
	DOC No: AEU00631	TITLE: PICKLE AND PASSIVATION – TANK CLEAN DOWN			Advanex Europe Ltd Head Office: Southwell Site Mill Park Way, Southwell Nottinghamshire, UK, NG25 0ET ☎: 00 44 (0) 1636 815555 📠: 00 44 (0) 1636 817725 Bilborough Site ☎: 00 44 (0) 115 9293931 📠: 00 44 (0) 115 9295773 Video Conference IP:80.176.189.113 www.advanexeurope.co.uk
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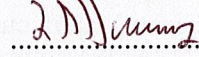
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1.0 PURPOSE

- 1.1. The purpose of the document is to define the SOP (Standard Operating Procedures) to be followed by ADVANEX EUROPE Ltd, in order to ensure that the pickle and passivation working areas are used and maintained in a controlled and consistent manner.

2.0 SCOPE

- 2.1. The scope of this document covers the methods of draining and cleaning the Pickle and Passivation tanks as used at Advanex Europe Ltd.

3.0 TERMS, DEFINITIONS & ABBREVIATIONS


- 3.1. Water Authority Consent to Discharge Document – Permit issued by the local water authority that stipulates the allowable effluent that can be deposited in the fowl drainage system.

4.0 HEALTH, SAFETY & ENVIRONMENTAL

- 4.1. Acid resistance gauntlet gloves, Acid resistant apron must be worn whilst handling the acid.
4.2. Full Clean Manufacturing Area protective clothing must be worn when entering the Clean Manufacturing Area as defined in AEU00654 – Work Instruction - Clean Manufacturing Area Gowning Procedure.
4.3. Within the factory area safety footwear is mandatory.
4.4. Within the factory area the wearing of safety glasses is mandatory.

5.0 ASSOCIATED DOCUMENTS

- 5.1. Correct Usage of Bins for Non-Hazardous Waste Streams (Document Number AEU00396).
5.2. Pickle and Passivation Maintenance & Log Book (Document Number AEU00635).
5.3. Pickle and Passivation Titration Tests & Rectification (Document Number AEU00604).
5.4. Pickle and Passivation Filter Change (Document Number AEU00633).
5.5. Clean Manufacturing Area & Pickle & Passivation Maintenance Schedule (Document Number AEU00652).
5.6. Procedure – Hazardous Waste (Document Number AEU00062).
5.7. Spillage of Chemicals (Document Number AEU00007).
5.8. Work Instruction - Clean Manufacturing Area Gowning Procedure. (Document Number AEU00654).

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6.0 PROCEDURE

6.1. General Instructions.

Note: There Are Two Different Types of Pickle and Passivation Plants Used, The Differences Are Shown in The Photographs, Where Appropriate.

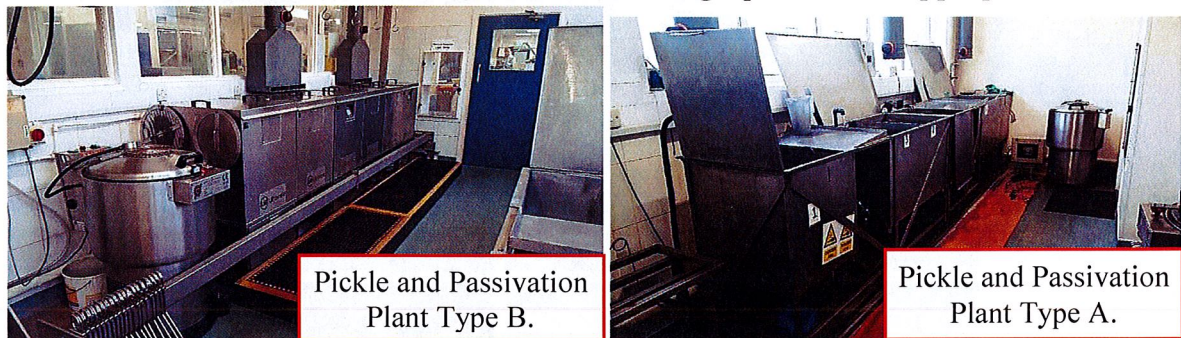


Figure 1 – The Different Pickle and Passivation Plant Lines.

6.2. Drain Pickle Tank.

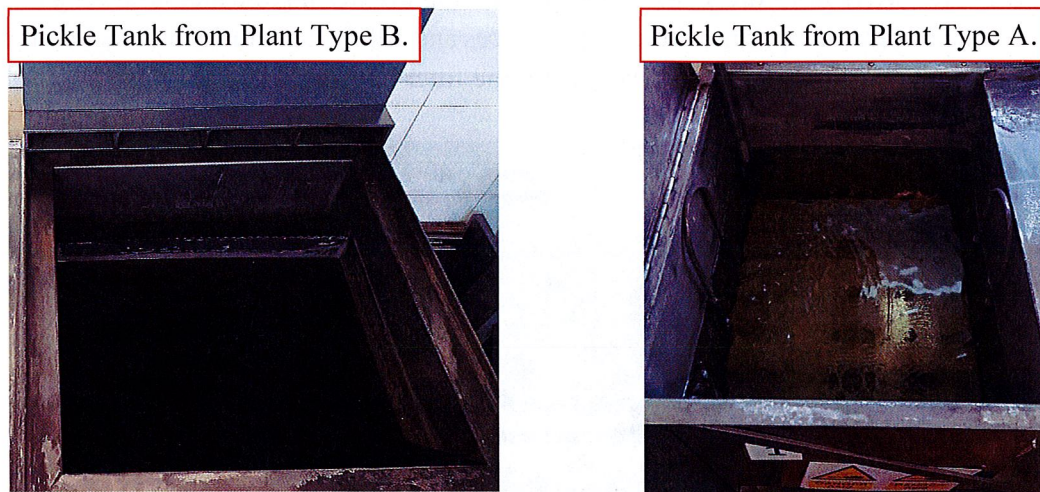



Figure 2 – The Pickle Tanks.

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6.2.1. Pump Out Pickle Tank. Using the plastic pump remove as much of the pickle solution as possible from the tank into the 25litre waste containers, as shown in Figure 3: Once each 25litre container is full it is to be emptied out into 205litre barrels as described in step 6.2.16.



Figure 3 - Pump Out Pickle from Tank

6.2.2. Rinse Around the Tank Using Measuring Jug. Using the measuring jug and water from the rinse tank tap; rinse around all surfaces and fill the tank to 25% of its volume or to just below the pipe connector locations for the filter housing.



Figure 4 - Rinse Around Tank with Tap Water.

6.2.3. Disconnect Rear Pump Hose from Tank on CMA3 Plant Type A Only. On the Type A Plant in CMA3; using a 32mm spanner disconnect the rear pump hose from the pickle tank. Use a small plastic container to catch any spills or drops when removing the hose and position it so that the hose can drain into it during the rest of the process, as shown in Figure 5:


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Figure 5 - Disconnect Pump.

6.2.4. Remove Ultrasonic Device from Plant Type A. To remove the ultrasonic device from tank; lift up and angle the device so that the front is lower than the rear and then ease past the remaining pump hose connector. Place device on drip tray next to the pickle tank, as shown in Figure 6:



Figure 6 - Remove Ultrasonic Device.

6.2.5. Scrub and Rinse Ultrasonic Device on Plant Type A. Using the measuring jug and scouring pad, scrub and rinse the ultrasonic device until it is visibly clean, as shown in Figure 7:


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Figure 7 - Scrub and Rinse the Ultrasonic Device.

- 6.2.6. **Pump Out Remaining Solution from Pickle Tank.** Pump as much as possible of the diluted pickle solution from the tank into the 25litre waste containers, as shown in Figure 3:
- 6.2.7. **Bail Out Any Remaining Pickle Solution.** Bail out any diluted pickle solution remaining in the tank by use of a flat sided plastic container and tip into the 25litre waste containers, as shown in Figure 8:

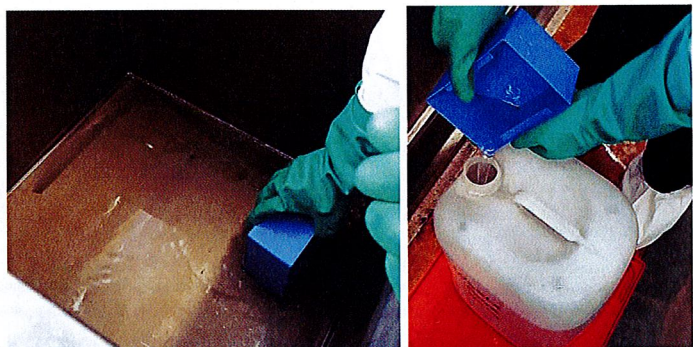



Figure 8 - Bail Out Remaining Pickle Solution.

