

# SAMPLING CHECKLIST



Thank you for trusting SDMyers with your testing needs! As you get your samples and prepare for shipping, please follow this guide to ensure samples are high quality, easily identifiable, and all required information is provided so that you can get the best possible diagnostic information.

**Failure to provide All Required Information will result in delays to your order!!**

## Please Follow This Checklist for your Order:

1.  Provide your **PO Number**, or note alternative form of payment: \_\_\_\_\_  
*Payment information is required for processing any samples.*
2.  Contact SDMyers if this is a **Rush Order** at 330.630.7000.
3.  Complete the **Liquid Testing Order Form**
4.  **Print Sampling Forms** and fill out for all Assets being Tested
  - a. Use pre-populated forms from Transformer Dashboard:  
*Make it easy on yourself: Download pre-populated forms for your equipment and save time!*  
[Log in at SDMyers.com](#) ▶ [Sampling Forms](#) ▶ [Select Equipment](#) ▶ [Sampling Form Packet](#)
  - b. Blank forms are available in your Sampling Packet for New Assets from the same location (choose Blank Form Packet to download).
5.  **Follow the Liquid Sampling Instructions** in this packet for all samples
  - a. Sampling **should not be performed during rainy weather** to ensure accuracy.
  - b. Fill Out **“Sampling & Inspection Form” completely** for All Assets!
    - i. MINIMUM REQUIRED INFO (**ORDER WILL BE DELAYED IF NOT PROVIDED**):  
**Serial#, Sample or Top Temperature (°C), Liquid Type, Equipment Type**
    - ii. Fill out the form completely to ensure the most accurate diagnostics
6.  **Prepare your Samples** before Packing and Shipping:
  - a. Ensure All Containers are **Fully Filled** and **Securely Closed**
  - b. Ensure **All Containers are Labeled**, and **Sampling & Inspection Forms** are filled out:
    - i. **Required:** Serial# or TC# if available
7.  Package according to **Packing Instructions**
8.  **Ship your Samples** to the Lab
  - a. **US Orders** -- Attention: LAB, SDMyers, 180 South Ave, Tallmadge OH 44278
    - i. **Important:** DOT / EPA Regulations require special packaging, labeling, and shipping for **chlorinated dielectric liquids** (e.g. PCB, Askarel, Wecosol).  
Contact your SDMyers account representative for assistance.
  - b. **International Orders** -- Testmark Laboratories 6820 Kitimat Road, Unit #4  
Mississauga, ON L5N 5M3, Canada // Phone: 905.821.1112
    - i. **Declare customs value of Less Than \$15 USD** on your documentation.
    - ii. Additional international shipping instructions are available from SDMyers.com in the Resources section under Sampling and Shipping Forms.

# LIQUID TESTING ORDER FORM



COMPANY NAME		CUSTOMER #	
CONTACT PERSON		PHONE	
ADDRESS			
CITY		STATE	ZIP
SAMPLE DATE		P. O. NUMBER	



## REQUIRED CONTAINERS

PACKAGED TESTS

NO.	QTY	TEST NAME	TEST DESCRIPTION	12 oz	4 oz	SYR	16 oz
4000		<b>CriticalPac</b>	Critical transformers	1	1	1	-
4001		<b>PowerPac1</b>	Non-critical transformers, baseline	1	1	1	-
4002		<b>PowerPac2</b>	Non-critical transformers, ongoing	1	1	1	-
4003		<b>DistributionPac</b>	Distribution-class transformers	1	1	1	-
4004		<b>LTCPac</b>	LTC testing without PC/FC	1	1	1	-
4012		<b>LTC Complete</b>	Load Tap Changers	2	1	1	-
4005		<b>RegPac—Single</b>	Regulators < 500 gallons	1	1	1	-
4006		<b>RegPac—Three</b>	Regulators > 500 gallons	1	1	1	-
4007		<b>RegPac—Step</b>	Step-voltage regulators	1	1	1	-
4008		<b>OCBPac</b>	Oil Circuit Breakers	1	1	1	-
4009		<b>SwitchPac</b>	Switchgear	1	1	1	-
4051		<b>SilPac</b>	Silicone	1	1	1	-
4060		<b>SilPac Plus</b>	SilPac with furanic compounds	1	1	1	-
4010		<b>S-FluidPac</b>	FR3, Biotemp, ENV-200, Midel, Alpha 1	1	1	1	-
4063		<b>Natural Ester Pac</b>	Natural ester critical transformers	1	1	1	-
4064		<b>FR3 Pac Plus</b>	New transformers with FR3	1	1	1	-
4052		<b>AskPac</b>	Askarel package				
4058		<b>WecPac</b>	Wecosol/Perclene				

