

## FREQUENTLY ASKED QUESTIONS

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### HOW DOES IT WORK?

**Q. How does Aquaflame work?**

**A.** Aquaflame produces gas from de-ionised water and works on the principle of electrolysis. Electricity is passed through an electrolyte solution KOH resulting in the production of hydrogen and oxygen. The gas is then passed through a MEK (Methyl Ethyl Ketone) solution that gives a flame with the optimum working temperature of 1850°C. (3365°F). This produces a highly efficient and low cost high energy heat source. The only by product other than energy is water. The flame is clean and safe with no toxic effects.

### GENERAL

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### BENIFITS

**Q. What are the advantages of using Aquaflame equipment?**

1. Aquaflame equipment is very safe because it does not require pressurised gas cylinders.
2. Aquaflame has a low capital cost and low running costs. Once the machine is filled it only needs topping up from time to time with de-ionised water and Methyl Ethyl Ketone (MEK).
3. If you run the machine for 40 hours in a week it might use 20ml of MEK. It is not necessary to re-fill the electrolyte between services – only top up with de-ionised water.
4. Aquaflame is easy to use – simply switch the power on and start work. Once you finish working simply close down the torch valve and switch the power off.
5. Aquaflame is completely safe because it produces gas on demand and there is no stored gas. In addition, it is lightweight and portable – there is no heavy lifting as with gas bottles and no H&S issues to deal with internally apart from carrying out a risk assessment.
6. Aquaflame is manufactured in UK and has full CE & UKCA mark approval. The equipment is pre-tested in our factory before despatch with quality, efficiency, safety and reliability all built in as standard.
7. Many machines that were built 30 years ago are still running today.
8. Aquaflame is environmentally friendly - the only by product is water.
9. Aquaflame is cheaper to run than bottled gas costing pence per day.

## FREQUENTLY ASKED QUESTIONS

### SAFETY & ENVIRONMENT

**Q. How safe is my Aquaflame?**

1. Aquaflame machines are completely safe.
2. The machine only produces gas at low pressure when the machine is running, so there are no safety issues as there are with bottled gas.
3. Once the machine is switched off gas production stops.
4. The amount of gas produced is very small so there is no danger of explosion.
5. The Aquaflame machine is fitted with all the necessary safety features including flashbacks both to the torch & to the machine.
6. The only product apart from energy produced by the Aquaflame is water. The machine is therefore very environmentally friendly.

**Q: Is there a specific procedure for switching off the machine?**

**A:** Always close the valve on the torch first and then switch off the power. Do not switch off the power before you close the torch valve – this may result in blow backs. This is undesirable but not dangerous because the machine is fitted with flashback arrestors.

**Q: How do I increase or decrease the flame size on my Aquaflame?**

**A:** Always increase or decrease the flame size by changing the torch tip. Do not reduce the flame by closing the torch valve as this will result in the flame burning back and damaging the torch tip.

### CHEMICALS

**Q. What chemicals do I need to run my Aquaflame?**

**A:** You need electrolyte flakes KOH, de-ionised water and MEK (Methyl Ethyl Ketone) in order for Aquaflame to produce gas. The KOH flakes are diluted in de-ionised water and added to the cell. The MEK is added to the Booster. Please see getting started fact sheet for chemical quantities.

**Q. What chemicals are supplied with a new machine.**

**A:** *UK sales market*

In UK the Aquaflame machine is supplied with the correct quantity of electrolyte flakes.

In addition, you need to purchase de-ionized water and MEK available in 5 litre and 1 litre containers retrospectively.

**A:** *Export Sales market.*

Both electrolyte flakes KOH and MEK are classed as dangerous goods for shipping purposes. It is therefore prohibitively expensive to ship them from UK. The chemicals are readily available locally and will be supplied by the local distributor.

**Q. Will I need to purchase any more electrolyte crystals with my Aquaflame as time goes by?**

**A.** No, they will only require replacement when your machine is serviced. To find out how to fill the machine chemicals please see our “Getting started – set up instructions” This is enclosed with every new machine.

## FREQUENTLY ASKED QUESTIONS

### SERVICE & MAINTENANCE

**Q. Does Aquaflame provide a full backup service?**

**A.** Yes, Aquaflame Systems offers a full backup service and repairs most other types of Flame Polishing and Micro soldering systems. In export markets please contact your local dealer for information on servicing.

**Q. What daily maintenance will my Aquaflame require?**

- 1. As good practice the Electrolyte and MEK levels should be checked daily. These will not need to be filled every day. Do not add extra crystals to the cell – only add de-ionized water. Top up the electrolyser cell only to full mark – do not overfill.
  - 3. Top up the Gas Booster with MEK to full level – again do not overfill.
  - 4. No other daily maintenance is required.
- Please also see the Getting Started Fact Sheet

**Q. Do I need to change the MEK?**

**A:** If the MEK becomes very discoloured it will need to be changed. Disconnect the neoprene tubes and empty the Booster through the outlet marked “Torch”. Then swill inside the booster with some fresh MEK. Next refill with 220mls of fresh MEK. Take care all the way through the procedure and protect your eyes from spillages by wearing safety goggles. **The MEK should be replaced every 36 working hours.**

**Q. When will my Aquaflame machine need servicing?**

**A:** This depends on your usage but normally after 4000 working hours or every 2 years whichever comes sooner. Aquaflame have a fully equipped service workshop and if possible will return machines almost as new. We service Aquaflames and most other Micro flame machines.

**Q. How much does the service cost?**

**A.** We have 2 levels of service most, well maintained machines only need a standard service. If your machine hasn’t been serviced for a while or it is needing modernising to the latest safety standards it will need a premium service. A twelve month service guarantee is provided with all services.

**Q. Is it OK to leave the machine if it is not used for any length of time?**

**A:** No real damage will ensue if the machine is not run daily or if it is left for over a week without being used. It is good practice to run the machine for 20 minutes or so every 2-3 days. Simply light the flame and leave running for 20 minutes.

## FREQUENTLY ASKED QUESTIONS

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### **Q. How do I check for gas leaks?**

**A:** To check for gas leaks close the valve on the torch and switch on the machine. The red gas production light should remain off. If the gas production light is on or flashing slowly there is a leak. Check first that the torch valve is completely closed. If the light is still flashing, check that the cell and booster caps are tightly closed. If the light continues to flash, check that there are no micro holes or torn sections on the neoprene tubes. If the gas light continues to flash contact Aquaflame Service Centre.

There are instructions on the machines on how to check for gas leaks.

Please also see our Getting Started guide.

### **FOR FLAME POLISHING APPLICATIONS**

#### **Q: What is Aquaflame used for?**

**A.** Aquaflame is used for polishing curved edges, intricate areas, internal sections (e.g. holes in sheets) and organic shapes. It is also useful for smoothing off sharp edges polished with a diamond polisher, polishing herring bone finishes left after laser cutting and polishing routed edges. In general it can be used for cleaning up any general blemishes on the edges of acrylic.

Aquaflame gives a clean flame because it is burning hydrogen and oxygen so there is no discolouration of the acrylic material.

#### **Q. What width of acrylic will my Aquaflame polish?**

**A.** In one pass the Aquaflame will polish as follows:

Model 500 – 5mm in one pass

Model 800 – 10mm in one pass

Model 1200 – 15mm in one pass

#### **Q. How many users can operate each machine?**

1. The Model 500 is designed for one operator and is not widely used in flame polishing. The Model 800 can be used in one or two operator modes, and the Model 1200 can be used in one, two or four operator modes.

2. Please note that if you use an 800 with two operators or a 1200 in two or four operator mode the power output per torch will reduce. In simple terms an 800 in two operator mode will become 2 x 500 machines, a 1200 in two operator mode will become 2 x 800 machines or in four-operator mode 4 x 500 machines.

3. Our best selling machine for flame polishing is the Model 800 used in one operator mode. Customers purchase a Model 1200 if they wish to run two operators or polish acrylic over 10mm in one pass.

4. Please note that for every additional operator a “Second Man Operator Kit” will need to be purchased.

## FREQUENTLY ASKED QUESTIONS

### For Jewellery Applications

**Q. What is the application for Aquaflame in jewellery?**

**A:** Aquaflame is powerful enough to do all the soldering jobs in the jewellery workshop without the need for dangerous and heavy bottled gas. Applications include soldering of large and small parts, re-tipping, resizing, repairs, melt ups, annealing. Aquaflame is also widely used for soldering platinum. Aquaflame will do all the above without the need for dangerous bottled gas.

**Q. Can I solder platinum with my Aquaflame machine?**

**A:** Yes you can solder medium & easy platinum solder the smallest torch size is number 19 therefore you will need a model 800 or 1200 Aquaflame

### FOR MICRO SOLDERING APPLICATIONS

**Q: Why do I need Aquaflame for micro soldering?**

**A.** Aquaflame produces a local precise heat ideal for manufacture of circuit boards, medical instruments, Thermo couples and many other precision soldering applications. Aquaflame can solder through the eye of a needle.

### WHAT IS SUPPLIED WITH A NEW MACHINE?

**Q. Do I need to buy any hoses or torches with the machine?**

**A.** All the hoses and torches required are supplied with a new machine. If you require two torches you will need to order a “Second Man Operator Kit”.

**Q. What tips are supplied with the Aquaflame for Flame polishing?**

**A:** The following tips are supplied with the Aquaflame

Model 500: 2 x No 20, 2 x No 21, 2 x No 22, 2 x No 23, 2 x No 24  
Model 800: 2 x No 18, 2 x No 19, 2 x No 20, 2 x No 21, 2 x No 22, 2 x No 23, 2 x No 24  
Model 1200: 2 x No 17, 2 x No 18, 2 x No 19, 2 x No 20, 2 x No 21, 2 x No 22, 2 x No 23, 2 x No 24  
This way you can decide which size tips suit your application. Tips are available from Aquaflame Systems in packs of 10 of the same size tip. Please contact [sales@aquafllamesystems.com](mailto:sales@aquafllamesystems.com) for accessories purchases.

### TORCH TIP SIZES AND MODEL CAPACITY

No.	Internal diameter	Outside diameter	Flame Length	Model 500	Model 800	Model 1200
No.17	1.09mm	1.50mm	195mm	-	-	1200
No.18	0.91mm	1.25mm	180mm	-	800	1200
No.19	0.70mm	1.10mm	120mm	-	800	1200
No.20	0.60mm	0.90mm	80mm	500	800	1200
No.21	0.51mm	0.81mm	60mm	500	800	1200
No.22	0.40mm	0.71mm	30mm	500	800	1200
No.23	0.34mm	0.63mm	15mm	500	800	1200
No.24	0.31mm	0.56mm	10mm	500	800	1200

FREQUENTLY ASKED QUESTIONS

Power output and flame size comparison

