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 Department of Science and Technology  
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SUPPLEMENTAL/BID BULLETIN

ADDENDUM No. 1

This addendum No. 1 is issued to modify or amend items in the Bidding Documents. This shall form an integral part of the Bidding Documents for the Public Bidding of One (1) Lot Spray Drying Machine and Vacuum Evaporator.

A. Technical Specifications:

**Spray Dryer**

Item	Specification	Statement of Compliance
1. Drying Chamber  - Consist of the main chamber, cover, door, sight glass, diffuser and housing	<b>Chamber</b> Dimensions: Height: 3730mm; OD= 2215mm;  Material: - 304 Stainless Steel Sheet (th:2mm); - 50mm Rockwool;	<i>Consists of the main chamber with covers, electrical heaters, and trays.                      ***Make sure there is no leakage in the chamber. Seal properly the holes, especially the hole for wiring of electrical heaters and thermocouple.                      Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and crossreferenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of</i>
a. Cladding/ Insulating Chamber	Dimensions: OD: 2215mm, Height: 2005mm,  Material: - 304 Stainless Steel Sheet (th:2mm); -	
b. Door	Dimension: LXW: 310x410mm  Materials: 304 SS sheet (th:2mm) SS Star Knob latches and lock	

<p>c. Sight Glass</p> <p>Note: 4 pcs of sight glass assembly</p>	<p>Upper and Lower Flange Dimensions: OD:165mm ID:80mm th:30mm (lower flange) th: 16mm (upper flange)</p> <p>Materials: 18mm welded bolts and nuts 304 SS Flange M18 hexabолts and nuts Silicone O-ring (OD:101mm th:6mm) Round Tempered Glass(OD:100mm, th:10mm)</p>	<p><i>specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a)(ii) and/or a</i></p>
<p>d. Diffuser and Housing</p>	<p>Upper Housing Dimensions: OD:2211mm; Height:170mm</p> <p>Lower Housing Dimensions: OD: 2213mm; Height: 420mm</p> <p>Diffuser (6pcs) Dimensions: Length: 1090mm</p> <p>Materials: 304SS Sheet</p>	
<p>2. Collecting Bucket Note: 2 pcs</p>	<p>Dimensions: OD:530mm; Height: 502mm</p> <p>Materials: 304 SS Sheet (th:2mm)</p>	<p><i>Consists of the main chamber with covers, electrical heaters, and trays. ***Make sure there is no leakage in the chamber. Seal properly the holes, especially the hole for wiring of electrical heaters and thermocouple. Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and</i></p>
<p>3. Rectangular Sight Glass</p> <p>Note: 2 pcs of sight glass assembly</p>	<p>Dimensions: LxW:400x100mm th:20mm</p> <p>Materials: 304SS Rectangular Flange; M12 hexabолts and nuts Silicone Gasket (th:6mm) Rectangular Tempered Glass (LXW:368x50mm; th:20mm)</p>	
<p>4. Cyclone</p>	<p>Dimensions: OD: 523mm; Height: 1498.77mm</p> <p>Materials: 304SS sheet (th:2mm)</p>	