**Hazmat:** These liquids require special handling. Please refer to DOT for complete instructions.

INDIVIDUAL TESTS

**NOTE: EACH TEST BELOW REQUIRES THE FOLLOWING ADDITIONAL CONTAINERS.**

4041		<b>Liquid Screen (LS)</b>	7 tests of basic fluid quality	1	-	-	-
4042		<b>Dissolved Gas Analysis (DGA)</b>	Measures dissolved gas content	-	-	1	-
4043		<b>Karl Fischer (KF)</b>	Measures moisture content	-	1	-	-
4046		<b>Dissolved Metals (ICP)</b>	Copper, iron, aluminum	1	-	-	-
4047		<b>Inhibitor Content (INH)</b>	Oxidation inhibitor	-	-	1	-
4050		<b>Furans Analysis (FUR)</b>	Paper degradation compounds	-	1	-	-
4054		<b>Liquid Power Factor (LPF)</b>	Measures dielectric losses	1	-	-	-
4067		<b>D1816 Dielectric</b>	Dielectric breakdown voltage	-	-	-	1
4044		<b>PCB—Fluid</b>	Regulatory compliance	1	-	-	-
4048		<b>PCB—Solid</b>	Regulatory compliance	1	-	-	-
4049		<b>PCB—Wipe</b>	Regulatory compliance	1	-	-	-
4025		<b>Corrosive Sulfur</b>	Determines presence or absence	1	-	-	-
4066		<b>PC/FC</b>	Particle count/filming compounds	1	-	-	-
4081		<b>Particle Count</b>	Determines size and number	1	-	-	-



### IMPORTANT!

- Use **only** the containers we provide.
- **Remove** desiccant tablet before filling.
- Fill all containers **completely** to the neck.

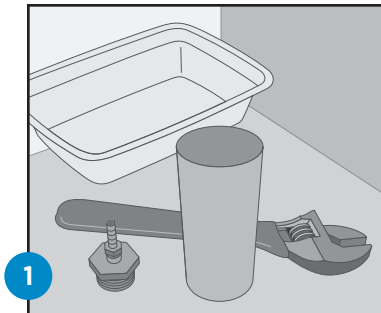
**WARNING: All non-compliant samples will be rejected.**

# LIQUID SAMPLING INSTRUCTIONS

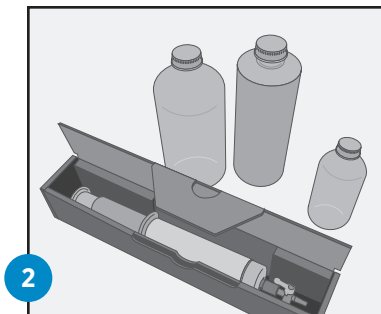
These instructions are intended to provide some basic guidance on drawing your own transformer liquid samples. They assume the reader is familiar with high-voltage transformers, the risks and liabilities involved in working with and/or around energized electrical equipment, the required safety procedures and PPE, regulations including those from OSHA, NESC, and other state and local regulators. **Safety is the number one priority.**

**This information is provided for guidance only.** SDMyers assumes no responsibility or liability for any use or misuse of this information. **Contact SDMyers at 330.630.7000 with any questions,** or consult a qualified electrical technician.

