

## Request for JGSEE Laboratory Analytical Services

Date.....

Part 1 Customer/JGSEE Student

Part 2 for Laboratory officer only

<p><b>Information of <input type="checkbox"/> Customer <input type="checkbox"/> Student</b></p> <p>Name (Mr./Mrs./Miss).....</p> <p>Organization.....</p> <p>Address .....</p> <p>Tel.....Fax.....</p> <p>Mobile.....E-mail.....</p> <p>University Base: <input type="checkbox"/> JGSEE <input type="checkbox"/> KMUTT <input type="checkbox"/> KMUTNB <input type="checkbox"/> CMU <input type="checkbox"/> SIIT-TU <input type="checkbox"/> PSU</p> <p>Student ID.....Degree.....</p> <p>Advisor.....</p> <p>Attached file (if any).....</p>	<p><b>Analytical process</b></p> <p>Analyst :</p> <p>1.....</p> <p>Processing Date .....Item no.....</p> <p>2.....</p> <p>Processing Date ..... Item no.....</p> <p>3.....</p> <p>Processing Date ..... Item no.....</p> <p><b>Approved by</b></p> <p>Laboratory supervisor .....Date..... (Dr. Ubonwan Chaiyo)</p>
<p><b>Information for Quotation/Invoice</b></p> <p>Name .....</p> <p>Organization.....</p> <p>Address .....</p> <p>Tel.....Fax.....</p>	<p><b>Service Cost</b></p> <p><input type="checkbox"/> External Customer <span style="margin-left: 150px;"><input type="checkbox"/> Government</span></p> <p><input type="checkbox"/> JGSEE Lecturer &amp; affiliated <span style="margin-left: 100px;"><input type="checkbox"/> JGSEE Students</span></p> <p><input type="checkbox"/> Project of JGSEE lecturer</p> <p>Total cost..... Baht</p> <p><b>Approved by</b></p> <p>Laboratory officer.....Date..... (Mrs. Luksana Tripetch)</p> <p>Laboratory Supervisor.....Date..... (Dr. Ubonwan Chaiyo)</p>
<p><b>Analytical Report</b></p> <p>Report language: <input type="checkbox"/> Thai <span style="margin-left: 50px;"><input type="checkbox"/> English</span></p> <p>Report sending: <input type="checkbox"/> Messenger from the customer <input type="checkbox"/> Post mail</p> <p><input type="checkbox"/> Fax ..... <input type="checkbox"/> E-mail.....</p>	<p><b>Quotation</b></p> <p>JGSEE-Laboratory QT .....Date of Issue.....</p> <p>QT-Date of sending .....</p> <p><b>Report</b></p> <p>JGSEE Laboratory R..... Date of Issue: .....</p> <p>Date of sending .....</p> <p><b>Approved by</b></p> <p>Laboratory supervisor .....Date.....</p> <p>Assistant Director.....Date..... ( Dr. Komsilp Wangyao)</p>
<p><b>Analytical Detail</b></p> <p>Sample name/type.....</p> <p>Number of sample.....</p> <p>Need to get the sample back after analysis</p> <p><input type="checkbox"/> Yes <span style="margin-left: 50px;"><input type="checkbox"/> No</span></p> <p>Analytical Parameters:</p> <p>The Item analytical lists no. ....</p> <p>.....</p> <p>.....</p>	<p><b>Signature</b></p> <p>Customer/JGSEE Student .....</p> <p>Advisor.....Date..... ( ..... )</p>
<p><b>Signature</b></p> <p>Customer/JGSEE Student .....</p> <p>Advisor.....Date..... ( ..... )</p>	<p><b>Invoice/Purchase</b></p> <p>Invoice No..... Date of Issue: .....</p> <p>Receipt No..... Date of Issue: .....</p>
<p><b>Remark/Note</b>.....</p>	

