# PORTABLE ACID WASH KIT

Product code 41625

## User Instructions

# Contents:

# 1.0 KIT CONTENTS:

| Description |
|---|
| Eye protection goggles |
| PVC Gauntlet set |
| PVC Apron |
| PP Measuring beaker |
| PVC Piston hand pump |
| Union adapters & hose set |
| 35L Plastic box |

Dimensions (packed): L530 x W430 x H320
Weight: 9.5kg

# 2.0 INTENDED USE

The Portable Acid Wash Kit is intended for use in the occasional descaling and cleaning of EASYCHLORGEN electrolysers. It is designed to remove the build up of scale or other deposits that may occur in the event of:

- The failure of the EASYCHLORGEN water softener unit
- The use of incorrect grades/ quality of salt
- Other mineral or iron deposits present in the water supply which may not be removed by the water softener system

Acid washing should not be routinely used to remove superficial staining in the electrolyser, for example, due to staining from the water source. The requirement for electrolyser cleaning can usually be identified by a higher than normal DC operating voltage, or the occurrence of frequent “High Volts” alarms indicated on the control panel (scaling will cause the DC power-pack to increase voltage in an attempt to maintain normal current flow across the cells).

The cleaning procedure must be carried out by trained/competent persons only.

# 3.0 RECOMMENDED TOOLS

- Small strap wrench
- Flat blade screwdriver, 5-6mm blade
- 19mm Spanner (for EASYCHLORGEN 240-480 models)
- Adjustable spanner (to 20mm jaw)
- Power towels/roll
- Electrical cleaning spray
- 2 x 10L Plastic buckets

## 4.0 GENERAL DESCRIPTION OF PROCEDURE

1. Preparation of the equipment and acid cleaning solution

2. Purging of the electrolyser vessel

3. Acid cleaning cycle

4. Rinsing cycle

5. Re-commissioning

## 5.0 PREPARATION OF THE CLEANING SOLUTION

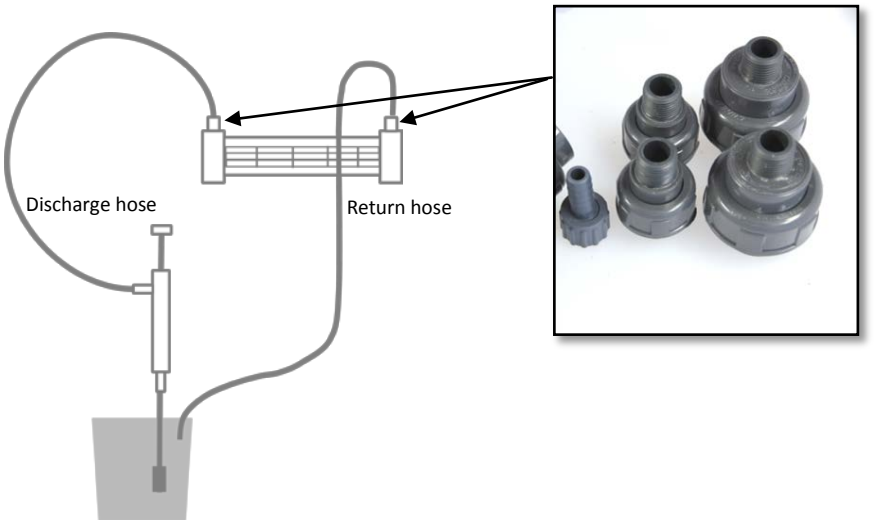
| **Model** | **Quantity of cleaning solution, litres.** |
|---|---|
| Compact 25, 50, 100 | 3 |
| Compact 240,480 | 5 |
| 180, 280, 560 | 5 |
| 1100 | 10 |
| 2200 | 20 |

5.1 Use the Personal Protective Equipment provided before handling chemicals.

5.2 Add the correct quantity of water to the bucket according to the above table.

5.2 Using the plastic measuring beaker add 150g of Descaling crystals (100ml beaker line) for each litre of water added to the bucket and mix thoroughly.

5.3 Set up the PVC hand pump discharge hose end, and the soft PVC return hose with the correct size union adapter end for the electrolyser model being cleaned. ½", ¾" and 1" unions are included in the kit to cover all electrolyser connection sizes.