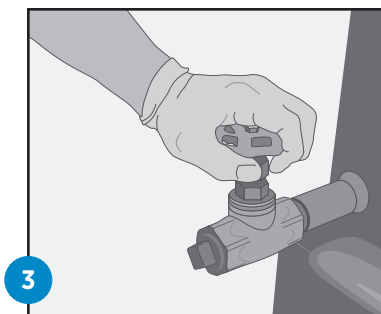
**SDMyers provides required sampling containers. Failure to provide liquid samples only in these SDMyers-approved containers may result in the Company's refusal to process your order. Thank you** for your understanding and cooperation!



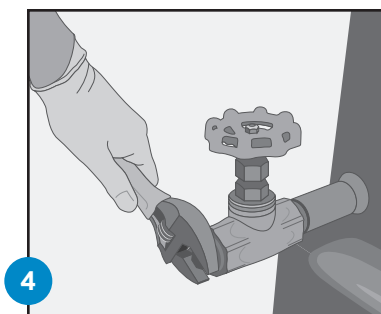
1 Prepare the **tools and supplies** required to complete each step of the liquid sampling process.



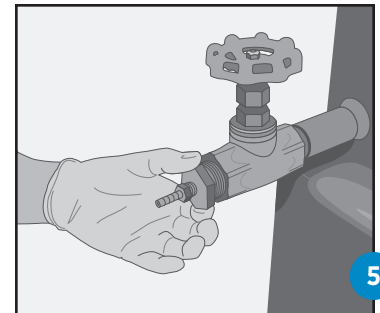
2 Make sure you have the **proper sampling containers** for the tests you are ordering. Please refer to the order form for details.



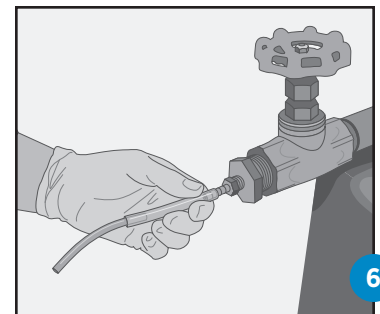
3 Verify that **the valve is shut off** before removing the front plug.



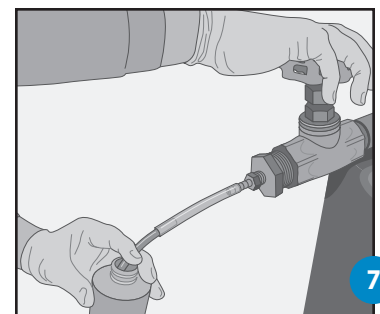
4 **Remove the front plug** and inspect for debris. Wipe the inside of the valve fitting with a clean cloth.



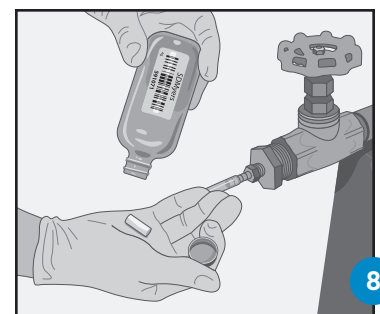
5 **Affix the tubing reducer** to the inside of the clean valve fitting. Tighten with moderate torque.



6 **Flush the valve** as follows: 50 oz. for a 1" valve. 60 oz. for a 2" valve. (Tubing here is optional.)

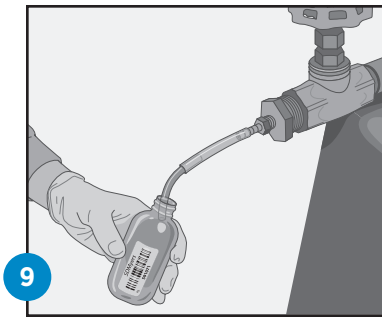


7 **Fill the plastic bottle** 2/3 full. Shake the bottle. Discard the liquid. Fill the bottle to the neck and secure the cap tightly.

