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#

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 #4Mississauga, 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.

SDM-FTOF-0226

LIQUID TESTING ORDER FORM

SDMyers ACTS 4:12

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

PACKAGED TESTS

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

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

NOTE: EACH TEST BELOW REQUIRES THE FOLLOWING ADDITIONAL CONTAINERS.

INDIVIDUAL TESTS

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

IMPORTANT!

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

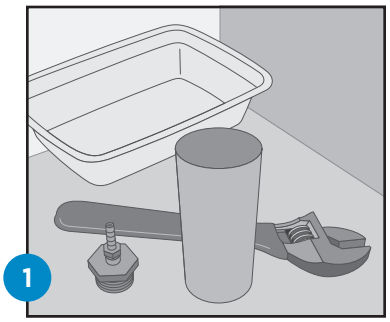
WARNING: All non-compliant samples will be rejected.

LIQUID SAMPLING INSTRUCTIONS

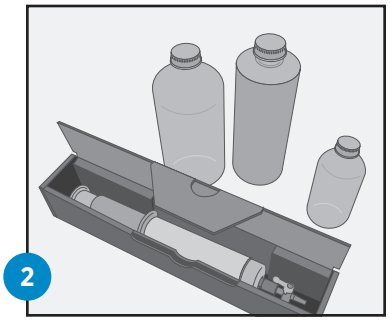
These instructions are intended to provide some basic guidance on drawing your own transformer liquid samples. They assume the reader is familiar with high-voltage transformers, the risks and liabilities involved in working with and/or around energized electrical equipment, the required safety procedures 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.

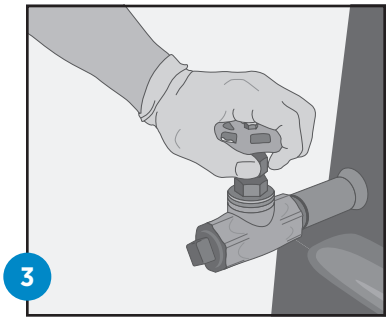
SDMyers provides required sampling containers. Failure to provide liquid samples only in these SDMyers-approved containers may result in the Company's refusal to process your order. Thank you for your understanding and cooperation!



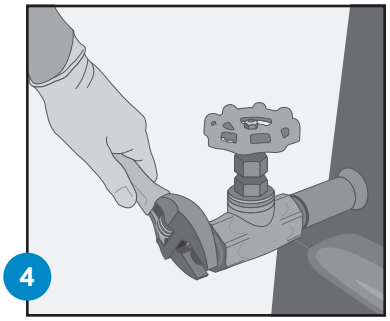
1 Prepare the **tools and supplies** required to complete each step of the liquid sampling process.



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



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



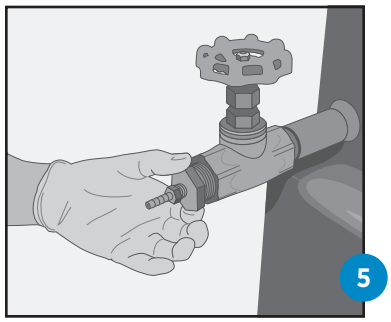
4 **Remove the front plug** and inspect for debris. Wipe the inside of the valve fitting with a clean cloth.

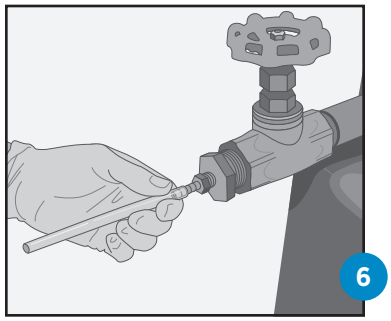
5 **Affix the tubing reducer** to the inside of the clean valve fitting. Tighten with moderate torque.

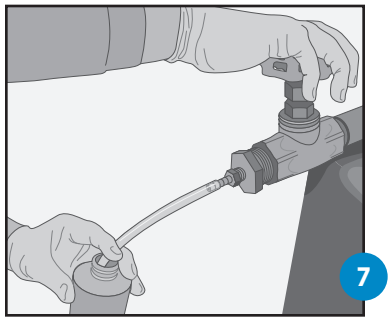
6 **Flush the valve** as follows: 50 oz. for a 1" valve. 60 oz. for a 2" valve. (Tubing here is optional.)

