pH	0.01 pH	1,000/500 mL		12031-20122
67	Working pH standard (Tetraborate)	TRM-S-2029	9.17 - 9.20 pH	0.01 pH	1,000/500 mL		12031-20123
68	Primary Carbonate buffer solution	TRM-S-2030	9.990 - 10.020 pH	0.006 pH	15,000/500 mL		12031-20120
69	Working pH standard (Carbonate)	TRM-S-2031	9.99 - 10.02 pH	0.01 pH	1,000/500 mL		12031-20124
70	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
71	Working pH standard (Tetroxalate)	TRM-S-2033	1.66 - 1.70 pH	0.01 pH	1,000/500 mL		12031-20127
72	Working pH standard (phosphate)	TRM-S-2034	6.99 - 7.03 pH	0.01 pH	1,000/500 mL		12031-20125
73	Working pH standard (alkaline phosphate)	TRM-S-2035	11.70 - 11.74 pH	0.01 pH	1,000/500 mL		12031-20128
74	Electrolytic conductivity standard solution (0.0001mol/l KCl)	TRM-S-2036	84 $\mu\text{S/cm}$	1% relative	5,000/250 ml		12031-20604
75	Nitrate standard solution	TRM-S-2037	100 mg/kg	1% relative	1,500 / bottle		12031-20402
76	Fluoride standard solution	TRM-S-2038	1000 mg/kg	1% relative	1,500 / bottle		12031-20403
77	Water content in Ethanol	TRM-S-2039	0.1 - 1.0 mg/g	5% relative	3,000/5 ampoule		12031-20703
78	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
79	Working electrolytic conductivity solution (0.01 mol/l KCl)	TRM-S-2041	1413 $\mu\text{S/cm}$	1.5 %relative	3,000/250 ml		12031-20607
80	Electrolytic conductivity standard solution 50 $\mu\text{S/cm}$	TRM-S-2042	50 $\mu\text{S/cm}$	1% relative	5,000/250 ml		12031-20605

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81	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
82	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
83	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
84	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
85	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
86	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
87	Benzene in methanol	TRM-S-5007	1,000 mg/L	1.4 % relative	4,750/8 mL		12011-20207
88	Ethylbenzene in methanol	TRM-S-5008	1,000 mg/L	1.1 % relative	4,750/8 mL		12011-20208
89	Toluene in methanol	TRM-S-5009	1,000 mg/L	1.4 % relative	4,750/8 mL		12011-20209
90	o-xylene in methanol	TRM-S-5010	1,000 mg/L	2.2 % relative	4,750/8 mL		12011-20210
91	m-xylene in methanol	TRM-S-5011	1,000 mg/L	1.0 % relative	4,750/8 mL		12011-20211
92	p-xylene in methanol	TRM-S-5012	1,000 mg/L	1.3% relative	4,750/8 mL		12011-20212
93	Organochlorine Pesticide Mix set 1	TRM-S-5013	100 mg/kg	3% relative	11,600/1.1 mL		12011-20213
94	Organophosphate Pesticide Mix set 1	TRM-S-5014	100 mg/kg	5% relative	7,700/1.1 mL		12011-20214
95	Organophosphate Pesticide Mix set 2	TRM-S-5015	100 mg/kg	3% relative	13,300/1.1 mL		12011-20215
96	Acaricide Pesticide Mix set 1	TRM-S-5016	100 mg/kg	3% relative	7,000/1.1 mL		12011-20216
97	Carbamate Pesticide Mix set 1	TRM-S-5017	100 mg/kg	3% relative	8,100/1.1 mL		12011-20217
98	Pyrethroid Pesticide Mix set 1	TRM-S-5018	100 mg/kg	2 % relative	11,000/1.1 mL		12011-20218
99	Organophosphate Pesticide Mix set 3	TRM-S-5019	100 mg/kg	4% relative	14,500/1.1 mL		12011-20219
100	Organophosphate Pesticide Mix set 4	TRM-S-5020	100 mg/kg	4% relative	11,000/1.1 mL		12011-20220
101	Organochlorine Pesticide Mix set 2	TRM-S-5021	100 mg/kg	2% relative	16,000/1.1 mL		12011-20221
102	Pyrethroid Pesticide Mix set 2	TRM-S-5022	100 mg/kg	3 % relative	10,000/1.1 mL		12011-20222