- 6.2.8. **Descale the Tank and Draining Board.** Using the scouring pad carefully descale all five inner surfaces of the tank and the draining board. Keep an eye on the condition of the scouring pad to ensure that debris is not being left in the tank, as shown in Figure 9:



Figure 9 - Descale Tank with Scouring Pad.

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6.2.9. Rinse Around the Tank with Clean Water and Pump Out. Using the measuring jug and water from the rinse tank tap; rinse around the tank. Pump out the water from lowest point in the tank, as shown in Figure 10:

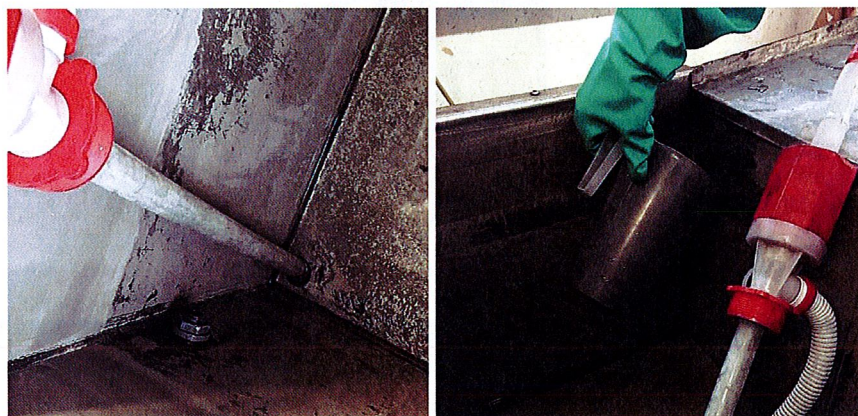


Figure 10 - Rinse & Pump Out Tank.

6.2.10. Wipe Down & Vacuum Cleaner Tank to Remove Debris. Using towels wipe around the tank to remove any debris from side walls and then use the wet & dry Vacuum Cleaner to remove the final bits of acid and debris in the tank, NOTE: Used towels are to be disposed of in accordance with the Procedure – Hazardous Waste (Document Number AEU00062).

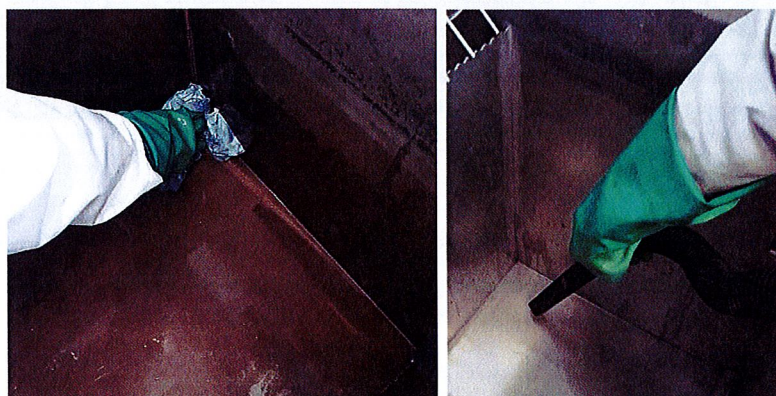


Figure 11 - Wipe Down & Vacuum Cleaner Out Tank.

6.2.11. Close Lid on full 25Litre Waste Container & Rinse. When a 25litre waste container is full; replace the lid, place on the draining board and rinse around the lid to remove any acid that has been spilled.


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Figure 12 - Rinse Around Container Lid.

6.2.12. Replace Ultrasonic Device. With the help of a second person replace the ultrasonic device into the tank; the front of the device needs to be lowered down past the pump hose connector before lowering the back down.



Figure 13 - Replace Ultrasonic Device.

6.2.13. Reconnect the Rear Pump Hose to the Tank. Refit the rear pump hose to the tank ensuring the sealing grommet and plastic washer are in the correct place and tighten using the 32mm spanner.