5. Feed Tank	<p>Dimensions: OD:604mm; Height: 802mm</p> <p>Materials: 304 SS Sheet (th:2mm) 304 SS Solid Bar (OD: 19mm, L=150mm)</p>	<p><i>crossreferenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a)(ii) and/or a</i></p>
6. Heating Chamber	<p>Dimensions: OD: 802mm; Length: 1502mm</p> <p>Materials: 304 SS Sheet (th:2mm)</p>	
7. Frame	<p>Powdered Coated MS Checkered Plate (t=2mm) MS Square Tubing (50x50mm, L=6m, th=1mm) MS Round Bar (OD: 50mm; L:6m)</p>	
8. High Pressure Centrifugal Fan	<p>Airflow: 1017cu.m/hr Wind Pressure: 3750Pa Speed:2900rpm Power Rating:2.2kW 3 Phase</p>	
9. Plunger Pump	<p>Accessories: 2SF Pump, 5/8" ELEC SSR Plunger Pump 0.5gpm Motor (5hp, 3Phase, W ELEC) Unloader (3/8" UNLP SS B) Gauge( max reading: 1500psi SS) BPH with thermo SSB Relief Valve (3/8"SS) PRRRRR-O-LATOR SS Pulsation damper C.A.T. ASSY (1 1/2" SS, Captive acceleration tube) Adapter (1/2" CAT SS) Inlet Filter (80MD NY) 3phase</p>	
10. Suction Blower	<p>Airflow: 1017 cu.m/h Wind Pressure: 3750Pa Speed 2900rpm Power Rating: 2.2kW 3phase</p>	
11. Piping System	<p>304 SS Elbow (OD: 1 1/2in SCH 40) 304 SS Elbow (OD: 8in SCH 40) 304 SS Pipe (OD: 1 1/4in SCH 40) 304 SS Pipe (OD: 6in SCH 40)</p>	

**Note:** Please refer to Bills of Materials and Drawings for the detailed list of supplies and dimensions.

**Vacuum Evaporator**

<b>Item</b>	<b>Specification</b>	<b>Statement of Compliance</b>
<p>12. Evaporation Chamber</p> <p>- Consist of the main chamber, cover, door, sight glass, legs, insulation, heating coil and controls</p>	<p><b>Chamber</b>  Dimensions:  Height: 400mm; OD= 1020mm  Material:  -304 Stainless Steel Sheet, th:2mm;</p> <p><b>Heating coil</b>  Dimensions:  Height: 400mm, Diameter:890mm, Pitch:49.75mm, Rev: 8coils  Material:  -Copper tube heating coil;  -50mm Rockwool;</p> <p>Rockwool Housing:  Height:530mm, OD:850mm;  th:2mm</p>	<p><i>Consists of the main chamber with covers, electrical heaters, and trays.</i>  <i>***Make sure there is no leakage in the chamber. Seal properly the holes, especially the hole for wiring of electrical heaters and thermocouple.</i>  <i>Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and crossreferenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or</i></p>
<p>e. Cover</p>	<p>Dimensions:  OD: 542mm, Height: 95mm,  Knuckle radius: 380mm</p> <p>Materials and Accessories:  -304 Stainless Ball Valve (3/4NPT)  -Vacuum Pressure gauge (3/4NPT) (w/gauge pressure: 0-15psi)  -304SS Thermocouple Assembly (Type K with temperature range: 0-150°C)</p>	<p><i>Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or</i></p>
<p>f. Door</p>	<p>Dimension:  OD:246mm, ID:220mm,  Height:98mm  Materials:  304 SS sheet  M12 Hexabolts and nuts  304 Stainless steel plate  Silicone O-ring (Cross Sectional Diameter:8mm, ID:230mm, Durometer 60)</p>	<p><i>Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or</i></p>