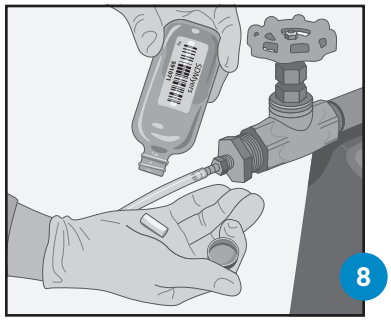
7 **Fill the plastic bottle** 2/3 full. Shake the bottle. Discard the liquid. Fill the bottle to the neck and secure the cap tightly.

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



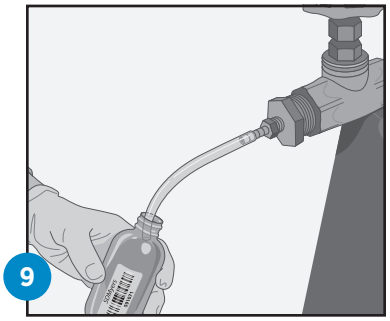






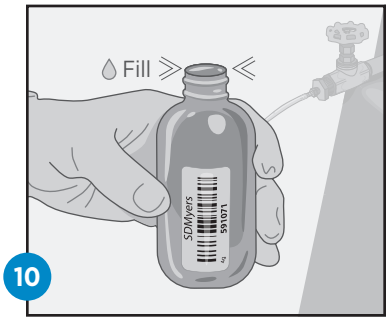
LIQUID SAMPLING INSTRUCTIONS–PAGE 2

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!



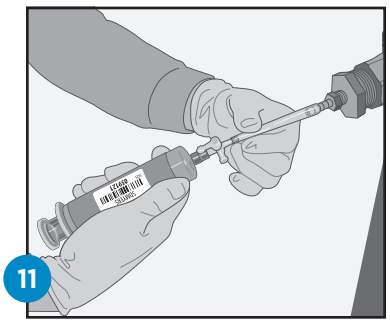
9 **Fill the small glass bottle** 2/3 full. Shake the bottle. Empty the bottle to discard the liquid.

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.



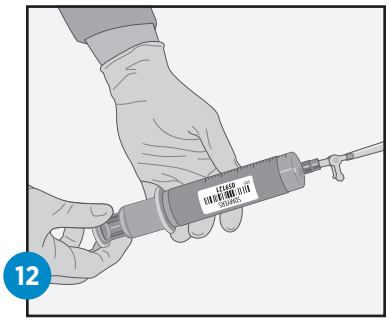
11 **Evacuate air** from the sampling syringe. Attach the flexible tubing provided inside the syringe box .

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

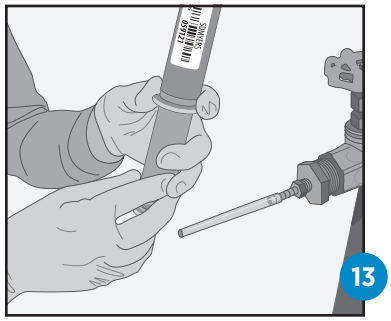


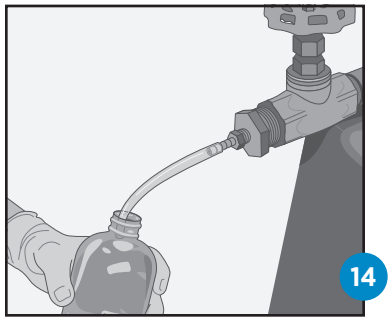
13 **Hold the syringe upright** so that air bubbles rise to the stopcock. **Dispel the bubbles. Reduce the volume in the syringe to 42 ml.**

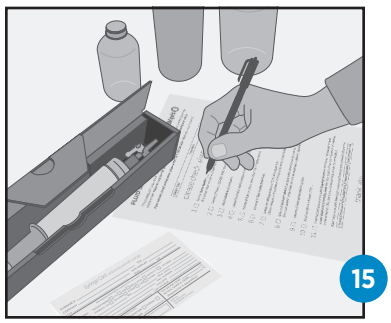
14 **Fill the large glass bottle** 2/3 full. Shake the bottle. Empty the bottle to discard the liquid. Fill the bottle to the neck. Secure the cap tightly.



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







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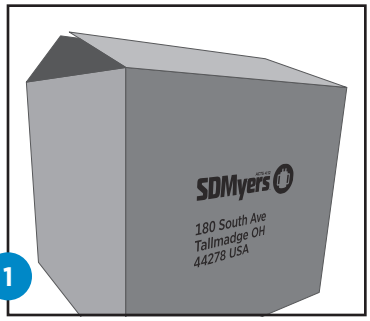
SDMyers.com
tel. 330.630.7000

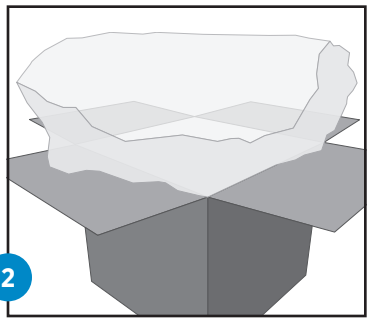
SDM-SI-0226

PACKING INSTRUCTIONS

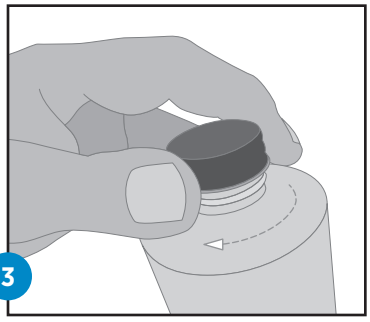
These instructions are provided to make sure your samples will arrive safely to our facility and will be processed successfully. **Improper packing will greatly compromise your samples.** (Unfortunately, we see it all too often.) **If you have any question whatsoever, please contact us at 330.630.7000**.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



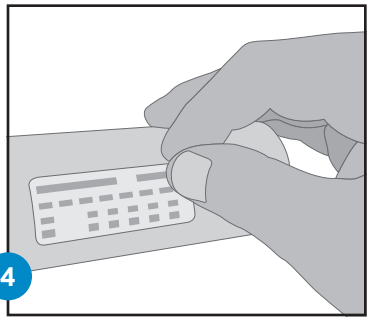
1. Use only **approved shipping cartons** provided by SDMyers. These cartons will accommodate a total of 7 sample kits.



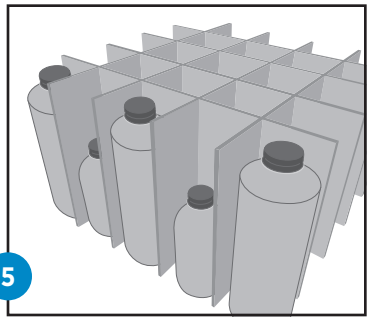
2. **Use a plastic bag** as a liner for the shipping carton to help contain fluid spills in the event of damage during shipping.



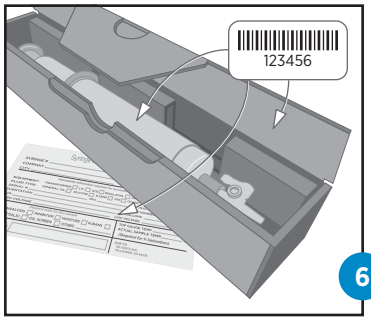
3. Be sure to **tighten all bottle caps** securely before loading the bottles into the shipping carton.



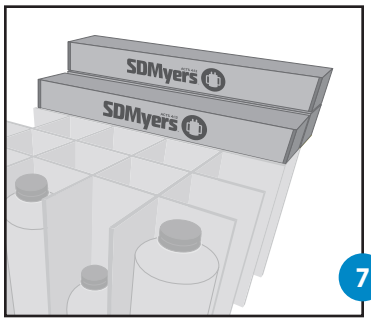
4. **Label each bottle properly** so that the samples can be successfully received, identified and processed.



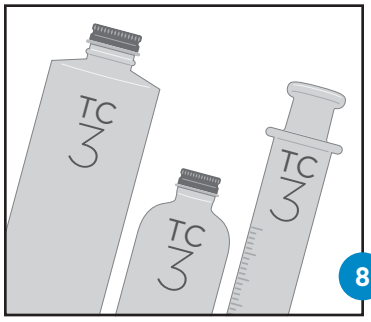
5. **Place all bottles vertically** (upright) in the partitioned slots designated for them in the shipping carton.



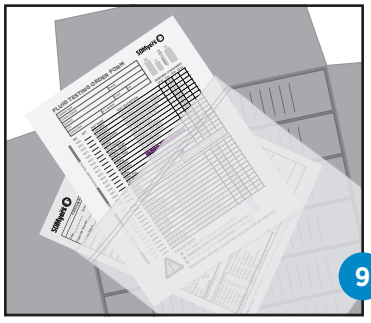
6. **Place all syringes in their respective boxes** (keeping all bar codes matched up) and position them horizontally across the top of the bottles in the bottom tier.



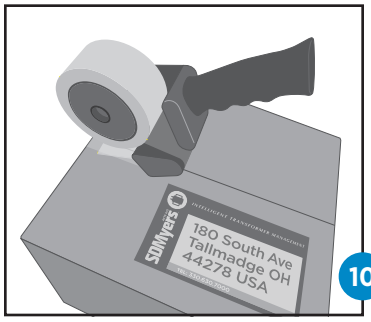
7. **Arrange all bottles and syringes as complete kits** (comprised of a 16-oz bottle, a 12-oz bottle, a 4-oz bottle, and a syringe) within the shipping carton.



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.

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SDM-PI-0426

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MAKING IT EASY: *Download pre-populated forms for your equipment and save time!*

Log in at SDMyers.com ▶ Sampling Forms ▶ Select Equipment ▶ Sampling Form Packet

Highlighted Fields ARE REQUIRED AT MINIMUM.

Sampling & Inspection Report - TRANSFORMERS & REGULATORS

TC #:

Date _____ Technician _____

Customer Number _____

Customer Name _____

Sub Name _____

Unit No. _____

Mfg By _____ Mfg Date _____

Serial No.* _____

*Testing can not begin without this information.

kVA _____ Insulation Type: Heat Rise _____°C

High Voltage _____ Delta ☐ Wye ☐

Low Voltage _____ Delta ☐ Wye ☐

Total Weight _____lbs._____kg

Transformer Class _____ Energized ☐Y ☐N

Impedance _____%

Phase/Cycle: _____ Ph._____ _____ Hz

Volume: _____ ☐Gallons ☐Liters

Visual Inspection / Gauge Readings

Liquid Level: ◯ **Very Low** ◯ **Low** ◯ **Normal** ◯ **High**

Top Liquid Temperature: _____°C

Press./Vac Gauge Reading:

Pressure (+) _____ **Vacuum (-)** _____

Paint: ◯ **Good** ◯ **Fair** ◯ **Poor**

Leaks: ☐ **No** ☐ **Yes**

If Yes, where?

Additional Information:

Conservator & Breather: ☑ one of the following combinations:

- ☐ Conservator: No / Breather: Free/Desiccant
- ☐ Conservator: No / Breather: Free
- ☐ Conservator: No / Breather: N2 System
- ☐ Conservator: No / Breather: N2 Blanket
- ☐ Conservator: Yes / Breather: Bladder
- ☐ Conservator: Yes / Breather: Free/Desiccant
- ☐ Conservator: Yes / Breather: Free

Desiccant Condition: ☐Good ☐Needs Replaced

(Circle/Check Choices Below)

Tests & Packages

CriticalPac	SilPac	LS: D1816 (2mm or 1mm)	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

❑ **DGA** ❑ **KF** **Sample Temp.** _____**°C**

Syringe Barcode _____ **(NEEDED FOR % SAT CALCULATION)**

Specialty Testing

Particle Count*	Flash/Fire Point*	AGE
Particle & Filming*	Viscosity*	DP
Corrosive Sulfur*	LS: D877	
Resistivity*	Other*: _____	

***Additional Plastic Bottle** ****D1816: 16 oz Glass, per gap tested**

Liquid Type

Oil	FR 3	Beta	Env-200
Silicone	Biotemp	Alpha-1	VG-100
R-Temp	Luminol	Midel	Other _____

Hazmat Shipping Required for the following Liquid Types:

Askarel / Pyranol Wecosol Perclene

Wemco-NF PCB Contaminated Sample >=450 ppm

Equipment Type

Transformer	Cabinet	Pop Top	Precipitator	Rectifier
GSU	WGSU	WTSU	Auto Transf.	Reactor
Regulating Transf.		Furnace	Induction Furnace	
Step Volt. Regulator		Other: _____		

Location

❑ Outdoor	❑ Platform_____ft. high
❑ Ground	❑ Mezzanine_____ft. high
❑ Basement	❑ Roof_____ft. high
❑ Indoor- Floor # _____	❑ Pole_____ft. high

Additional Equipment

Radiators:	Yes	No	Oil Pumps:	Yes	No
Fans:	Yes	No	LTC Comp:	Yes	No
H2O Cooled:	Yes	No			

Bushing Location: ❑ Top ❑ Side ❑ Top&Side ❑ Top Enclosed ❑ Side Enclosed

Valve Extension System: ❑ None ❑ Top ❑ Bottom ❑ Top & Bottom

Servicing Information

Top FPV_____in. Valve Plug

Bottom FPV_____in. Valve Plug

Valve Location: HV Side LV Side

Other Access: ❑ Bolted Top ❑ Explosion Vent ❑ Top Inspection Plate ❑ Pressure Relief Device

Other: _____

Hose Length_____ft._____meters

Service On Line:	Yes	No
Power Available:	Yes	No
Full-vacuum Rating:	Yes	No

COMMENTS:

SDM-0426

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MAKING IT EASY: *Download pre-populated forms for your equipment and save time!*

Log in at SDMyers.com ▸ Sampling Forms ▸ Select Equipment ▸ Sampling Form Packet

Highlighted Fields ARE REQUIRED AT MINIMUM.

Sampling & Inspection Report - LTC. OCB. SWITCH. and MISC

TC#:

Date _____ Technician _____

Customer Number _____

Customer Name _____

Sub Name _____

Unit No. _____

Other _____

Manuf. _____ Manuf. Date _____

Serial No.* _____

*Testing can not begin without this information.

Model Number _____

Tap Changer for TC# _____

Voltage _____

Volume: _____ ☐ Gallons ☐ Liters

Selector Range (LTC Only): Lower [–] _____ Raise [+] _____

Energized: ☐ Yes ☐ No (usually from -16 to +16) (see EXAMPLE lower right)

Visual Inspection / Gauge Readings

Liquid Level: ☐ **Very Low** ☐ **Low** ☐ **Normal** ☐ **High**

Top Liquid Temperature: _____ °C

Press./Vac Gauge Reading:

Pressure(+) _____ **Vacuum(-)** _____

Paint: ☐ **Good** ☐ **Fair** ☐ **Poor**

Leaks: ☐ **No**

If Yes, where? _____

Existing Sweep Range (LTC Only): from _____ to _____ (see EXAMPLE to the right)

Tap Counter Reading (LTC & SVR Only): _____

Additional Information:

Conservator & Breather: ☑ one of the following combinations:

- ☐ Conservator: No / Breather: Free/Desiccant
- ☐ Conservator: No / Breather: Free
- ☐ Conservator: No / Breather: N2 Blanket
- ☐ Conservator: Yes / Breather: Free/Desiccant
- ☐ Conservator: Yes / Breather: Free

Desiccant Condition: ☐ Good ☐ Needs Replaced

(Circle/Check Choices Below)

Tests & Packages

LTC Pac LTC Complete OCB Pac Switch Pac

Particle & Filming* Particle Count*

LS: D1816 (2mm or 1mm) KF Moisture: Sample Temp _____°C

DGA, Syringe Barcode _____

DBPC PF Furan Metals PCB

Specialty Testing

Corrosive Sulfur* Flash/Fire Point* LS: D877

Resistivity* Viscosity* Other*:

***Additional Plastic Bottle** ****D1816: 16 oz Glass, per gap tested**

Liquid Type

Oil	VG-100	FR 3	Beta	Env-200
Silicone	Biotemp	Alpha-1	Hydraulic	
R-Temp	Luminol	Midel	Other _____	

Hazmat Shipping Required for the following Liquid Types:

Askarel / Pyranol Wecosol Perclene

Wemco-NF PCB Contaminated Sample >=450 ppm

Equipment Type

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

Other: _____

Misc

Silica Gel / Desiccant?	☐ Yes	☐ No
Vacuum Interruptor?	☐ Yes	☐ No
Top FPV in.	☐ Valve	☐ Plug
Bottom FPV in.	☐ Valve	☐ Plug

COMMENTS:

EXAMPLE
Selector Range / Existing Sweep Range

Lower position(-) Raise position(+)

Selector Range: Lower(-) 16 Raise (+) 16

Existing Sweep Range: from 16 to +14

(Do not record the existing hand position.)

SDM-0426