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103	Organophosphate Pesticide Mix set 5	TRM-S-5023	100 mg/kg	3% relative	12,100/1.1 mL		12011-20225
104	Acaricide Pesticide Mix set 2	TRM-S-5024	100 mg/kg	2 % relative	14,000/1.1 mL		12011-20224
105	Insecticide Pesticide Mix set 1	TRM-S-5025	100 mg/kg	2 % relative	10,000/1.1 mL		12011-20225
106	0.01% Brix Sucrose Standard Solution	TRM-S-5026	0.01%	2.0% relative	3,700/ 15mL		12011-20226
107	0.02% Brix Sucrose Standard Solution	TRM-S-5027	0.02%	1.4% relative	3,700/ 15mL		12011-20227
108	0.03% Brix Sucrose Standard Solution	TRM-S-5028	0.03%	0.5% relative	3,700/ 15mL		12011-20228
109	0.04% Brix Sucrose Standard Solution	TRM-S-5029	0.04%	0.6% relative	3,700/ 15mL		12011-20229
110	0.05% Brix Sucrose Standard Solution	TRM-S-5030	0.05%	0.8% relative	3,700/ 15mL		12011-20230
111	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
112	Sucrose Standard for Optical Measurements	TRM-S-5032	Purity 997.4 mg/g	1.1 mg/g	6,000/bag		12011-20101
113	Ethanol-Water Standard Solution (0.45 mg/g)	TRM-S-5033	0.45 mg/g	1% Relative	1,000/bottle		12011-20233
114	Ethanol-Water Standard Solution (0.55 mg/g)	TRM-S-5034	0.55 mg/g	1% Relative	1,000/bottle		12011-20234
115	Ethanol-Water Standard Solution (1.0 mg/g)	TRM-S-5035	1.00 mg/g	1% Relative	1,000/bottle		12011-20235
116	Aflatoxin B1 Standard Solution	TRM-S-5036	2.74 µg/g	4% relative	3,000/bottle		12011-20236
117	Aflatoxin B2 Standard Solution	TRM-S-5037	2.72 µg/g	8% relative	3,000/bottle		12011-20237
118	Aflatoxin G1 Standard Solution	TRM-S-5038	2.87 µg/g	6 % relative	3,000 Baht/bottle		12011-20238
119	Aflatoxin G2 Standard Solution	TRM-S-5039	2.69 µg/g	7 % relative	3,000 Baht/bottle		12011-20239
120	Sodium Chloride Standard Solution	TRM-S-5040A, TRM-S-5040B,	0.30 g/100g, 5.84 g/100 g,	2% relative	1,500 Baht/bottle		12011-20240
121	Platinum electrode for pH measurement				25,000 /piece (1,000 USD)	For differential cell and Harned cell method	12031-20801