	<p>Toggle Lock Materials: 304 SS Eye nut (OD:41mm) 304SS Roundbar (OD:15mm) Retainer ring (OD:21mm, ID:10mm)</p>	<p><i>the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a)(ii) and/or a</i></p>
g. Sight Glass	<p>Upper and Lower Flange Dimensions: OD:100mm ID:66mm Materials: 304 SS Flange M6 hexabолts Silicone O-ring (OD:84mm Th:3mm) Round Tempered Glass (OD:84mm, th:10mm)</p>	
13. Stirrer Assembly	<p>Materials: Gear Motor (1/2hp, 30V, 3phase 60Hz, induction motor, inverter duty) 304SS pipe (SCH40 1 1/2in) 304SS sheet 304SS round bar 304SS Flange (fabricated; see drawing)</p>	<p><i>Consists of the main chamber with covers, electrical heaters, and trays. ***Make sure there is no leakage in the chamber. Seal properly the holes, especially the hole for wiring of electrical heaters and thermocouple. Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and crossreferenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported</i></p>
14. Piping System	<p>304 SS Pipe (SCH40 1 1/2in) 304SS Ball Valve (1 1/2in) 304 Seamless Steel Elbow (1 1/2in) Vacuum Rated Sanitary Clear PVC Tubing ( 1 1/2, L=2m)</p>	
15. Frame	<p>MS Checkered Plate (4x8ft, t=3mm) MS Square Tubing (50x50mm, L=6m, th=2mm)</p>	
16. Water Ring Vacuum Pump	<p>Duty: ≥100m<sup>3</sup>/hr Ultimate vacuum: Min:138mbar Max:413mbar 230V 3Ph, 60Hz Induction Motor</p>	
17. Control Panel	<ul style="list-style-type: none"> <li>• 2pcs Type K Temperature Controller (230V, 1Ph Modbus Interface with set value and current value display)</li> <li>• Emergency Stop Button ( 230V,</li> </ul>	

	3A, 2SPST Contract NC, lth=10A) <ul style="list-style-type: none"> <li>• 4pcs Indicator Lamp (green)</li> <li>• 22mm Selector Switch</li> <li>• VFD (1Hp 230V 1Ph 60Hz input, 3Ph output)</li> <li>• VFD (6Hp 230V 1Ph 60Hz input, 3Ph output)</li> <li>• 2 pole circuit breaker</li> <li>• AC Plug</li> <li>• Fork type terminal lugs</li> <li>• Pin type terminal lugs</li> <li>• Screw terminal block</li> </ul>	<i>by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause 3.1(a)(ii) and/or a</i>
18. Cooling Tower	Induced draft type Capacity: 5-300L/sec Tower Material: Fiber Reinforced Plastic (FRP)	

**Note:** Please refer to Bills of Materials and Drawings for the detailed list of supplies and dimensions.

### TERMS OF REFERENCE

- I. Title** Supply of Labor and Materials for the Development and Fabrication of the **Spray Dryer and Vacuum Evaporator**
- II. Duration** 150 working days
- III Budget (ABC)** Php. 2,900,000.00 ( 1lot)
- IV. Location** PTRI Compound, Gen. Santos Ave., Bicutan, Taguig City
- V. Description**

The cradle to cradle (C2C) concept has been influential in moving the manufacturing companies towards to a more sustainable practices that would maximize material value without damaging the ecosystem; and the textile industry is no exception, bringing the industry under the scanner. Faced with stringent regulations, the companies are imposed to limit the use of toxic substances in dyes and pigments. As a result, chemical manufacturers are stepping up their investments in the development of an eco-friendly dyes such as natural dyes. Natural dyes are widely used in coloring of leather and fiber since ancient time. However due to problem with availability, color fastness and reproducibility, demands for natural dye slowly declines.

In the Philippines, the Philippine Textile Research Institute (PTRI), due to its interest and long-term engagement on the research and development of natural dye, have already standardized the extraction technique for the natural colorant and successfully improved the color fastness performance of natural dye. Making the institute as the pioneering expert in the production of natural dye. Therefore, to ensure further sustainability of the natural colorants, the PTRI is currently commercializing the production of the natural dyes through their on-going project entitled “Commercial Scale Verification of Natural Dyes for Textile”. Among their objective in the said project is to establish a NatDyeing facility in collaboration with industry partner, Natural

Crafts Connection Enterprise (NCCE), which will be capable of producing and marketing natural dyes. PTRI will lead and assist NCCE in procurement of equipment such as Spray Dryer and Vacuum Evaporator, which are essential for dye production business.