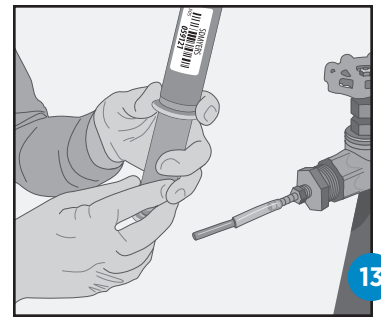


8 **Remove and discard the desiccant tablet** from the glass bottle. (This is an **extremely important** step.)

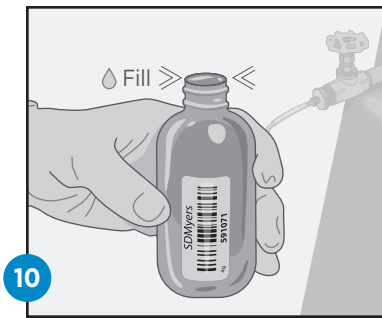
**Failure to provide liquid samples only in SDMyers-approved containers may result in the Company's refusal to process your order. If you have any questions, please contact us at 330.630.7000. Thank you!**



**9** Fill the small glass bottle 2/3 full. Shake the bottle. Empty the bottle to discard the liquid.

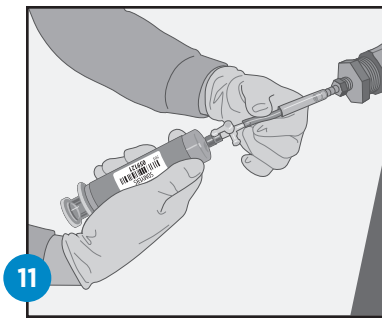
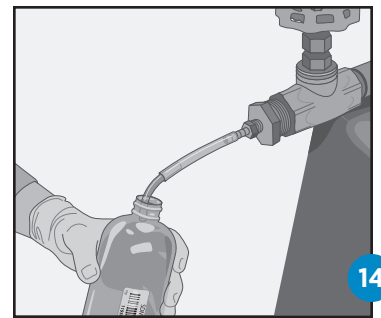


**10** Fill the small glass bottle to the very top. Ensure bottle is **full to the extreme top** of the bottle, and secure the cap very tightly.



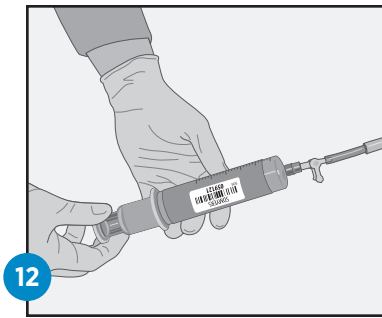
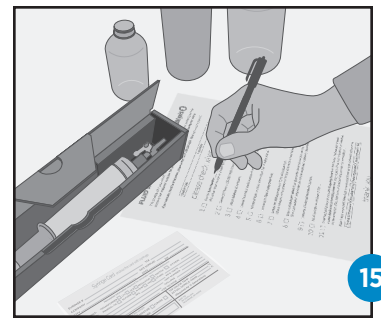
**11** Evacuate air from the sampling syringe. Attach the flexible tubing provided inside the syringe box .

**12** Draw 50 ml of liquid into the sampling syringe and evacuate the syringe. **Draw another 50 ml of liquid** into the syringe.



**13** Hold the syringe upright so that air bubbles rise to the stopcock. **Dispel the bubbles. Reduce the volume in the syringe to 42 ml.**

**14** Fill the large glass bottle 2/3 full. Shake the bottle. Empty the bottle to discard the liquid. Fill the bottle to the neck. Secure the cap tightly.