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<b>Food (Code: F)</b>							
122	Pure pork meat	TRM-F-1001	1000 g/kg		3,500		12042-20102
123	Pure beef meat	TRM-F-1002	>998.8 g/kg		3,500		12042-20103
124	Blank soybean GTS 40-3-2 matrix	TRM-F-1003	<0.2 g/kg	N/A	3,500		12042-20106
125	1% Pork in beef matrix	TRM-F-1004	10 g/kg	2.20 g/kg	3,500		12042-20108
126	10% Pork in beef matrix	TRM-F-1005	100 g/kg	11 g/kg	3,500		12042-20109
127	Blank meatball matrix	TRM-F-1006	1 000g/kg	N/A	3,500		12042-20111
128	0.1% Pork in beef matrix	TRM-F-1007	1 g/kg	0.33 g/kg	3,500		12042-20112
129	1% beef in feed matrix	TRM-F-1008	10 g/kg	0.1 g/kg	3,500		12042-20113
130	Trace and Essential Elements in Prawn ปริมาณธาตุในกุ้ง	TRM-F-2002	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,000/ bottle	5 g/bottle	12022-20002
131	Arsenic in White Rice Flour ปริมาณสารหนูในผงข้าวขาว	TRM-F-2003	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,700/bottle	25 g/bottle	12022-20007
132	Elements and MeHg in Tuna Tissue	TRM-F-2004	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		4,000/bottle	20 g/bottle	12022-20010
133	Total malachite green in shrimp	TRM-F-5001	18.35 µg/kg	4.00 % relative	5,000/ bottle		12011-20601
134	Aflatoxins in peanut butter	TRM-F-5002	2-10 ng/g	8-10% relative	4,500 /bottle	30 g/bottle	12011-20602
135	Melamine in cracker	TRM-F-5003	1.56 mg/kg	9% relative	3,000/bottle		12011-20603
136	Clenbuterol in feed	TRM-F-5004	71.9 µg/kg	5.43 % relative	2,850/bottle		12011-20901
137	Salbutamol in feed	TRM-F-5005	79.5 µg/kg	14.21 % relative	2,850/bottle		12011-20902
138	Melamine in Milk Powder	TRM-F-5006	1.03 mg/kg	16% relative	3,000/20g bottle		12011-20604
139	Fatty Acid in Cooking Oil	TRM-F-5007	Palmitic acid 106 mg/g, 11.4% Stearic acid 33 mg/g, 4.1% Oleic acid 231 mg/g, 25.7%	7-10% relative	6000/bottle		12011-20605

Effective date 15 October 2021



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140	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
<b>Environment (Code: E)</b>							
141	Trace Elements in Water ปริมาณธาตุในน้ำ	TRM-E-2002	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		2,000/bottle	100 mL/bottle	12022-20008
142	Mercury in Water ปริมาณปรอทในน้ำ	TRM-E-2003	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		1,700/bottle	10 mL/bottle	12022-20009
143	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 CGA Valve: 580	12051-20101
144	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
145	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
146	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
147	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
148	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
149	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
150	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
151	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
152	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





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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
153	Carbon Monoxide in Nitrogen	TRM-E-3041	5 - 200 000 µmol/mol	1.0 - 2.0 %relative	20,000/refill per 1 cylinder	Cylinder Volume: approx. 10 Liters Filling Pressure: 100-120 bar	12050-20403
154	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
155	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
156	Propane in Nitrogen	TRM-E-3060	0.001- 1 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
157	Propane in Nitrogen	TRM-E-3061	0.001- 1 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
158	Propane in Air	TRM-E-3062	0.5-1 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
159	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	12050-20701
160	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
161	Oxygen, Carbon monoxide and Methane in Nitrogen	TRM-E-3100	O <sub>2</sub> : 18 cmol/mol CH <sub>4</sub> : 2.2-2.5 cmol/mol	1.0 %relative	30,000/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar	12050-21001
162	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
163	Iso-butane in Air	TRM-E-3120	0.1- 1 cmol/mol	1% relative	24,500/refill per 1 cylinder	Cylinder volume: 10 Liters, Filling Pressure :100-120 bar CGA Valve: 580	12050-21201
164	Oxygen, Carbon monoxide, Methane and Hydrogen sulfide in Nitrogen	TRM-E-3130	O <sub>2</sub> : 18 cmol/mol CH <sub>4</sub> : 2.2 cmol/mol CO: 100 µmol/mol H <sub>2</sub> S: 25 µmol/mol	1.0 %relative for O <sub>2</sub> , CH <sub>4</sub> , CO 5.0 %relative for H <sub>2</sub> S	35,000/refill per 1 cylinder	Cylinder Volume: approx. 10 Liters Filling Pressure: 100-120 bar CGA Valve: 660	12050-21301
165	Ammonia in Nitrogen	TRM-E-3140	20-100 µmol/mol	4.0 %relative	25,500/refill per 1 cylinder	Cylinder Volume: approx. 10 Liters	12050-21401
166	Hydrogen in Nitrogen	TRM-E-3150	100 - 20 000 µmol/mol	1.0 %relative	20,000/refill per 1 cylinder	Cylinder Volume: approx. 10 Liters	12050-21501
167	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