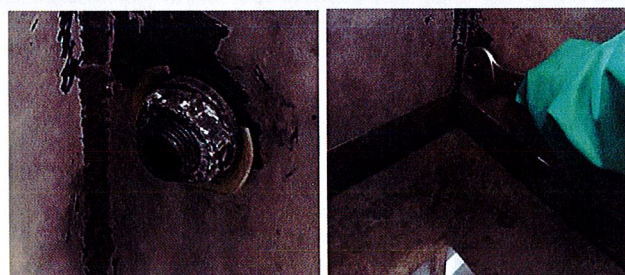



Figure 14 - Reconnect Pump.

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6.2.14. **Close Tank.** Where possible place the lid onto the clean and empty pickle tank.




Figure 15 - Closed Pickle Tanks.

6.2.15. **Replace Pickle Tank Filter.** Replace pickle tank pump filter as described in Document Number AEU00633.

6.2.16. **Pump Waste Pickle Solution from 25Litre Containers into 205Litre Barrels (CMA3 Only).** With help from a second person; lift the full 25litre containers onto the 205litre barrels. Using the pump transfer the waste solution into the 205litre barrel.



Figure 16 - Pump Waste Solution into 205Litre Barrels.

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6.3. Drain Passivation Tank.

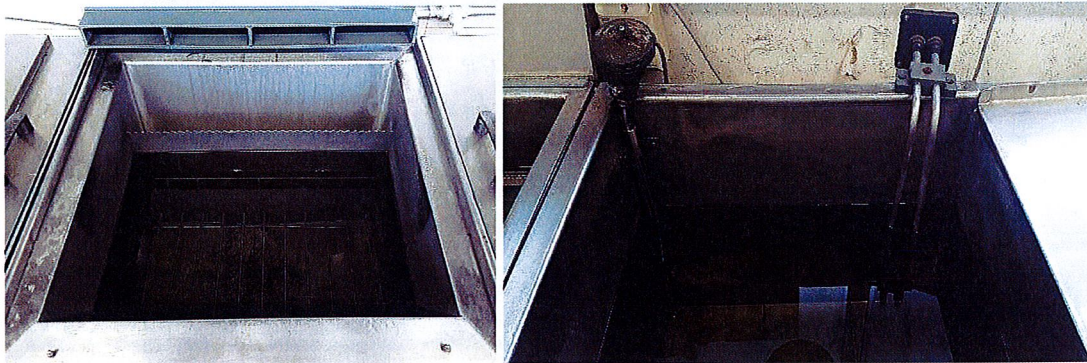


Figure 17 - The Two Different Types of Passivation Tanks.

6.3.1. **Pump Out Passivate Tank.** Pump as much of the passivation solution as possible from the tank into the 25litre waste containers.

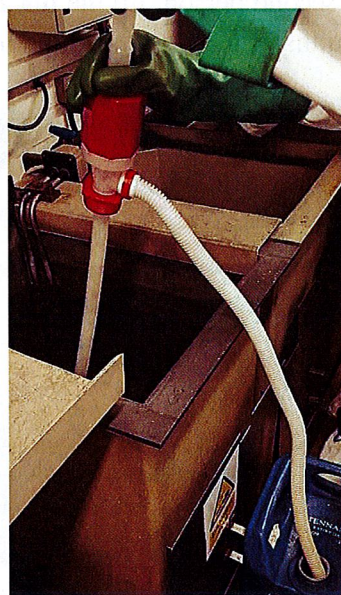


Figure 18 - Pump Out Passivation Tank.

6.3.2. **Rinse Around the Tank Using Measuring Jug.** Using the measuring jug and water from the rinse tank tap; rinse around all surfaces and fill the tank to 25% of its volume.


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Figure 19 - Rinse Around the Passivation Tank.

6.3.3. Pump Out Passivation Tank. Pump as much as possible of the diluted passivation solution from the tank into the 25litre waste containers.

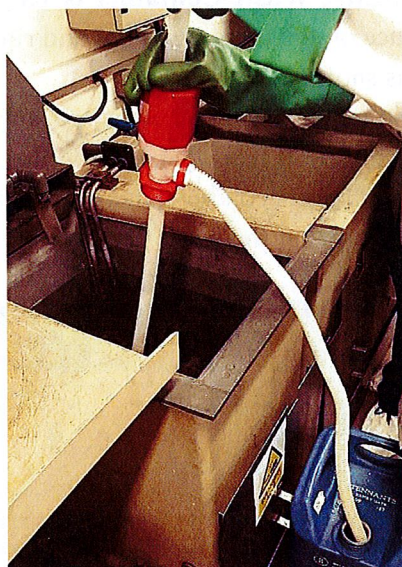



Figure 20 - Pump Out Passivation Solution.