**Analytical Price List (Baht)**

Items/Analytical Parameter	External	Government	Lecturer <sup>a</sup>	Project <sup>b</sup>	Student <sup>c</sup>
<b>Sample preparation</b>					
<b>1. Ball mill (PM 100) (sample weight ≤ 100g)</b>					
1.1 <input type="checkbox"/> Grinding (<106 μm)	55	50	35	15	15
<b>2. Cutting mill (SM 2000) (sample weight ≤ 500g)</b>					
2.1 <input type="checkbox"/> Cut size 8 mm	65	60	45	25	25
2.2 <input type="checkbox"/> Cut size 2 mm	65	60	45	25	25
<b>3. Deionized water (ELGA Maxima)</b>					
3.1 <input type="checkbox"/> Purity 15 megaOhms (price per L)	40	35	40	40	40
3.2 <input type="checkbox"/> Purity 18 megaOhms (price per L)	65	60	65	65	65
<b>4. Oven</b>					
4.1 <input type="checkbox"/> % Moisture Content (vacumm condition at 70°C for 24 hrs)					
4.2 <input type="checkbox"/> Sample preparation (Oven-dried at 60-80 °C (Scientific series 9000)	500	405	400	200	200
	250	150	100	65	65
4.3 <input type="checkbox"/> %Moisture content (Oven-dried at 105 °C (Scientific series 9000)	250	150	100	65	65
<b>Chromatography</b>					
<b>5. GC-ECD (Shimadzu, GC-14B)</b>					
5.1 <input type="checkbox"/> N <sub>2</sub> O (Nitrous oxide)	500	450	250	140	140
<b>6. GC-FID (Agilent, 6890 N)</b>					
6.1 <input type="checkbox"/> Formic acid, Acetic acid, Propionic acid, butyric acid and n-butyric acid	300	270	200	75	75
6.2 <input type="checkbox"/> .....	300	270	200	75	75
<b>7. GC-FID (Shimadzu, GC-14B)</b>					
7.1 <input type="checkbox"/> CO <sub>2</sub> , CH <sub>4</sub> (Gas in ambient)	300	270	200	75	75
<b>8. GC-FID (Shimadzu, 2010)</b>					
8.1 <input type="checkbox"/> Hydrocarbon (Liquid)	300	270	200	75	75
8.2 <input type="checkbox"/> .....	300	270	200	75	75
<b>9. GC-TCD (Shimadzu, GC-14B)</b>					
9.1 <input type="checkbox"/> NO <sub>2</sub> , CO <sub>2</sub> , CH <sub>4</sub>	300	270	200	75	75
<b>Proximate and Ultimate analysis</b>					
<b>10. TGA analysis (Perkin Elmer, Pyris 1 TGA)</b>					
10.1 <input type="checkbox"/> %moisture, %volatile matter, % fixed carbon and %ash	3,000	2,700	2,500	1,100	1,100
10.2 <input type="checkbox"/> Pyrolysis behavior	3,000	2,700	2,500	1,100	1,100
<b>11. Organic Elemental Analysis (OEA analysis) (Thermofinnigan, Flash EA 1112);</b>					
11.1 <input type="checkbox"/> Nitrogen, Carbon, Hydrogen and Sulfur (NCHS analysis)	800	720	650	590	590
11.2 <input type="checkbox"/> Oxygen	850	750	670	620	620
<b>Mass Spectrophotometer</b>					
<b>12. Inductively Coupled Plasma-Mass Spectrometer (ICP-MS) (Agilent, 7500a series )</b>					
12.1 <input type="checkbox"/> Liquid sample	5,000	2,400	2,400	2,400	2,400

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<b>Other</b>					
<b>13. Bomb calorimeter (LECO, AC 350)</b>					
13.1 <input type="checkbox"/> High heating value (HHV)	4,500	4,100	3,700	2,300	2,300
<b>14. BET (Belsorp Mini II)</b>					
14.1 <input type="checkbox"/> Automatic surface area	6,000	5,400	4,300	1,500	1,500
<b>15. DSC analysis (Mettler Toledo, DSC822<sup>c</sup>)</b>					
15.1 <input type="checkbox"/> Heat flow of sample in nitrogen condition	3,000	2,700	2,200	900	900
<b>16. FTIR spectrometer (Perkin Elmer, Spectrum One)</b>					
16.1 <input type="checkbox"/> % relationship between distillation and temperature	3,000	2,700	2,200	900	900
<b>17. Tensionmeter (Dataphysics, DCAT 11)</b>					
17.1 <input type="checkbox"/> Surface tension	1,500	1,350	1,000	500	500
17.2 <input type="checkbox"/> Density	1,500	1,350	1,000	500	500
<b>18. Karl Fischer (Metrohm)</b>					
18.1 <input type="checkbox"/> Water analysis byKarl Fischer technique	2,050	1,850	1,200	650	650
<b>19.1 Carbolite</b>					
19.1 <input type="checkbox"/> % Ash	800	700	600	300	200
<b>20. Furnace 1600C (ASTM E1755-01/D2974-00)</b>					
20.1 <input type="checkbox"/> Ash.....	1,500	1,400	1,300	600	600
<b>21. ....</b>					
21.1 <input type="checkbox"/> .....					
<b>22. ....</b>					
22.1 <input type="checkbox"/> .....					
<b>23. ....</b>					
23.1 <input type="checkbox"/> .....					

#### Remark

<sup>a</sup> :JGSEE and Affiliated lecturers,

<sup>b</sup> :Project of JGSEE and Affiliated lecturers,

<sup>c</sup> :Only JGSEE student.