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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
<b>Material (Code: M)</b>							
168	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
<b>Clinical (Code: C)</b>							
169	Elements in Human Serum ปริมาณธาตุในซีรัม	TRM-C-2001	see certificate โปรดดูรายละเอียดในตัวอย่างใบ Certificate		1,000/bottle	4 mL/bottle	12022-20006
170	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

### Analysis Fee

#### Chemical Metrology and Biometry

171	Determination of organic compounds in biological fluid by IDMS	ng/g - mg/g	2 - 12 %relative	15,000/sample		12012-60501
172	Determination of organic contaminants in food and feed by IDMS	ng/g - µg/g	0.1 - 9 %relative	20,000/sample		12012-60601
173	Determination of contaminants in food and feed by calibration curve	ng/g - µg/g		10,000 /analyte + 5,000 for next analyte		12012-60602
174	Determination of purity of organic compounds (Mass balance method)	as specification	as specification	19,000/sample		12012-60101
175	Determination of purity of organic compounds (specified technique)	as specification	as specification	2,000-10,000.00/sample		12012-60102
176	Determination of organic compounds in botanical products	ug/g - mg/g	3-20% relative	3,000 - 5,000/sample		12012-60901
177	Determination of ethanol in Food and beverages by HS-GC-FID	0.05-5 mg/g	1.4-1.5% relative	10,000/sample		12012-60603
178	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
179	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
180	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
181	Determination of Aflatoxins in solution by LC	ng/g - mg/g	3 - 10 %relative	6,000/analyte +3,000 for next analyte		12012-60203
182	Determination of sodium chloride by refractometry	0-25 g/100g	1.72 % relative	6,000/sample	calibration curve	12012-60204
183	Determination of amylose in rice by size exclusion chromatography (SEC) technique	0-30%	as specification	6,000/sample		12012-60302
184	Determination of amylose in rice by Iodine binding assay using a plate reader	0-30%	as specification	6,000/sample		12012-60303



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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
185	Determination of dietary supplement adulteration in food		100-1000 ng/g	7-8 % relative	18000/sample	Exact-matching IDMS	12012-60304
186	Assigned pH value for sample (primary method)		1 - 12 pH	0.003 pH	13,750/sample		12033-60107
187	Assigned pH value for sample (secondary method)		1 - 12 pH	0.004 pH	13,000/sample		12033 - 60109
188	Assigned pH value for sample (working method)		1 - 12 pH	0.01 pH	2,500/sample		12033-60106
189	Assigned electrolytic conductivity value for sample (secondary method)		5 $\mu$ S/cm - 12.88 mS/cm	0.3% - 1% relative	11,000 /sample		12033-60404
190	Assigned electrolytic conductivity value for sample (commercial cell)		84 - 12880 $\mu$ S/cm	0.8% - 1.3% relative	2,500/sample		12033-60406
191	Determination of cation and anion in sample		0.5 -50 mg/kg	2%relative	7,000/sample		12033-60103
192	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		12023-60101
193	Determination of Elements in sample by gravimetric standard addition		0.00095-20000 mg/kg	2-18 %relative	17,500 for first element + 3000 for next element		12023-60102
194	Determination of Elements in sample by external calibration		0.000002 - 25000 mg/kg	2.5-16%relative	10,000 for first element + 3000 for next element		12023-60103
195	Determination of Elemental speciation in sample		0.005 - 20 mg/kg	3.5-10%relative	17,500 for first specy + 3000 for next species		12023-60104
196	Catalytic activity concentration of enzyme by microplate reader		U/L	U/L	6,000/sample		12043-60101
197	Qualification/quantification of DNA concentration in Foodstuffs/Feed/Biomarkers by droplet digital Polymerase Chain Reaction (ddPCR)		detection or not detection/ copy number or ratio		12,500/sample		12043-60102
198	DNA Quantification in Foodstuffs and feed by quantitative real-time PCR (qPCR)		copy number or ratio		8,500/sample		12043-60103
199	DNA Qualification in Foodstuffs/Feed/Biomarkers quantitative by real-time PCR (qPCR)		detection or not detection		5,000/sample		12043-60104