6.3.4. Bail Out Any Remaining Passivation Solution. Bail out any remaining passivation solution in the tank by use of a flat edge plastic container into the 25litre waste containers.

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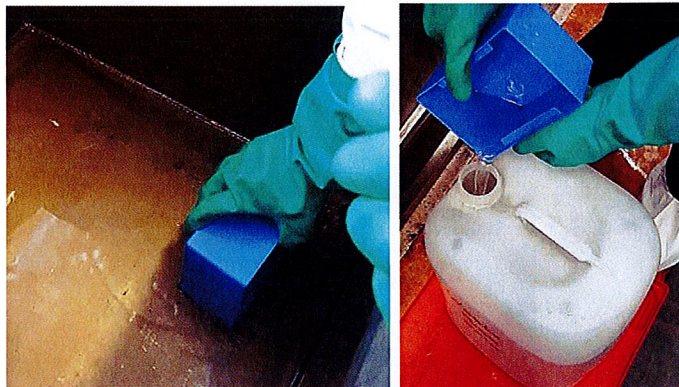


Figure 21 - Bailing Out Remaining Passivation Solution.

- 6.3.5. **Wipe Down & Vacuum Clean the Tank to Remove Debris.** Using the towels wipe around the tank to remove any debris from side walls and then use the wet & dry Vacuum Cleaner to remove the final bits of acid and debris in the tank, as shown in Figure 11:
- 6.3.6. **Close Lid on Full 25Litre Waste Container & Rinse.** When a 25litre waste container is full; replace the lid, place on the draining board and rinse around the lid to remove any acid that has been spilled, as shown in Figure 12:
- 6.3.7. **Close Tank.** Place lid on the clean and empty passivation tank.
- 6.3.8. **Pump Waste Pickle Solution from 25Litre Containers into 205Litre Barrels Where Possible.** With the help from a second person; lift the full 25litre containers onto the 205litre barrels. Use the pump to transfer the waste solution into the 205litre barrel.

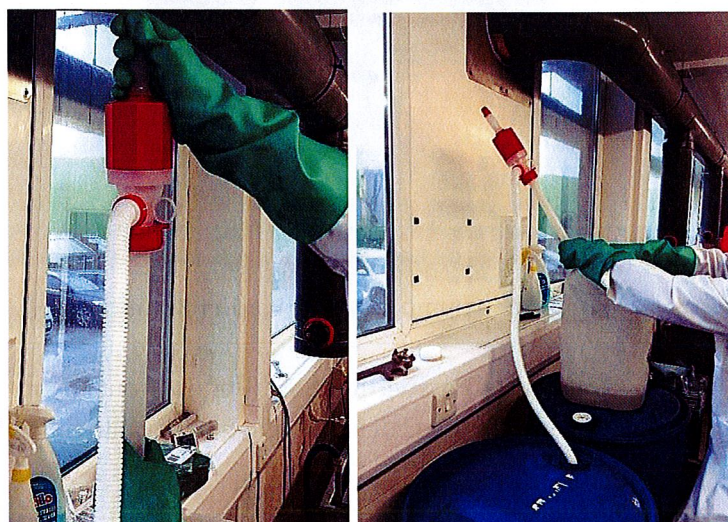



Figure 22 – Where Possible Pump Waste into 205Litre Barrels.

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6.4. Drain Pickle Rinse Tanks.

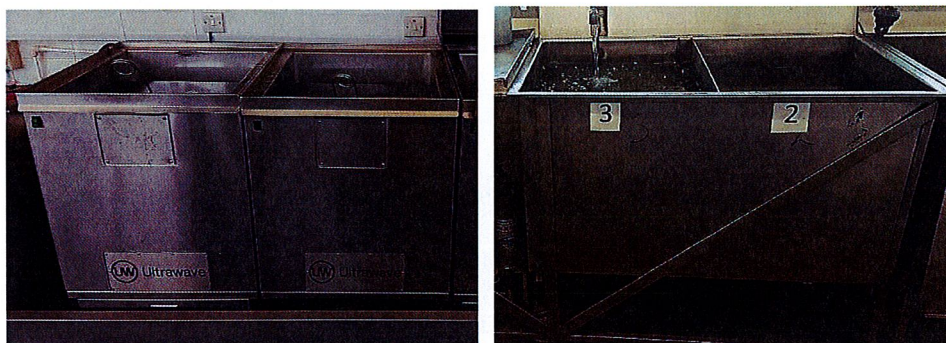


Figure 23 - The Two Types of Rinse Tanks.