Spray Dryer is an equipment used to convert liquid crude extract into its powdered form. Powdered dye are advantageous over its liquid counterpart due to the following reasons: ease in transportation, promotes longer shelf-life and reduce in weight/volume. Meanwhile, Vacuum Evaporators are considered an auxiliary to spray dryer. This equipment removes excess water leaving a more concentrated solution. Then this solution will be fed to the spray drying machine. Since, most of the water content were removed during evaporation, lesser production time of powdered dye shall be observed.

## **VI. Scope of Work**

The item subject for bidding as indicated by the above title requires bidders to develop and fabricate one (1) unit of spray dryer and vacuum evaporator, which include but not limited to the following activities and services:

1. Submit work plan.
2. Fabricate the Spray Dryer and Vacuum Evaporator as per PTRI specifications;
3. Submit accomplished checklist on workmanship and material quality provided by the project team; Checklist should include the leak test and pre-functional test conducted by Contractor before delivery.
4. Provide Warranty Certificates and Manuals of the components used;
5. Deliver and Install the equipment to PTRI facility and National Crafts Connection Enterprise (NCCE), Bauan Batangas upon acceptance and approval of the checklist by the project team;  
Note: In the event that there is space limitation at DOST-PTRI and there is space at Contractor site, it can be an option for Functional Test and Performance Test.
6. Provide assistance during Functional and Performance Testing of the equipment;
7. Conduct Commissioning and Training on the basic operation of the equipment;
8. Provide Training Certificate to DOST-PTRI and NCCE;
9. Retrieve and pack/crate the equipment to facilitate proper handling and shipment;
10. Provide assistance during the installation and testing of the equipment at PTRI-TBI;
11. Submit accomplished delivery checklist;
12. Provide one (1) year warranty on materials and workmanship; and
13. Provide after sale service.

## **VII. Requirements and Specifications**

The DOST-PTRI shall create a Technical Working Group (PTRI-TWG). The PTRI-TWG shall see to it that the requirements and specifications are met and the developed/fabricated equipment is ready for technology transfer and suitable for commercial usage and production prior to deployment and acceptance.

The requirements and specifications as outlined in Annex A are supplemented by attached set of drawings illustrating the individual components of the equipment. In case the supplementary drawings are incomplete or in conflict with the requirements and specifications in words, the Annex A version shall prevail.

To ensure the quality of the fabricated equipment and the conformance of outputs to applicable regulations for processed products, the awarding of contract to prospective

Winning Bidder will be subject to a thorough assessment and evaluation by the PTRI-TWG including its sub-contractor/s, if any, pertaining to the organization's capability (based on personnel competence, equipment/facilities, products/services, previous projects) to successfully complete and deliver the equipment and service in accordance to the timetable, requirements and specifications as contained in the project's Terms of Reference.

Besides, the following requirements shall also be considered in the manufacture of the Spray Dryer and Vacuum Evaporator:

- All surfaces in contact with natural dye shall be well-polished;
- External surfaces should have sloping to prevent accumulation of dust and dirt;
- Cast stainless steel fittings intended for welding are not allowed;
- Structural materials such as C-channels and angle bars should be oriented so as not to catch dirt;
- There shall be no sharp edges/corners that may harm or injure the users;
- All chambers that are subject to pressure or vacuum must have undergone pressure test;
- All joints shall be TIG-welded unless otherwise specified; and
- The equipment shall bear a nameplate and code/serial numbers. Stamped and included on it is a statement that the equipment is manufactured by the Contractor for the DOST-PTRI.

## VIII. Terms and Conditions

### A. Progress Payment

The mode of payment shall be through progress billing based on the following schedule of payment:

Amount	Schedule and Requirements
15% (advance payment as per RA9184 annex B section 4)	Shall be released upon certification of completion or availability of at least 50% of the required fabrication works and components. This shall be requested and certified by the Contractor and shall be validated and concurred by the PTRI-TWG.
85%	Shall be released upon certification of 100% completion of the required fabrication works and components , submission of items listed on Section VI items 3 and 4 and upon completion of acceptance test (functional and performance testing), crating, delivery and installation. This shall be requested and certified by the Contractor and shall be validated and concurred by the PTRI-TWG.