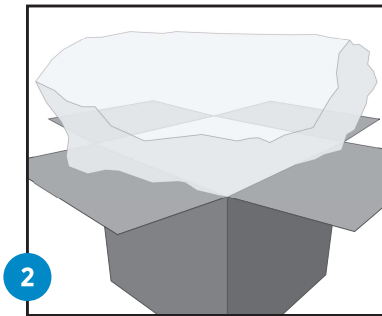
**15** Complete all accompanying paperwork thoroughly and accurately. Proceed to **Packing Instructions.**

# PACKING INSTRUCTIONS

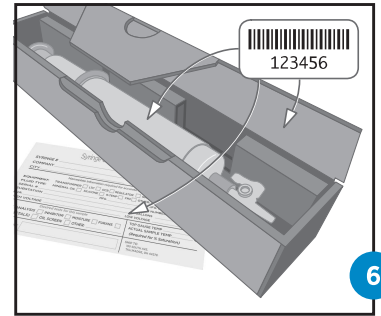
These instructions are provided to make sure your samples will arrive safely to our facility and will be processed successfully. **Improper packing will greatly compromise your samples.** (Unfortunately, we see it all too often.) **If you have any question whatsoever, please contact us at 330.630.7000.** We always welcome your call!



1 Use only **approved shipping cartons** provided by SDMyers. These cartons will accommodate a total of 12 sample kits.

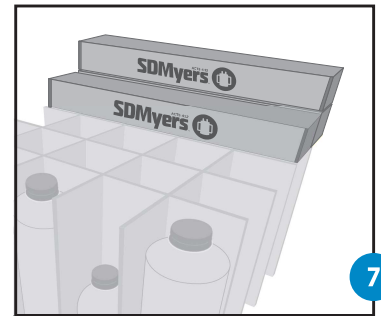


2 Use a **plastic bag** as a liner for the shipping carton to help contain fluid spills in the event of damage during shipping.



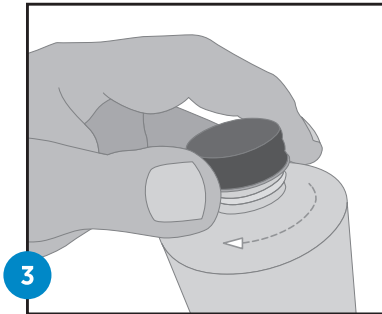
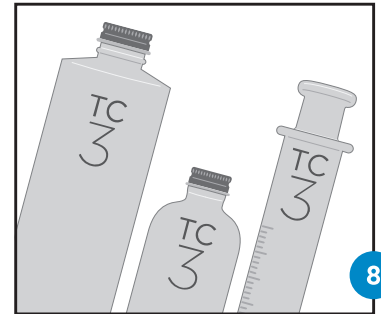
3 Be sure to **tighten all bottle caps** securely before loading the bottles into the shipping carton.

4 **Label each bottle properly** so that the samples can be successfully received, identified and processed.



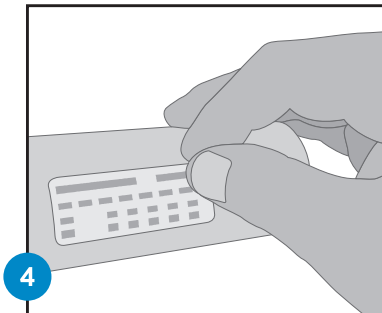
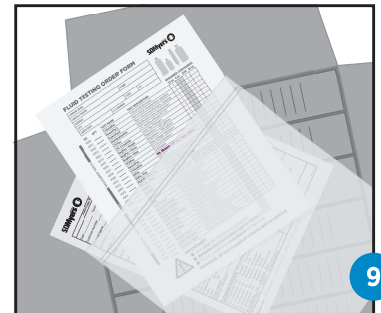
5 **Place all bottles vertically** (upright) in the partitioned slots designated for them in the shipping carton.

6 **Place all syringes in their respective boxes** (keeping all bar codes matched up) and position them horizontally across the top of the bottles in the bottom tier.



7 **Arrange all bottles and syringes as complete kits** (comprised of a 12-oz bottle, a 4-oz bottle, and a syringe) within the shipping carton.

8 **Do not separate the components** of the sample kits between different shipping cartons.



9 **Include the completed Order Form and Sample Return Checklist** inside a sealed ziplock bag and place it on top of the samples inside the shipping carton.

10 **Secure the shipping carton** with clear packing tape and **place an adhesive address label** on the top surface of the carton.