- 6.4.1. **Open Drain Valve.** Open the drain valves to allow the water to empty out of the two rinse tanks. On the new line the tanks drain individually and on the old lines they are connected but still have a valve on both tanks.

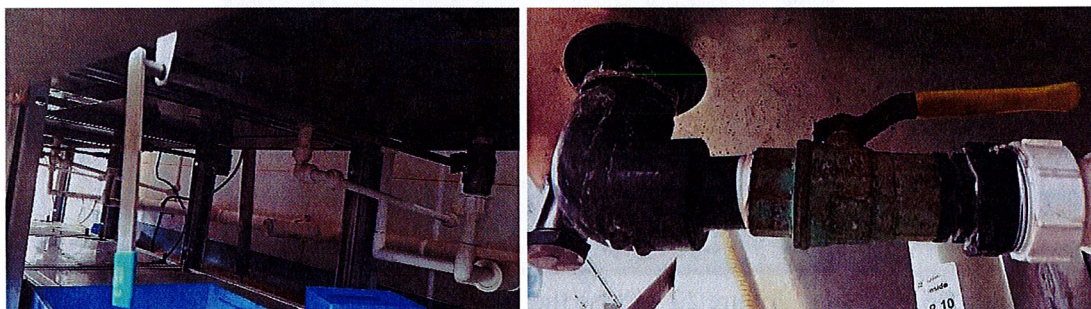


Figure 24 - Drain Valves On the Two Types of Rinse Tanks.

- 6.4.2. **Rinse Tank.** Use fresh tap water to rinse around the tank to remove the maximum amount of debris from the tank as shown in Figure 25 .

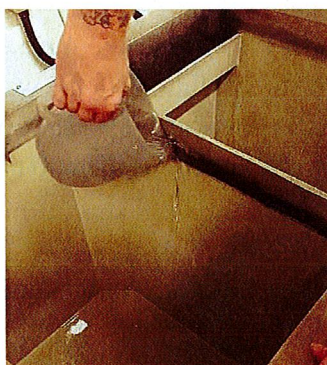



Figure 25 - Rinse Around the Tank with Fresh Tap Water.

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6.4.3. **Remove Remaining Debris with Wet / Dry Vacuum Cleaner.** Use the wet & dry Vacuum Cleaner to remove any remaining debris left in the tank as shown in Figure 26.

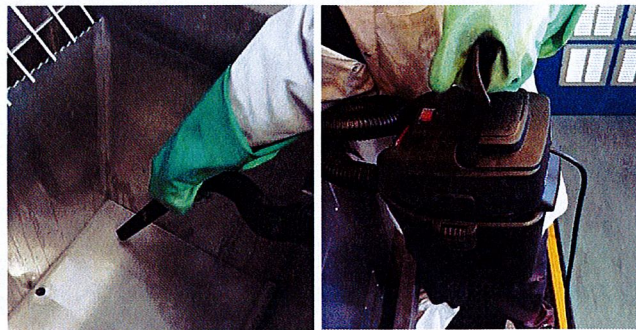


Figure 26 - Removing the Remaining Debris with the Wet & Dry Vacuum Cleaner.

6.4.4. **Close Valve.** Close drain valve, as shown in Figure 24:

6.4.5. **Close Tank.** Place the lid on the clean and empty rinse tanks, as shown in Figure 27:



Figure 27 - Close the lid of the clean tank.

6.4.6. **Repeat Clean Down on Passivation Rinse Tanks.** Repeat Steps 6.4.1 to 6.4.4 for each of the remaining rinse tanks.

Note: On Some Lines the Rinse Tanks Fill and Drain as Pairs.


6.5. Movement of Waste.

6.5.1. **Move Waste Solutions to Waste Storage Area.** Move the 25litre containers containing the waste pickle and passivation solutions to the waste storage area.