## 6.0 CLEANING PROCEDURE FOR 180-2200 MODELS

6.1.1 If possible, make a note of the operating voltage of the electrolyser before proceeding. Switch off the EASYCHLORGEN system using the main isolator.

6.1.2 Switch on the EASYCHLORGEN system at the isolator to initiate the initial start-up cycles. Shut down the EASYCHLORGEN again during the final cycle.

| **Model** | **Start-Up Cycles** |
|---|---|
| 180, 280, 560 | 5 |
| 1100 | 10 |
| 2200 | 20 |

*Fig.3*

6.1.3 Placing a bucket under the "Brine Sample Valve" outlet, open the valve to drain down the diluted brine solution in the pipe circuit above the electrolyser, then close the valve.

6.1.4 Carefully remove the electrolyser cabinet window by easing out the white plastic securing strips using a screwdriver in the key holes. Set aside the Perspex window in a safe place.

6.1.5 Wrap absorbent paper roll around the base of the union connections on each end of the electrolyser to avoid solution spilling on the the DC electrical terminals.

6.1.6 Slowly loosen the union connections and remove the EPDM gaskets for safekeeping.

6.1.7 Tilt the electrolyser so that the union connections face outwards for easy access. Mop up any minor spillage with the paper roll. Attach the PVC pump discharge hose to one end of the cell. Connect the drain hose to the other connection and place the open ended hose into the bucket of prepared acid solution.

6.1.8 Use the PVC pump to circulate the cleaning solution through the electrolyser. The cleaning process is completed faster when the solution is frequently pumped through the electrolyser, typically 10 – 20 minutes.

**NOTE**: In some circumstances very hard scale deposits, such as calcium sulphate, may need to be removed using a 5% hydrochloric acid solution instead of a solution of Descaling crystals.

6.1.9 Once the scale formation has been removed discard the descaling solution to drain, diluting it with water. If there is any concern about discarding the depleted descaling solution to drain, it may be neutralized further by diluting it with a weak sodium bicarbonate (baking soda) solution.

6.2.0 Fill the bucket with fresh water and pump through the electrolyser to rinse and dilute any remaining descaling solution. Discard the solution to drain.

6.2.1 Tilt the electrolyser back to its normal position, refit the EPDM gaskets and hand tighten the PVC unions. A strap wrench may be used to assist tightening.

**WARNING:** Over tightening may result in permanent damage to the electrolyser casing.

6.2.2 Ensure that the DC terminals on the electrolyser are clean dry and any spillage on the floor of the compartment is removed. Use electrical cleaning spray to clean the DC terminals if they have been in contact with liquid.

6.2.3 Refit the electrolyser compartment window and securing strips, pushing them firmly into their slots as far s they will go.

6.2.4 Switch on the EASYCHLORGEN power at the isolator to initiate the filling/ purging cycle. DC current will be applied after the purging cycle has completed. After the cleaning procedure it is likely that the EASYCHLORGEN controller may display a higher than normal DC voltage, or may enter a ***High Volts*** alarm condition during the first 15 minutes of operation. If the *High Volts* alarm operates, reset the alarm on the control panel (holding the ENTER key for 3 seconds) as necessary until the DC voltage is normalized.

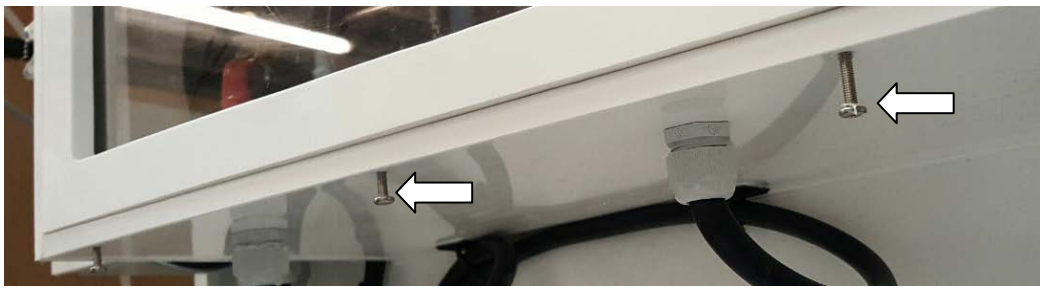
6.2.5 Check that there are no signs of leaks from any of the union connections.

6.2.5 Ensure the PVC pump, hoses, fittings and any wetted PPE equipment are rinsed with clean water and dried after each use.

## 7.0 CLEANING PROCEDURE FOR COMPACT 25, 50 & 100 MODELS:

7.1.1 If possible, make a note of the operating voltage of the electrolyser before proceeding. Switch off the EASYCHLORGEN isolator, then switch on again after a few seconds to initiate the 10 filling/purging cycles. The cycle count-down is shown on the controller LED display. During the final cycle switch off the isolator.

7.1.2 Remove the electrolyser compartment window by removing the frame retaining screws with a flat blade screwdriver and easing the frame and Perspex window towards you. Set aside the window and frame in a safe place.



7.1.3 Wrap paper towel roll around the union connections at each end of the electrolyser to protect the DC terminal connections in the event of liquid spillage.

7.1.4 Loosen the union connections (a strap wrench may be used carefully to assist) and remove the union gaskets for safe keeping.

7.1.5 Tilt the electrolyser cell towards you to allow easy access to the union connections. Mop up any liquid spillage with paper towels.

7.1.6 Attach the PVC pump discharge hose to one end of the cell. Connect the drain hose to the other connection and place the open ended hose into the bucket of prepared acid solution.

7.1.7 Use the PVC pump to circulate the cleaning solution through the electrolyser. The cleaning process is completed faster when the solution is frequently pumped through the electrolyser, typically 10 – 20 minutes.

**NOTE:** In some circumstances very hard scale deposits, such as calcium sulphate, may need to be removed using a 5% hydrochloric acid solution instead of a solution of Descaling crystals.

7.1.8 Once the scale formation has been removed discard the descaling solution to drain, diluting it with water. If there is any concern about discarding the depleted descaling solution to drain, it may be neutralized further by diluting with a weak sodium bicarbonate (baking soda) solution.

7.1.9 Fill the bucket with fresh water and pump through the electrolyser to rinse and dilute any remaining descaling solution. Discard the solution to drain.

7.2.0 Tilt the electrolyser back to its normal position, refit the EPDM gaskets and **hand tighten** the PVC unions. A strap wrench may be used to assist tightening.

**WARNING:** Over tightening may result in permanent damage to the electrolyser casing.

7.2.1 Ensure that the DC terminals on the electrolyser are clean dry and any spillage on the floor of the compartment is removed. Use electrical cleaning spray to clean the DC terminals if they have been in contact with liquid.

7.2.2 Refit the electrolyser compartment window, frame and retaining screws. Do not overtighten the screws.

7.2.3 Switch on the EASYCHLORGEN power at the isolator to initiate the filling/ purging cycle. DC current will be applied after the purging cycle has completed. After the cleaning procedure it is likely that the EASYCHLORGEN controller may display a higher than normal DC voltage, or may enter a ***High Volts*** alarm condition during the first 15 minutes of operation. If the *High Volts* alarm operates,

reset the alarm on the control panel (holding the ENTER key for 3 seconds) as necessary until the DC voltage is normalized.

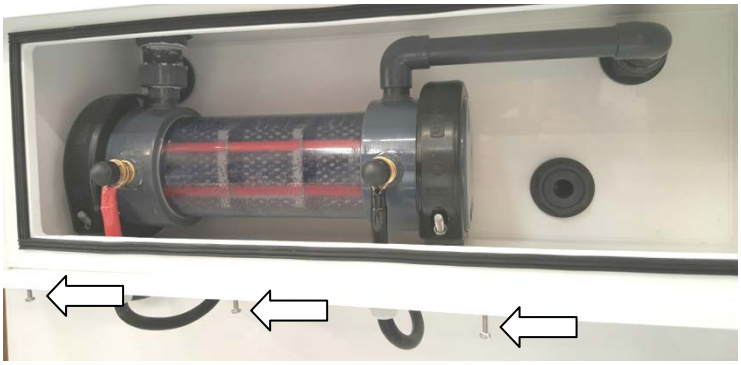
7.2.4 Check that there are no signs of leaks from any of the union connections.

7.2.5 Ensure the PVC pump, hoses, fittings and any wetted PPE equipment are rinsed with clean water and dried after each use.

## 8.0 CLEANING PROCEDURE FOR COMPACT 240 & 480 MODELS

8.1.1 If possible, make a note of the operating voltage of the electrolyser before proceeding. Switch off the EASYCHLORGEN isolator, then switch on again after a few seconds to initiate the 20 filling/purging cycles. The cycle count-down is shown on the controller LED display. During the final cycle switch off the isolator.

8.1.2 Remove the electrolyser compartment window by removing the 3 frame retaining screws with a flat blade screwdriver and easing the frame and Perspex window towards you. Set aside the window and frame in a safe place.



8.1.3 Disconnect the DC cables from the electrolyser using the following method:

Place a 19mm spanner on the thin locking nut and an adjustable spanner on the front cable securing nut. Take care to hold the locking nut steady whilst turning the front securing nut anti-clockwise to loosen it. Repeat this procedure on the remaining terminal and remove the brass nuts and washers for safe keeping. Ease away the cable lugs from the threaded terminal bar; the cable glands

underneath the electrolyser compartment can be loosened, if needed, to allow more movement of the cables.

8.1.4 Wrap paper towel roll around the union connections at each end of the electrolyser to protect the DC terminal connections in the event of liquid spillage.

8.1.5 Loosen the union connections (a strap wrench may be used carefully to assist) and remove the union gaskets for safe keeping.

8.1.6 You can now remove the electrolyser from it's compartment to a safe location for cleaning, making sure it cannot fall from a surface. Mop up any liquid spillage in the electrolyser compartment with paper towels.

8.1.7 Attach the PVC pump discharge hose to one end of the cell. Connect the drain hose to the other connection and place the open ended hose into the bucket of prepared acid solution.

8.1.8 Use the PVC pump to circulate the cleaning solution through the electrolyser. The cleaning process is completed faster when the solution is frequently pumped through the electrolyser, typically 10 – 20 minutes.

**NOTE:** In some circumstances very hard scale deposits, such as calcium sulphate, may need to be removed using a 5% hydrochloric acid solution instead of a solution of Descaling crystals.

8.1.9 Once the scale formation has been removed discard the descaling solution to drain, diluting it with water. If there is any concern about discarding the depleted descaling solution to drain, it may be neutralized further by diluting with a weak sodium bicarbonate (baking soda) solution.

8.2.0 Fill the bucket with fresh water and pump through the electrolyser to rinse and dilute any remaining descaling solution. Discard the solution to drain.

8.2.1 Fit the electrolyser back to its normal position, refit the EPDM gaskets and **hand tighten** the PVC unions. A strap wrench may be used to assist tightening.

**WARNING:** Overtightening may result in permanent damage to the electrolyser casing.

8.2.2 Ensure that the DC terminals and nuts/washers are clean and dry before refitting the cable terminals to the electrolyser. Use electrical cleaning spray to clean the DC terminals if they have been in contact with liquid. Again, use the spanners as in 8.1.3 to hold the locking nut securely whilst tightening the cable securing nut. Re-tighten/ check the DC cable glands on the underside of the electrolyser compartment.

8.2.3 Refit the electrolyser compartment window, frame and retaining screws. Do not overtighten the screws.

8.2.4 Switch on the EASYCHLORGEN power at the isolator to initiate the filling/ purging cycle. DC current will be applied after the purging cycle has completed. After the cleaning procedure it is likely that the EASYCHLORGEN controller may display a higher than normal DC voltage, or may enter a ***High Volts*** alarm condition during the first 15 minutes of operation. If the *High Volts* alarm operates, reset the alarm on the control panel (holding the ENTER key for 3 seconds) as necessary until the DC voltage is normalized.

8.2.5 Check that there are no signs of leaks from any of the union connections.

8.2.6 Ensure the PVC pump, hoses, fittings and any wetted PPE equipment are rinsed with clean water and dried after each use and before re-packing the kit.

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## SPARES AND REPLACEMENT CONSUMABLES

Spares and replacement consumables for your Portable Acid Wash Kit can be purchased from your local agent/distributor:

| Agent: |
| --- |
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Lutz-Jesco GmbH
Am Bostelberge 19,
30900 Wedemark.
Germany

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