



# PS-20 and PS-22 Test Kits Instructions

## Introduction

Kester has designed this easy to use method to provide process control of the flux tank. When compared to specific gravity measurements, this method is faster and more accurate. The test is designed to keep the solids content of the flux to within 25% of the initial concentration. This will assure consistent soldering results.

## Method

1. Inspect the kit when received. The following should be included.

Item	Quantity
Test Tubes	100
Test Tube Stoppers	100
Droppers	100
Test Solution	(5) 4-oz bottles
Spout Caps for Test Solution Bottles	5
Indicator Solution	(1) 15-mL bottle
PS-20 / PS-22 Instruction Sheet	1
Test Solution SDS	1
Indicator Solution SDS	1

2. Dispense 5-mL of the test solution into the test tube. The test tube has a 5-mL mark on it to facilitate this measurement. The correct test solution (PS-20 or PS-22) to be used for the determination is dependent upon the specific flux formula as shown in Table 1.
3. Add 1 drop of the solution to the test tube when holding the dropper in a horizontal position.
4. Place a stopper in the test tube and mix by shaking. The solution will change to a pink color.
5. With a dropper, draw a sample from the flux tank.
6. For an initial quick check of flux concentration, remove the stopper and add to the test solution (test tube) the corresponding number of drops listed below from the dropper. It is important to hold the dropper in a horizontal position.
  - a. For formulas 952-D6, 951, 958, 959, and all Table A/B fluxes add 13 drops.
  - b. For formulas 959T and 977 add 7 drops.
  - c. For formulas 971M and 979 add 4 drops.
7. Replace the stopper in the test tube and mix by shaking.
8. Observe the color of the solution. Some turbidity may be present, and this is acceptable.
  - a. If the solution is pink, proceed to steps 9-11.
  - b. If the solution is colorless (with or without turbidity), a supervisor should be contacted. This is an indication that the flux concentration is over two times the recommended level. Corrective action should be taken immediately. It is recommended to drain the flux tank and replenish it with fresh flux.
9. Remove the stopper and add 1 more drop of flux using the same dropper.
10. Replace the stopper on the test tube and mix by shaking.

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11. Observe the color of the solution.
- If the solution is pink, return to step 9. Repeat steps 9 and 10 until the solution becomes colorless.
  - If or when the solution is colorless, for the correct amount of thinner to add to the flux tank refer to either Table A/B or Table C according to the flux in use. Table 1 summarizes the correct titer value, table reference and test kit solution for all fluxes.

**Table 1**

Flux Formula	Titer Value	Corrective Action	Test Solution Required
979VT	7 drops		PS-20
922-CX	24-28 drops	Table A	PS-22
920-CXF	20-24 drops	Table B	PS-20
950E	20-24 drops	Table B	PS-22
951	20-24 drops	Table B	PS-22
952-S	18-22 drops	Table B	PS-22
924-FB	18-20 drops	Table C	PS-22
952-D6	19-21 drops	Table C	PS-20
958	19-21 drops	Table C	PS-20
959T	20-22 drops	Table F	PS-20
959T	11-13 drops	Table F	PS-22
971M	7-9 drops	Table C	PS-20
979	7-9 drops	Table C	PS-20
985M	17-22 drops	Table C	PS-20
NF372-TB	22-26 drops	Table C	PS-20
959	21-25 drops	Table D	PS-20
977	12-14 drops	Table E	PS-20

**Table A/B – Flux Tank Adjustments**

A	B	Titer / Corrective Action (Number of Drops)
31	27	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
30	26	Attention should be given as to how well the flux is performing. The flux concentration may be too low, depending on the specific formula.
24-29	20-25	No corrective action needed.
23	19	No corrective action or add 600-mL thinner per gallon (3.8 L) of flux.
22	18	No corrective action, or add 800-mL thinner per gallon (3.8 L) of flux.
21	17	Add 1000-mL per gallon (3.8 L) flux.
20	16	Add 1250-mL thinner per gallon (3.8 L) of flux.
19	15	Add 1400-mL thinner per gallon (3.8 L) of flux.
18	14	Add 1650-mL thinner per gallon (3.8 L) of flux.
17	13	Replace flux tank with fresh flux.

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**Table C – Flux Tank Adjustments**

Flux	Number of Drops	Corrective Action
924-FB	22	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
	21	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
	18-20	No corrective action needed.
	17	Add 300-mL thinner per gallon (3.8L) of flux.
	16	Add 700-mL thinner per gallon (3.8L) of flux.
	15	Add 1000-mL thinner per gallon (3.8L) of flux.
	14	Add 1400-mL thinner per gallon (3.8L) of flux.
	<13	Replace flux tank with fresh flux.
952-D6, 958	23	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
	22	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
	19-21	No corrective action needed.
	18	Add 300-mL thinner per gallon (3.8L) of flux.
	17	Add 700-mL thinner per gallon (3.8L) of flux.
	16	Add 1100-mL thinner per gallon (3.8L) of flux.
	15	Add 1400-mL thinner per gallon (3.8L) of flux.
	14	Add 1700-mL thinner per gallon (3.8L) of flux.
<13	Replace flux tank with fresh flux.	
979, 971M	11	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
	10	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
	7-9	No corrective action needed.
	6	Add 300-mL thinner per gallon (3.8L) of flux.
	---	Add 700-mL thinner per gallon (3.8L) of flux.
	5	Add 1100-mL thinner per gallon (3.8L) of flux.
	---	Add 1400-mL thinner per gallon (3.8L) of flux.
	---	Add 1700-mL thinner per gallon (3.8L) of flux.
<4	Replace flux tank with fresh flux.	
985M	24	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
	23	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
	17-22	No corrective action needed.
	15-16	Add 300-mL thinner per gallon (3.8L) of flux.
	14	Add 700-mL thinner per gallon (3.8L) of flux.
	12-13	Add 1100-mL thinner per gallon (3.8L) of flux.
	11	Add 1400-mL thinner per gallon (3.8L) of flux.
	10	Add 1700-mL thinner per gallon (3.8L) of flux.
<9	Replace flux tank with fresh flux.	

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NF372-TB	28	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
	27	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
	22-26	No corrective action needed.
	21	Add 300-mL thinner per gallon (3.8L) of flux.
	19,20	Add 700-mL thinner per gallon (3.8L) of flux.
	18	Add 1100-mL thinner per gallon (3.8L) of flux.
	16,17	Add 1400-mL thinner per gallon (3.8L) of flux.
	14,15	Add 1700-mL thinner per gallon (3.8L) of flux.
<13	Replace flux tank with fresh flux.	

**Table D – Flux Tank Adjustments for 959 Soldering Flux**

Drops Using PS-20 Test Kit	Corrective Action
27	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
26	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
21-25	No corrective action is needed.
18-20	Add 300-ml thinner per gallon (3.8 liters) of flux.
17	Add 700-ml thinner per gallon (3.8 liters) of flux.
16	Add 1100-ml thinner per gallon (3.8 liters) of flux.
15	Add 1400-ml thinner per gallon (3.8 liters) of flux.
14	Add 1700-ml thinner per gallon (3.8 liters) of flux.
≤13	Replace flux tank with fresh flux.

**Table E – Flux Tank Adjustments for 977 Soldering Flux**

Drops Using PS-20 Test Kit	Corrective Action
16	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
15	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
12 – 14	No corrective action is needed.
10 – 11	Add 300-ml thinner per gallon (3.8 liters) of flux.
9	Add 700-ml thinner per gallon (3.8 liters) of flux.
8	Add 1100-ml thinner per gallon (3.8 liters) of flux.
≤7	Replace flux tank with fresh flux.

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**Table F – Flux Tank Adjustments for 959T Soldering Flux**

<b>Drops Using PS-20 Test Kit</b>	<b>Corrective Action</b>
24 or more	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
23	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
20-22	No corrective action needed.
19	Add 90 ml Thinner 108S per liter of flux.
17-18	Add 190 ml Thinner 108S per liter of flux.
16	Add 280 ml Thinner 108S per liter of flux.
15	Add 380 ml Thinner 108S per liter of flux.
13-14	Add 470 ml Thinner 108S per liter of flux.
12	Add 570 ml Thinner 108S per liter of flux.
<11	Replace flux tank with fresh flux.
<b>Drops Using PS-22 Test Kit</b>	<b>Corrective Action</b>
15	Attention should be given as to how well the flux is performing. The flux concentration is too low and may need to be adjusted to a higher concentration or entirely replaced with fresh flux.
14	Attention should be given as to how well the flux is performing. The flux concentration may be too low.
11-13	No corrective action needed.
10	Add 300-mL thinner per gallon (3.8L) of flux.
---	Add 700-mL thinner per gallon (3.8L) of flux.
9	Add 1100-mL thinner per gallon (3.8L) of flux.
---	Add 1400-mL thinner per gallon (3.8L) of flux.
8	Add 1700-mL thinner per gallon (3.8L) of flux.
≤7	Replace flux tank with fresh flux.

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