6.5.2. **Collect Fresh Solutions From Storage Area.** Collect the fresh pickle and passivation solutions from the storage area and move them to the Pickle and Passivation area.

6.6. Refill Rinse Tank.

6.6.1. **Refill Rinse Tank.** Remove lid and refill tank using the appropriate tap for the tank. Repeat for all four rinse tanks.

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6.7. Refill Passivation Tank.

6.7.1. Pump Clean Water from Rinse Tank into Passivation Tank. Using the pump; transfer water from the clean rinse tank so that there is approximately 25% of the tanks volume of water in the bottom of the passivation tank as shown in Figure 28. This will help to reduce any splashing when the concentrated acid is added.



Figure 28 - Pumping Clean Water from the Rinse Tank.

6.7.2. Remove Lid from the 25litre Container of Concentrated Passivation. Using a hammer and punch remove the lid from the 25litre container with the fresh passivation solution in as shown in Figure 29.



Figure 29 - Using a Hammer & Punch to Remove Lid from the 25litre Container of Concentrated Passivation Liquid.

6.7.3. Pump Fresh Passivation into Clean Tank. Holding the hose from the pump approximately 1cm above the water level to avoid splashes; pump fresh concentrated passivation solution from the 25litre containers into the clean passivation tank as shown in


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Figure 30. As the acid is flowing keep the hose moving around the whole tank area to aide mixing of the water and acid. See Section 6.9 for suggested refill volumes.



Figure 30 - Concentrated Passivation Being Pumped into Tank.

6.7.4. Dilute Passivation in Tank to Required Specific Gravity. Using the measuring jug start to add fresh water to the concentrated passivation solution and mix in as shown in Figure 31. Check the specific gravity with Hydrometer (See Document Number AEU00604) ‘Pickle and Passivation Titration Tests & Rectification’ for required Hydrometer reading (aim for top of the range). See Section 6.9 for suggested refill volumes.

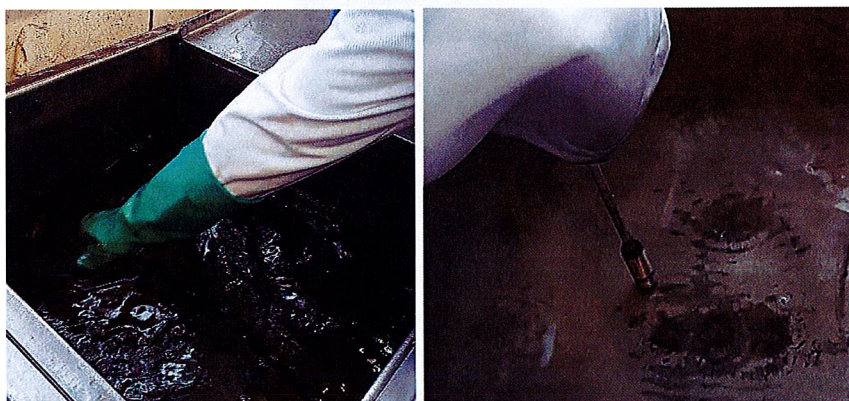



Figure 31 - Mixing Water into the Passivation Solution and Checking with hydrometer.

6.7.5. Top Up Tank. Repeat steps 6.7.3 &/or 6.7.4 until the correct specific gravity is achieved with the correct volume in the tank.

6.7.6. Turn on Heater. Turn on heater element, using the button highlighted in Figure 32.

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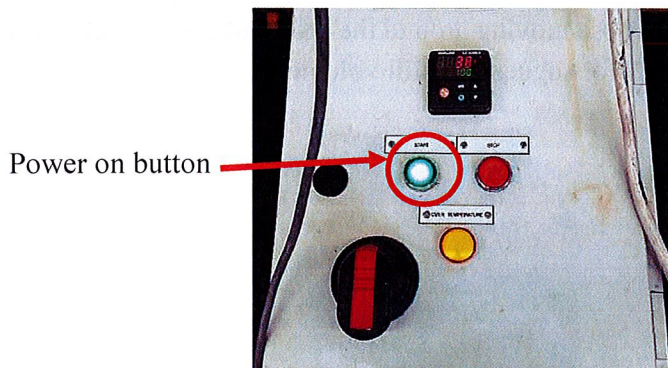


Figure 32 - Heater Control Unit.