Highlighted Fields ARE REQUIRED AT MINIMUM.

Sampling & Inspection Report - TRANSFORMERS & REGULATORS		TC #:
<p>Date _____ Technician _____</p> <p><b>Customer Number</b> _____</p> <p>Customer Name _____</p> <p>Sub Name _____</p> <p>Unit No. _____</p> <p>Other _____</p> <p>Mfg By _____ Mfg Date _____</p> <p><b>Serial No.</b> _____</p> <p>kVA _____ Insulation Type: Heat Rise _____ °C</p> <p>High Voltage _____ Delta ___ Wye ___</p> <p>Low Voltage _____ Delta ___ Wye ___</p> <p>Total Weight _____ lbs. _____ kg</p> <p>Transformer Class _____ Energized Y N</p> <p>Impedance _____ %</p> <p>Phase/Cycle: _____ Ph. / _____ Hz</p> <p>_____ Gallons _____ liters</p>	<p><b>(Circle/Check Choices Below)</b></p> <p style="text-align: center;"><b>Tests &amp; Packages</b></p> <p>CriticalPac SilPac OS(D877) PF Metals                      PowerPac 1 SilPac Plus DBPC Furan PCB                      PowerPac 2 WecPac Reg-Single Reg-Step Reg-Three                      Distribution AskPac Natural Ester Pac S-FluidPac</p> <p><input type="checkbox"/> DGA # _____ <input type="checkbox"/> KF (Oil Sample Temp.) _____ °C                      (syringe #) (NEEDED FOR % SAT CALCULATION)</p> <p style="text-align: center;"><b>Specialty Testing</b></p> <p>Particle Count* Flash/Fire Point* AGE                      Particle &amp; Filming* Viscosity* DP                      Corrosive Sulfur* D1816** : 2 mm gap 1 mm gap                      Resistivity* Other* : _____</p> <p><b>*Additional Plastic Bottle **D1816: 16 oz Glass, per gap tested</b></p> <p style="text-align: center;"><b>Liquid Type</b></p> <p>Oil FR 3 Beta Env-200                      Silicone Biotemp Alpha-1 Other _____                      R-Temp Luminol Midel</p> <p><b>Hazmat Shipping Required for the following Liquid Types:</b>                      Askarel / Pyranol Wecosol Perclene                      Wemco-NF PCB Contaminated Sample &gt;=450 ppm</p> <p style="text-align: center;"><b>Equipment Type</b></p> <p>Transformer Cabinet Pop Top Precipitator Rectifier                      GSU WGSU WTSU Auto Transf. Reactor                      Regulating Transf. Furnace Induction Furnace                      Step Volt. Regulator Other: _____</p> <p style="text-align: center;"><b>Location</b></p> <p><input type="checkbox"/> Outdoor <input type="checkbox"/> Platform _____ ft. high  <input type="checkbox"/> Ground <input type="checkbox"/> Mezzanine _____ ft. high  <input type="checkbox"/> Basement <input type="checkbox"/> Roof _____ ft. high  <input type="checkbox"/> Indoor- Floor # _____ <input type="checkbox"/> Pole _____ ft. high</p> <p style="text-align: center;"><b>Additional Equipment</b></p> <p>Radiators: Yes No Oil Pumps: Yes No                      Fans: Yes No LTC Comp: Yes No                      H2O Cooled: Yes No</p> <p>Bushing Location: <input type="checkbox"/> Top <input type="checkbox"/> Side <input type="checkbox"/> Top&amp;Side  <input type="checkbox"/> Top Enclosed <input type="checkbox"/> Side Enclosed</p> <p>Valve Extension System: <input type="checkbox"/> None <input type="checkbox"/> Top  <input type="checkbox"/> Bottom <input type="checkbox"/> Top &amp; Bottom</p> <p style="text-align: center;"><b>Servicing Information</b></p> <p>Top FPV _____ in. Valve Plug                      Bottom FPV _____ in. Valve Plug                      Valve Location: HV Side LV Side                      Other Access: <input type="checkbox"/> Bolted Top <input type="checkbox"/> Explosion Vent  <input type="checkbox"/> Top Inspection Plate <input type="checkbox"/> Pressure Relief Device                      Other: _____                      Hose Length _____ ft. _____ meters                      Service On Line: Yes No                      Power Available: Yes No                      Full-vacuum Rating: Yes No</p> <p>COMMENTS:</p>	
<b>Visual Inspection / Gauge Readings</b>		
<p>Liquid Level: <b>Very Low</b> <b>Low</b> <b>Normal</b> <b>High</b></p> <p><b>Top Liquid Temperature:</b> _____ °C</p> <p>Press./Vac Gauge Reading:  <b>Pressure (+)</b> _____ <b>Vacuum (-)</b> _____</p> <p>Paint: <b>Good</b> <b>Fair</b> <b>Poor</b>                      Leaks: <b>No</b> <b>Yes</b>  <b>If Yes, where?</b></p> <p>Additional Information:</p>		
<p><b>Conservator &amp; Breather:</b> <input checked="" type="checkbox"/> one of the following combinations:</p> <p><input type="checkbox"/> Conservator: No / Breather: Free/Desiccant  <input type="checkbox"/> Conservator: No / Breather: Free  <input type="checkbox"/> Conservator: No / Breather: N2 System  <input type="checkbox"/> Conservator: No / Breather: N2 Blanket  <input type="checkbox"/> Conservator: Yes / Breather: Bladder  <input type="checkbox"/> Conservator: Yes / Breather: Free/Desiccant  <input type="checkbox"/> Conservator: Yes / Breather: Free</p> <p>Desiccant Condition: <input type="checkbox"/> Good <input type="checkbox"/> Needs Replaced</p>		

Highlighted fields ARE REQUIRED AT MINIMUM.

Sampling & Inspection Report - LTC, OCB, SWITCH, and MISC		TC #:																																																
<p>Date _____ Technician _____</p> <p><b>Customer Number</b> _____</p> <p>Customer Name _____</p> <p>Sub Name _____</p> <p>Unit No. _____</p> <p>Other _____</p> <p>Manuf. _____ Manuf. Date _____</p> <p><b>Serial No.</b> _____</p> <p>Model Number _____</p> <p>Tap Changer for TC # _____</p> <p>Voltage _____</p> <p>_____ Gallons _____ liters</p> <p>Selector Range (LTC Only): Lower (-) _____ Raise (+) _____ (usually from -16 to +16) (see EXAMPLE lower right)</p>	<p>(Circle/Check Choices Below)</p> <p style="text-align: center;"><b>Tests &amp; Packages</b></p> <p>LTC Pac    LTC Critical*    OCB Pac    Switch Pac                      Particle &amp; Filming*    Particle Count*</p> <p>OS(D877)    KF Moisture    DGA, syringe # _____                      DBPC    PF    Furan    Metals    PCB</p> <p style="text-align: center;"><b>Specialty Testing</b></p> <p>Corrosive Sulfur*    Flash/Fire Point*                      Resistivity*    Viscosity*    Other*: _____                      D1816**    2 mm gap    1 mm gap</p> <p><b>*Additional Plastic Bottle    **D1816: 16 oz Glass, per gap tested</b></p> <p style="text-align: center;"><b>Liquid Type</b></p> <table style="width:100%; border: none;"> <tr> <td>Oil</td> <td>FR 3</td> <td>Beta</td> <td>Env-200</td> </tr> <tr> <td>Silicone</td> <td>Biotemp</td> <td>Alpha-1</td> <td>Hydraulic</td> </tr> <tr> <td>R-Temp</td> <td>Luminol</td> <td>Midel</td> <td>Other _____</td> </tr> </table> <p><b>Hazmat Shipping Required for the following Liquid Types:</b></p> <table style="width:100%; border: none;"> <tr> <td>Askarel / Pyranol</td> <td>Wecosol</td> <td>Perclene</td> </tr> <tr> <td>Wemco-NF</td> <td colspan="2">PCB Contaminated Sample &gt;=450 ppm</td> </tr> </table> <p style="text-align: center;"><b>Equipment Type</b></p> <table style="width:100%; border: none;"> <tr> <td>LTC</td> <td>Arc in Oil LTC</td> <td>Resistor LTC</td> </tr> <tr> <td colspan="2">Transfer/Diverter Compartment</td> <td>Selector Compartment</td> </tr> <tr> <td>DETC</td> <td>Motorized DETC</td> <td>Vacuum LTC</td> </tr> <tr> <td>OCB</td> <td>Switch Reclosure</td> <td>Disconnect Switch</td> </tr> <tr> <td>Bushing</td> <td>Drum</td> <td>Stor. Tank</td> </tr> <tr> <td colspan="3">DryMax</td> </tr> </table> <p>Other: _____</p> <p style="text-align: center;"><b>Misc</b></p> <table style="width:100%; border: none;"> <tr> <td>Silica Gel / Desiccant?</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Vacuum Interruptor?</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Top FPV _____ in.</td> <td>Valve</td> <td>Plug</td> </tr> <tr> <td>Bottom FPV _____ in.</td> <td>Valve</td> <td>Plug</td> </tr> </table> <p>COMMENTS:</p>		Oil	FR 3	Beta	Env-200	Silicone	Biotemp	Alpha-1	Hydraulic	R-Temp	Luminol	Midel	Other _____	Askarel / Pyranol	Wecosol	Perclene	Wemco-NF	PCB Contaminated Sample >=450 ppm		LTC	Arc in Oil LTC	Resistor LTC	Transfer/Diverter Compartment		Selector Compartment	DETC	Motorized DETC	Vacuum LTC	OCB	Switch Reclosure	Disconnect Switch	Bushing	Drum	Stor. Tank	DryMax			Silica Gel / Desiccant?	Yes	No	Vacuum Interruptor?	Yes	No	Top FPV _____ in.	Valve	Plug	Bottom FPV _____ in.	Valve	Plug
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Bottom FPV _____ in.	Valve	Plug																																																
<b>Visual Inspection / Gauge Readings</b>																																																		
<p>Liquid Level:            <b>Very Low</b>    <b>Low</b>            <b>Normal</b>            <b>High</b></p> <p><b>Top Liquid Temperature:</b> _____ °C</p> <p>Press./Vac Gauge Reading:</p> <p><b>Pressure (+)</b> _____    <b>Vacuum (-)</b> _____</p> <p>Paint:            <b>Good</b>            <b>Fair</b>            <b>Poor</b></p> <p>Leaks:            <b>No</b>            <b>Yes</b></p> <p><b>If Yes, where?</b></p> <p>Existing Sweep Range (LTC Only): from _____ to _____ (see EXAMPLE to the right)</p> <p>Tap Counter Reading (LTC &amp; SVR Only): _____</p> <p>Additional Information:</p>																																																		
<p><b>Conservator &amp; Breather:</b> <input checked="" type="checkbox"/> one of the following combinations:</p> <p><input type="checkbox"/> Conservator: No / Breather: Free/Desiccant</p> <p><input type="checkbox"/> Conservator: No / Breather: Free</p> <p><input type="checkbox"/> Conservator: No / Breather: N2 Blanket</p> <p><input type="checkbox"/> Conservator: Yes / Breather: Free/Desiccant</p> <p><input type="checkbox"/> Conservator: Yes / Breather: Free</p> <p>Desiccant Condition:    <input type="checkbox"/> Good    <input type="checkbox"/> Needs Replaced</p>																																																		
<p><b>EXAMPLE</b></p> <p><b>Selector Range / Existing Sweep Range</b></p> <p>Lower position (-)         Raise position (+)</p>																																																		
<p>Selector Range: Lower (-) <u>16</u> Raise (+) <u>16</u></p> <p>Existing Sweep Range: from <u>0</u> to <u>+14</u></p> <p>(Do not record the existing hand position.)</p>																																																		