

Small Sample Shipping Instructions

Revised: September 10, 2015

This document provides instructions for shipping small samples to ST Equipment & Technology.

Small (~500 gram) samples should be provided to ST Equipment & Technology (STET) for the purposes of evaluating the material as a candidate for electrostatic beneficiation using STET's proprietary separation technology. The evaluation of the small sample will be completed by the STET laboratory to evaluate the candidate material on the following points:

1. Is the material particle size distribution suitable for the STET separator?
2. Is the material sufficiently liberated in separate, discrete particles? Often this cannot be directly measured, but evaluated based on the nature of the material, how it was formed, particle size, etc. Any information the customer has on liberation characteristics, including micrographs, QEMSCAN or others would be beneficial.
3. Does the STET laboratory have the capability to measure the element(s), mineral(s) or properties of interest to support a pilot plant testing campaign? In general, rapid results are preferred, to allow for run decisions to be made during pilot plant trials.
4. Is the material a good candidate for electrostatic beneficiation based on the moisture, chemistry, mineralogy, separation targets and STET's experience or available references?

STET will use this information to generate a report detailing the results of the small sample testing, as well as recommendations on how to proceed with pilot scale testing, as applicable. Once STET and the customer are in agreement about the goals of a pilot plant testing program, STET can issue a pilot plant testing proposal. STET is not able to test small bag samples for separation performance, or provide estimates of product grade or recovery.

Collect & Prepare the Samples

All samples to be shipped to ST Equipment & Technology should be:

- As representative as possible of the material that the customer would like to beneficiate. Therefore the small sample should have the same particle size, chemistry, composition and moisture. If the feed to the separator is expected to vary between known ranges, please note that and other details on the **SAMPLE COVER NOTE**.
- Clearly labeled with Company Name, Sample Identification and Date.
- Packaged to ensure there is no spillage or leakage during transport. A small box with approximately 500 grams of sample in plastic containers works best. Samples larger than 2 pounds (1 kg) should not be placed in a shipping envelope unless very well protected. Experience shows these envelopes tend to rip and leak en route.

Include the following with the sample:

- A current Safety Data Sheet (SDS) for all material(s) contained in the shipment. **STET requires a Safety Data Sheet (SDS) to be included for ALL SAMPLES.**
- Hazardous Material Declaration (if the shipment contains hazardous materials)
- Chemical and Physical Analysis Data Sheet, Mineralogical Data and/or Particle Size Distribution

Please complete the **SAMPLE COVER NOTE** (below) and email it to STETlab@stetech.com



ST Equipment & Technology
101 Hampton Avenue
Needham, MA 02494
STETlab@stetech.com
781-972-2300

For ALL International Shipments

In addition, all samples shipped from outside the United States will require the following documents to be submitted to your preferred Carrier (DHL, UPS, Federal Express, etc.): If you have specific questions regarding proper documentation, please ask your Carrier.

- Packing slip describing content of shipment
- Commercial/Pro Forma Invoice
- Air Waybill / Bill of Lading (both issued by the carrier)
- Certificate of Origin (issued by the shipper)
- Safety Data Sheet (SDS)
- Hazardous Material Declaration (if the shipment contains hazardous materials)

Ship to address:

ST Equipment & Technology LLC
C/O: Frances Kirchberg
101 Hampton Avenue
Needham, Massachusetts 02494 USA

Attention:

Primary Contact: Frances Kirchberg, Tel: +1 781-972-2313, fkirchberg@titanamerica.com
Secondary Contact: Kristin Cappello, Tel: +1 781-972-2319, kcappello@titanamerica.com



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Sample Document Checklist

Sample Document Checklist	Email to STET (STETlab@stegtech.com)	Include with Sample Shipment
1. Sample Shipment Cover Note	<input type="checkbox"/>	<input type="checkbox"/>
2. Commercial or Pro Forma Invoice		<input type="checkbox"/>
3. Air Waybill/Bill of Lading (provided by carrier)		<input type="checkbox"/>
4. Certificate of Origin (provided by shipper)		<input type="checkbox"/>
5. Shipping Information / Delivery Order		<input type="checkbox"/>
6. Safety Data Sheet (SDS)	<input type="checkbox"/>	<input type="checkbox"/>
7. Hazardous Material Declaration (if the shipment contains hazardous materials)		<input type="checkbox"/>
8. Tracking Number	<input type="checkbox"/>	

Email Sample Shipping Cover Note, SDS and Tracking Number to: STETlab@stegtech.com



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Sample Shipment Cover Note

Customer Contact Information:

Primary Customer Contact	
Name:	
Title:	
Company:	
Address:	
State & Country:	
Phone:	
Email:	
Comments:	

Customer Technical Contact	
(For questions regarding sample analysis, typical feed composition, particle size, separation targets)	
Name:	
Title:	
Company:	
Address:	
State & Country:	
Phone:	
Email:	
Comments:	

Sample Information: *(Complete for Each Sample)*

- Please be **as specific as possible** when describing the sample, and the expected separation targets.
- Please describe the product separation targets including composition (chemistry, mineralogy) and the desired product(s) composition. Describe any important properties for the products such as desired grades, brightness / color requirements, specifications, etc. in comments section.
- Note that a (Material) Safety Data Sheet (MSDS / SDS) is required for all materials shipped to STET

Example Form:

Sample 1 Information (Form below has been filled out as an example.)					
Sample Name / Label:	Fly Ash Sample 1, Boiler Unit 5 – Date April 1, 2015				
Material Type / Description & Origin:	Fly Ash from Pulverized Coal Combustion				
Sample Origin Location:	Example Power Station - Needham, Massachusetts				
Country of Origin:	United States				
Expected Sample Composition:	10% Carbon (LOI), 50.5% SiO ₂ , 26.8% Al ₂ O ₃ , 10.1% Fe ₂ O ₃ , 0.5% SO ₃ , 3.4% CaO, 0.7% Na ₂ O ₃ , 0.24% P ₂ O ₅ (by XRF)				
Feed Particle Size:	PSD measured by Malvern is d ₁₀ = 5 micron, d ₅₀ = 20 micron, d ₉₇ = 103 micron				
Moisture (wt. %):	0.01%	Max Particle Size (micron/mesh):	100 μm	Median Particle Size (micron/mesh):	20 μm
Expected Product(s) Composition:	Product 1 = fly ash with carbon less than 3.0%, Product 2 = High carbon product of +30%				
Mineral Product(s) to be Recovered:	Low carbon mineral-rich fly ash	Gangue/By-Product(s) to be Rejected:	Carbon (LOI)		
Goals for Separation:	Maximize recovery of low carbon fly ash product. Product should contain less than 3.0% carbon.				
Feed Available for Processing (tons or tons/year):	150,000 short tons/year	Feed Rate Required for Separator (short or metric tons/hour):	30 short tons/hour		
Method of Analysis:	Primary analysis method is loss on ignition (LOI) @ 750 deg C for one hour.				
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:	Respiratory protection (dust masks) should we worn during handling.				
Comments:	Low carbon ash product must be able to meet ASTM C 618A-12 specification. Fineness measured as % retained on #325 sieve must be less than 34% by wt.				

Sample 1 Information (Click to enter text)					
Sample Name / Label:					
Material Type / Description & Origin:					
Sample Origin Location:					
Country of Origin:					
Expected Sample Composition:					
Feed Particle Size:					
Moisture (wt. %):		Max Particle Size (micron/mesh):		Median Particle Size (micron/mesh):	
Expected Product(s) Composition:					
Mineral Product(s) to be Recovered:		Gangue/By-Product(s) to be Rejected:			
Goals for Separation:					
Feed Available for Processing (tons or tons/year):		Feed Rate Required for Separator (short or metric tons/hour):			
Method of Analysis:					
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:					
Comments:					



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Sample 2 Information

(Click to enter text)

Sample Name / Label:					
Material Type / Description & Origin:					
Sample Origin Location:					
Country of Origin:					
Expected Sample Composition:					
Feed Particle Size:					
Moisture (wt. %):		Max Particle Size (micron/mesh):		Median Particle Size (micron/mesh):	
Expected Product(s) Composition:					
Mineral Product(s) to be Recovered:			Gangue/By-Product(s) to be Rejected:		
Goals for Separation:					
Feed Available for Processing (tons or tons/year):			Feed Rate Required for Separator (short or metric tons/hour):		
Method of Analysis:					
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:					
Comments:					

Sample 3 Information

(Click to enter text)

Sample Name / Label:					
Material Type / Description & Origin:					
Sample Origin Location:					
Country of Origin:					
Expected Sample Composition:					
Feed Particle Size:					
Moisture (wt. %):		Max Particle Size (micron/mesh):		Median Particle Size (micron/mesh):	
Expected Product(s) Composition:					
Mineral Product(s) to be Recovered:			Gangue/By-Product(s) to be Rejected:		
Goals for Separation:					
Feed Available for Processing (tons or tons/year):			Feed Rate Required for Separator (short or metric tons/hour):		
Method of Analysis:					
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:					
Comments:					



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Sample 4 Information

(Click to enter text)

Sample Name / Label:					
Material Type / Description & Origin:					
Sample Origin Location:					
Country of Origin:					
Expected Sample Composition:					
Feed Particle Size:					
Moisture (wt. %):		Max Particle Size (micron/mesh):		Median Particle Size (micron/mesh):	
Expected Product(s) Composition:					
Mineral Product(s) to be Recovered:			Gangue/By-Product(s) to be Rejected:		
Goals for Separation:					
Feed Available for Processing (tons or tons/year):			Feed Rate Required for Separator (short or metric tons/hour):		
Method of Analysis:					
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:					
Comments:					

Sample 5 Information

(Click to enter text)

Sample Name / Label:					
Material Type / Description & Origin:					
Sample Origin Location:					
Country of Origin:					
Expected Sample Composition:					
Feed Particle Size:					
Moisture (wt. %):		Max Particle Size (micron/mesh):		Median Particle Size (micron/mesh):	
Expected Product(s) Composition:					
Mineral Product(s) to be Recovered:			Gangue/By-Product(s) to be Rejected:		
Goals for Separation:					
Feed Available for Processing (tons or tons/year):			Feed Rate Required for Separator (short or metric tons/hour):		
Method of Analysis:					
SDS (MSDS) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Particle Size Distribution (PSD) Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemistry / Mineralogy Included?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is Material Combustible?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Is Material Regulated as Hazardous?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
List any Safety / Handling Concerns:					
Comments:					



Needham Technical Center

Commercial/Pro Forma Invoice Example

DATE: May 1, 2015

MATERIAL: NON-HAZARDOUS, FLY ASH

ORIGIN OF MATERIAL: UNITED STATES

SHIPPER:

MR. JOHN SMITH
ABC COMPANY
135 CAMBRIDGE AVENUE
ANYTOWN, CA 93235 USA

CONSIGNEE:

ST Equipment & Technology LLC
101 Hampton Avenue
Needham, MA 02494 USA

CONTACT PERSON:

Primary Contact: Frances Kirchberg, Tel: +1 781-972-2313, fkirchberg@titanamerica.com
Secondary Contact: Kristin Cappello, Tel: +1 781-972-2319, kcappello@titanamerica.com

QUANTITY: 1

TOTAL WEIGHT OF SHIPMENT: 1 LBS.

COMMERCIAL VALUE: \$25.00

Tariff Code:

Signature: