

# SANI-VAK G3 & REMEDIATION SYSTEM

## Toilet Line Descaling

While Celeste's Gly-Vak® is the industry "state of the art" preventive maintenance chemical for scale buildup in aircraft vacuum lines, Sani-Vak G3 is the "state of the art" remediation chemical for solving the problem of heavily scaled lines which are functioning poorly, emit malodors, and are prone to blockages.

In a perfect world, implementation of a regular program of scale prevention using Gly-Vak® as soon as an aircraft is delivered would keep scale buildup – and ensuing blockages and the associated cost resulting from these – to an absolute minimum.

Gly-Vak®'s mild acids, proprietary surfactants and gelling agents create a safe, non-corrosive and highly effective cleaner and line protector. Even if some scale has built up on the system, Gly-Vak®'s foaming technology coats and clings to the waste tube walls, creating long residence times for the chemical to soften the scale and ready it for removal. A weekly flush with Sani-Tank® N will help emulsify any scale that has softened.

However, in day to day operations, things may not always be so simple and the level of scale built up on the inside of a line is a variable uncertainty. Lines with 3mm or more buildup are not uncommon and blockages are frequent.

While Gly-Vak® and Sani-Tank® N can readily handle scale buildup of less than 6mm, anything greater requires implementation of a scale remediation program using Sani-Vak G3 with the Celeste Recirculation Cleaning Tool to bring the lines back to "like new".



### Test References

AIMS 09-00-002

### Celeste PN:

SP-VAK/G3 Series (Sani-Vak G3)

Typically, the highest amount of the scale is found nearest the waste tank. Other areas of high scale are downstream of severe bends and flanges. The easiest way to test whether you have severe scale (ie 6mm or more) is to disconnect the lines at the waste tank(s) and visually observe them. Use of a borescope provides the most detailed and accurate view of the total waste line condition.



Sani-Vak G3 is an organic acid blend combined with a proprietary surfactant package. Sani-Vak G3 functions much like Gly-Vak®: not to dissolve the scale but to penetrate, lift and emulsify. Sani-Vak G3 features all the benefits of a strong acid descaler - such as phosphoric or sulfamic acid - but without the harsh effects that these acids bring with them. The non-hazardous nature of Sani-Vak G3 allows the 8 hour remediation process to be carried out on-line, without the need for line dismantling and long periods of off-line soaking.

### Celeste Recirculation Cleaning Tool

The Celeste Recirculation Cleaning Tool circulates the cleaning fluid at a controlled temperature of 120°F (49°C) and negative pressure throughout the waste lines, helping to soften, dislodge and remove the accumulated urine scale from the pipe walls with no removal of the toilets or vacuum waste lines necessary. Depending on the aircraft type and the level of scale accumulation, the cleaning time could be as little as 8 hours.



**Recirculation Cleaning Tool Features & Benefits**

- Easy to set up and dismantle
- High performance, negative pressure pump capable of circulating the cleaning fluid under vacuum conditions
- In-line heater capable of maintaining fluid at controlled temperature throughout recirculation process for enhanced scale removal
- In-line filter designed to collect and capture any solid particles above 3mm that might damage the negative pressure pump
- Flow direction valve easily allows user to reverse the recirculation flow through the aircraft

**SANI-VAK G3 & REMEDIATION SYSTEM · Recommended Usage**

SYSTEM CLEANING ALL VACUUM AIRCRAFT - Recirculation Process for Scaled Lavatories (greater than 5mm / ¼ inch buildup)	
EQUIPMENT NEEDED	Celeste Recirculation Cleaning Tool (SP-RCTOOL), Hose Kit (SP-HOSEKIT)
CHEMICALS NEEDED	Sani-Vak G3 (SP-VAKG3/55), Biozyme EX3 (LS-7200/QT), Anti-Foam (SP-170/6OZ)
<p><b>Step 1:</b> Pour one quart of Biozyme EX3 into each of the most forward toilets for each vacuum waste line and flush once to minimize the odor from the lines</p> <p><b>Step 2:</b> Manually close the shut-off valve for each toilet</p> <p><b>Step 3:</b> Create a loop of the A/C waste lines by disconnecting the waste line(s) at the waste tank(s) and connecting the appropriate flexible hoses to the disconnected lines, including any flexible jumper lines. Finish the loop by jumping the forward most toilets in a wide body aircraft or by running a flexible hose from the remediation unit to the forward most toilet.</p> <p><b>Step 4:</b> Close all drain valves, connect the air supply and connect the transfer pump line to the compressed air supply. Open the transfer pump valve and using the transfer pump fill the chemical process tank with 85 gallons (320 liters) of Sani-Vak G3.</p> <p><b>Step 5:</b> Start the negative pressure pump and fill the waste line, adding 15mL (0.5 oz) of anti-foam to the chemical process tank if needed to keep foam level low.</p> <p><b>Step 6:</b> Once system is full of cleaning fluid, the heater can be switched on and set at the requisite temperature of 49°C (120°F). Allow the fluid to circulate throughout the system for 4 hours.</p> <p><b>Step 7:</b> After 4 hours of circulating the cleaning fluid, turn the flow direction valve 90° to reverse the flow of the cleaning fluid through the aircraft lines.</p> <p><b>Step 8:</b> At the end of the second 4 hour cleaning, turn off the heater, close the tank outlet valve, open the tank outlet purge valve and begin pumping the cleaning fluid back into the chemical process tank.</p> <p><b>Step 9:</b> Once the system is completely drained, place 85 gallons (320 liters) of clean water in the chemical process tank and circulate the flush water throughout the system for 20 minutes. Drain and repeat step 9.</p>	

**NOTE:** See Operating Manual for detailed, step by step Sequence of Operations.



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## SANI-VAK G3 & REMEDIATION SYSTEM · FAQs

**Q:** *Are there other things I can do to protect the waste tank system?*

**A:** Yes, placing a 5 gallon pre-charge of Celeste Sani-Pak into the waste tank will stop the formation of harmful ammonia gas and will also help prevent buildup of scale and organic materials on the valves and walls of the waste tank.

**Q:** *Can the unit be run effectively without the heater operating?*

**A:** Yes, the heater is used to enhance the speed of scale removal. Using Sani-Vak G3 at ambient temperatures will lengthen the cleaning time by 20-30% but will still result in clean lines.

**Q:** *How much defoamer does the cleaning process need?*

**A:** Typically, we recommend one capful of the defoamer per gallon of cleaning fluid. Since the defoamer does not interfere with the cleaning, the product can be used as needed to minimize any foam in the tank.

**Q:** *How concerned should I be if some of the Sani-Vak G3 product spills in the aircraft?*

**A:** Not at all. The product has been tested to be compatible with bare aluminum and aluminum clad aircraft construction materials. Simply wipe up the spill with a rag and dispose.

**Q:** *What do I do if the unit is pulling large amounts of air into the lines and pump?*

**A:** Air leakage into the cleaning loop is typically caused by poorly sealed flush valves. As the unit is operating, pour a quart of water in each toilet and observe if the water is sucked into the system. If a toilet shows leakage, place a thin rubber glove in the toilet bowl to seal the leak during cleaning. Be sure to remove the glove after the cleaning is complete. Alternatively, remove the toilets from the lines and cap to ensure a tight seal.