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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
200	Identification of biomolecules by MALDI-TOF MS		Quality measurement	Quality measurement	2,000/sample		12043-60105
201	qualification of protein in Foodstuffs and feed by LC Q-TOF MS		detection or not detection		3,500/sample		12043-60106
202	Confocal Laser Scanning Microscopes ZEISS LSM880		Cell imaging	Cell imaging	2,500/hr		12043-60107
203	Nanoparticle size measurement in solution		10 - 1000 nm		2,000/sample		12043-60108
204	Identification and quantification of organic compounds in herb by GC-MS and HPLC		Quality measurement / Quantity measurement	Quality measurement / Quantity measurement	2,000/sample		12043-60109
205	Detection of Foodstuffs/Feed/Biomarkers using loop-mediated isothermal amplification		detection or not detection		2,750/sample		12043-60110
206	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	
207	Carbon Dioxide in Nitrogen		0.05-20 cmol/mol	0.5%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12054-60201
208	Methane in Nitrogen		0.05-50 cmol/mol	0.5%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12053-60301
209	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	
210	Sulfur Dioxide in Nitrogen		100 -5 000 µmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60501
211	Sulfur Dioxide in Nitrogen		30 - 100 µmol/mol	1.2% relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60502
212	Propane in Nitrogen		0.001- 1 cmol/mol	0.7%relative	24,000/cylinder	Cylinder Volume: approx. 10 Liters	12051-60601
213	Nitrogen Monoxide in Nitrogen		50 - 5 000 µmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60701
214	Nitrous Oxide in Nitrogen		0.05-10 cmol/mol	0.7%relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-60801
215	Carbon monoxide, Carbon dioxide in Nitrogen		1-15 cmol/mol	0.5%relative	28,800/cylinder	Cylinder Volume: approx. 10 Liters	12051-61001



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Item No.	Description	TRM code	Range	Accuracy / Uncertainty	Price (THB)	Remark	Code
216	Hydrogen Sulfide in Nitrogen		25 - 100 µmol/mol	2.5% relative	30,600/cylinder	Cylinder Volume: approx. 10 Liters	12051-61101
217	Ammonia in Nitrogen		20-100 µmol/mol	≥2.5 %relative	30,600/ cylinder	Cylinder Volume: approx. 10 Liters	12050-61401
218	Hydrogen in Nitrogen		100 - 20 000 µmol/mol	≥0.5 %relative	30,500/cylinder	Cylinder Volume: approx. 10 Liters	12050-61501
219	Nitrogen Dioxide in Nitrogen		100 - 3 000 umol/mol	2% relative	27,600/cylinder	Cylinder Volume: approx. 10 Liters	12050-61701
220	Particulate Matter as PM <sub>2.5</sub> , PM <sub>10</sub> (Analysis)		0 - 500 µg/m <sup>3</sup>	As air volume specification (≥2.0 %relative)	2,700/3 filter samples-47mm	By gravimetric analysis of filter sample	12051-65001
221	Organic and Elemental Carbon (OC/EC) in Particulate Matter		0 - 200 µg C/m <sup>3</sup>	As air volume specification (≥2.0 %relative)	2,100/3 filter samples	By thermal-optical analysis of filter sample	12051-65101
222	Purity assessment of high purity nitrogen Measurand: O <sub>2</sub> , CO, CO <sub>2</sub> , CH <sub>4</sub> , Ar, H <sub>2</sub> O		0.1-100 µmol/mol	2-30%relative	16,000/cylinder		12050-66001
223	Purity assessment of high purity oxygen Measurand: N <sub>2</sub> , CO, CO <sub>2</sub> , CH <sub>4</sub> , Ar, H <sub>2</sub> O		0.1-100 µmol/mol	2-30%relative	18,000/cylinder		12050-66101
224	Purity assessment of high purity carbon monoxide Measurand: O <sub>2</sub> , N <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> O		0.1-100 µmol/mol	2-30%relative	13,000/cylinder		12050-66201
225	Purity assessment of high purity methane Measurand: O <sub>2</sub> , CO, CO <sub>2</sub> , THC, H <sub>2</sub> O		0.1-100 µmol/mol	2-30%relative	13,000/cylinder		12050-66301