6.7.7. Recheck Specific Gravity. Recheck specific gravity when passivation solution is up to required temperature.


6.8. Refill Pickle Tank.

6.8.1. Pump Clean Water from Rinse Tank into Pickle Tank. Using the pump transfer water from the clean rinse tank so that there is approximately 25% of the tanks volume of water in the bottom of the pickle tank as shown in Figure 33. This will help to reduce any splashing when the concentrated acid is added.



Figure 33 - Pump Fresh Water into Pickle Tank.

6.8.2. Pump Fresh Pickling Solution into Clean Tank. Holding the hose from the pump approximately 1cm above the water level to avoid splashes; pump fresh concentrated pickle solution from the 25litre containers into the clean pickle tank as shown in Figure 34. As the

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acid is flowing keep the hose moving around the hole tank area to aide mixing of the water and acid. See Section 6.9 for suggested refill volumes.



Figure 34 - Pump Fresh Pickle Solution into Tank.

6.8.3. Dilute Pickle in Tank to Required Specific Gravity. Start to add fresh water to the concentrated pickle solution in the tank and check the specific gravity with Hydrometer. (See Document Number AEU00604) ‘Pickle and Passivation Titration Tests & Rectification’ for required Hydrometer reading (aim for the top of the range). See Section 6.9 for suggested refill volumes.

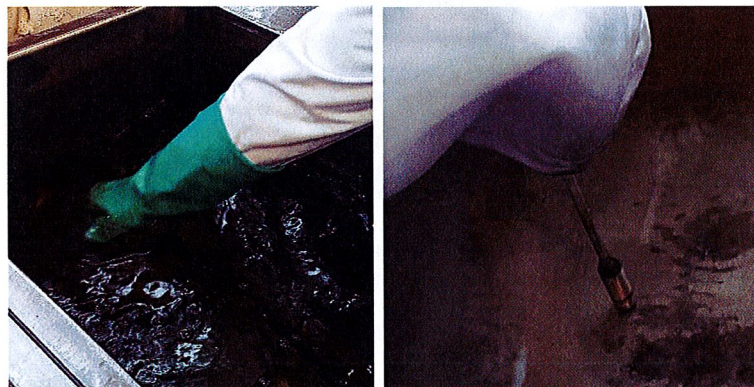



Figure 35 - Mixing Water into the Pickle Solution and Checking with hydrometer.

6.8.4. Top Up Tank. Repeat step 6.8.2 &/or 6.8.3 until the correct specific gravity is achieved with the correct volume in the tank. (Note: Aim for a Hydrometer reading towards the top of the range as stated in Pickle & Passivation – Titration Tests & Rectification (Document Number AEU00604)).

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6.9. Suggested Refill Volumes.

Suggested Volumes for Filling Clean Empty Tanks				
	Pickle to Top Limit.		Passivation to Top Limit.	
Location & Plant Type	Litres of Water	Litres of Pickle Solution	Litres of Water	Litres of Nitric Acid
CMA 2 Type A	98.74	31.94	80.89	49.79
CMA 3 Type A	109.60	35.46	89.79	55.27
CMA 3 Type B	90.88	29.40	74.46	45.83

Table 1- Suggested Refill Volumes for Each Line.

6.10. Titration Tests.


6.10.1. Perform Titration Tests. Titration tests to be carried out to check the percentages of the acids in the pickle and passivation tanks. Tests to be done in accordance to procedure ‘Pickle and Passivation Titration Tests & Rectification’ (Document Number AEU00604)

6.11. Task Completion.

6.11.1. Dispose of Waste Solution. Pump out waste pickle and passivation solutions from the 25litre containers into the corresponding 205litre barrels in the waste storage area as shown in Figure 36. Full 205litre barrels to be disposed of in accordance with ‘PROCEDURE – HAZARDOUS WASTE’ (Document Number AEU00062).



Figure 36 - Waste Solution Pumped into 205Litre Barrels.

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6.11.2. Dispose of Contaminated Wipes. Place any acid contaminated wipes into a Hazardous Waste bag and place in waste storage area. Waste to be disposed of in accordance with ‘PROCEDURE – HAZARDOUS WASTE’ (Document Number AEU00062).

6.11.3. Record Activity. Record task completion in Pickle and Passivation Maintenance & Log Book (Document Number AEU00635).