**\*NOTE:** The 1% Retention fee shall be deducted every progress billing and released 1 year after the date of acceptance and upon receipt of the returned *controlled* copy of drawings and other requirements.



## B. Detailed Mechanical Drawings

Detailed hardcopy mechanical and electrical drawings (as applicable) will be provided by the PTRI-TWG. Ownership and/or property rights of all designs including improvements involving this undertaking shall be assigned solely to PTRI. Controlled hardcopy of detailed drawings will be issued upon placement of purchase order and for the winning bidder only, which shall be returned to the PTRI-TWG after completion of the project. Such drawings shall remain property of DOST-PTRI and the Contractor shall not use or reproduce them for other purposes without the expressed and prior written consent of DOST. The contractor shall sign a Non-Disclosure Agreement (NDA) for this purpose.

## C. Workplan

The Contractor should submit a Workplan not later than fourteen (14) days after issuance of purchase order. The Workplan should spell out the work breakdown structure of all activities to be undertaken, such as but not limited to the following: major tasks; timetable; responsible unit or person; and other resources needed in order for each step to be completed. The Contractor shall include and declare their subcontractors (if any) who will be involved in the implementation of the project. The Contractor shall also assign a focal person with alternate who shall work closely with the PTRI-TWG for the purpose of monitoring and reporting the project status.

## D. Project Monitoring and Evaluation

The PTRI-TWG and/or its representatives shall be given access to the Contractor's premises during project inspection, validation, monitoring and evaluation. The Contractor shall also provide supporting documents (e.g., mill certificate of stainless steels used) and allow the PTRI-TWG and/or its representatives to take sample/s from the materials used for quality verification, whenever necessary.

## E. Assembly and System Integration

After all the designs are realized and all the components are ready, the assembly and system integration will be performed at the Contractor's premises. The Contractor shall allow the PTRI-TWG and/or its representatives to conduct onsite visitation and observe the actual work processes during fabrication, assembly and/or system integration.

## F. Acceptance Testing

The Contractor shall deliver the equipment to PTRI facility after the pre-acceptance testing and assist the PTRI-TWG in performing the functional/performance tests (including debugging and troubleshooting) required for purposes of acceptance testing.

All expenses except for consumables associated with the conduct of acceptance tests (e.g., spare/replacement parts) and all the modifications needed to achieve the desired performance targets shall be shouldered or supplied by the Contractor.

#### G. Crating

The Contractor shall provide appropriate packaging to facilitate safe and proper handling, shipment and delivery of the equipment to the PTRI-TBI. The crate should be of sufficient strength and rigidity to prevent collapse during transport. The Contractor shall bear all costs necessary to ensure that the equipment is delivered to the FIC location in good working condition.

#### H. Delivery

The equipment, Spray Dryer and Vacuum Evaporator, shall be completed in five (5) months or equivalent to one hundred fifty (150) days reckoned from the date of receipt of purchase order. Note that the Functional and Performance Testing is already included in the said time frame given to the contractor. The equipment is also expected to be delivered in the PTRI-TBI and NCCE not later than ten (10) days after the five (5) months fabrication and testing duration.

#### **IX. Variation/Change Order Clause**

The PTRI may issue Variation/Change Order to the contractor if there will be alterations/modifications/changes from the original Contract/Scope of Work since this project involves research and development activities.

#### **X. Warranty**

The winning bidder must provide a Certificate of Warranty against faulty materials, components and workmanship for a period of 6 months (free parts and service) and another 6 months of free service extension, from the date of acceptance. Relative to this, the Contractor shall bear all costs relevant to the shipment of materials, parts and components and the provision of aforementioned services at the respective FIC locations.

For guidance and information of all concerned.

CORAZON I. TAPULGO  
BAC Chairperson

Received by the bidder:  
Date: