

## Ensitech: Providing customers with safe and innovative

Ensitech, an Australian-owned company, began operations in 2006 and is currently celebrating its tenth anniversary as the inventor and manufacturer of the TIG Brush™ Stainless Steel Weld Cleaning System. The creation of this first-of-its-kind cleaning product has earned the company its well-deserved reputation as a global leader in the area of metal surface finishing. From its headquarters in Western Sydney, Ensitech manufactures and supplies TIG Brush™ products worldwide.

**Stainless Steel World Americas** recently had the pleasure of speaking with **Mr. Clive White, Ensitech's Managing Director.** An electrical engineer by trade, he is one of the inventors of the TIG Brush™ and his passion for the product and how it has helped the metal fabrication industry is impressive. We talked about how the company began, its newest line of products and the importance of constant innovation.

By Candace Allison

### Problem solving

Ensitech and its TIG Brush™ technology were created as a solution to a specific and recurring problem of removing discoloration from a stainless steel weld. Clive explained that it all began when he moved from Victoria to New South Wales, (Australia). When his new neighbour discovered he was an engineer, he put Clive in contact with a friend who was trying to solve that very problem.

This friend had received a large contract from McDonald's to supply the drive through windows with a "charity panel." That is, a coin chute made of stainless steel, which is welded onto a nicely finished panel where one can put coins through to donate them to charity. McDonald's wanted a 'brushed finish' for this charity panel, but the problem was, whenever stainless steel is welded, the surface of the welded portion turns black and becomes difficult to remove. This is called 'heat tint'. So once the coin chute was welded to the panel, the heat tint prevented the surface from having the brushed finish the client wanted.

There were several common methods that the friend tried but unfortunately, none proved effective in safely removing the heat tint. The first method was a device Clive calls a 'pad machine', which essentially utilises a small metal electrode with a pad wrapped around it. The pad is dipped in fluid and then the wet pad is run along the weld. This didn't work well for the coin chute because that particular weld was difficult to reach. Another alternative was 'pickling paste' which Clive described as "a highly toxic combination of nitric and hydrofluoric acid that can even eat away at glass." The friend refused to try that method due to the personal danger involved and wanted Clive's help to find a better, safer and faster method of removing the heat tint.

Clive explained, "So we started working on this project in conjunction with an aeronautical engineer, and working together as a team we discovered by 2004 a way of creating a product that was quite effective for what we wanted. It removed the heat tint quickly and safely without damaging the stainless

steel surface finish. We made 10 units and called them TIG Brushes™; Tungsten Inert Gas (TIG) welding was the type of weld we initially cleaned, and a conductive brush was the method of application. Our first run of TIG Brush™ units were sold to friends in the industry. However a number of these broke down as the brush turned out to be quite a difficult thing to drive from an electrical standpoint." Clive continued, "We would get a call from a customer saying, 'Could you please repair our TIG Brush™?' We would ask them to send it back to us for repair and their response would be, 'You don't understand, our whole factory is at a standstill.' Initially we were shocked these customers had become so reliant on the TIG Brush™ so quickly, but it often transpired they had got rid of pickling paste altogether. As a result they were totally reliant on the TIG Brush™ to finish off their welds. It was then we realized we had invented something there was a big need for in the stainless steel fabrication industry. It was a huge moment.

### A booming business

In 2006 the TIG Brush™ team registered the company name as Ensitech because "Ensi" means 'first' in the Finnish language (one of the partner's wives was from Finland) and the TIG Brush's™ purpose was to 'finish' the surface of stainless steel products - the team thought the name Ensitech, or 'first in finish', made perfect sense. One of the three founders left in 2008, and the remaining pair decided to spend the last of their funds showcasing the TIG Brush™ at National Manufacturing Week, Australia's largest manufacturing trade show.

Clive recounted during the tradeshow their products, "caused a huge sensation. There was constantly a large crowd of people waiting to see the TIG Brush™ demonstration, and we even had someone throw a credit card at us. We asked the crowd, 'Whose card is this?' And some guy at the back said 'It's mine! I want to buy one. I don't care about the cost, I just want one.' It was awesome. There was another man who was standing very still, with tears in his eyes. He eventually told us, 'I'm seeing my whole life's work pass right before my eyes. You don't know how many hours I've spent using abrasives to try and remove this heat tint and you're doing it so fast. I feel like my working life has been a waste!'"

Up until that point Ensitech was manufacturing the TIG Brush™ out of Clive's garage, but when business started to boom in 2009, the



Ensitech introduces its new lineup during FabTech 2015

team moved into a factory. When they outgrew that one in 2011, they moved into the factory they are currently working out of in Emu Plains (a Sydney suburb). The Ensitech team then realized that the Australian market was quite small and they began thinking about exporting the products overseas. Clive clarified that they first exported to New Zealand, before moving on to the United Kingdom (UK) and then other parts of Europe.

"After we exported to the UK, our business just exploded. In 2008 we turned over just \$75,000 AUD, the following year we turned over nearly a million dollars. We now export to approximately 19 countries. We have distributors in Spain, the Netherlands, Germany, Italy France as well as the Middle East and Asia." He further detailed, "From 2011 onward, we won several awards including The 2012 NSW Export Awards: Small Business Category, The 50th Australian Export Awards 2012 Small Business Category and The Excellence in Innovation 2012 NSW Business Chamber Awards. Exporting really did put us on the map. It is very worthwhile doing."

### American headquarters

Clive explained that while the company was exporting to other countries there were a lot of inquires from businesses in the United States for Ensitech products. There were about five distributors in the US that wanted to be involved, so the company set up an American headquarters to fulfill this demand in the North American market. In 2013, Ensitech Inc. was established in Chicago, Illinois. Originally, employees from the Australian

Headquarters would manage the office for three months, go home to Australia for a couple of weeks, then go back again. In 2014 the first US Sales Person was appointed, followed by an Administration Officer, a General Manager in 2015 and recently an Internal Sales person. With a permanent team of four people now running the American office, US sales continue to grow rapidly.

### Innovative products

The original team invented the Conductive Brush technology to address a particular problem, but soon realised they had "stumbled" upon a technology that was needed across a broad range of stainless steel industries. The idea behind the invention was to take a fluid that was safe and inert at ambient temperature, then heat it to a high temperature during use to make it reactive and therefore work quickly. The fluid cools down after use and becomes inert once more, making it safe for users and the environment. All the weld cleaning alternatives had issues of either lack of safety (such as incredibly strong acids like pickling paste), slow performance (such as the "pad" machines) or caused damage to the work (such as mechanical removal). The challenge behind the TIG Brush™ was to find a conductive material that could withstand the high temperatures, a fluid that could remove the weld heat-tint when hot, and a power supply that could provide sufficient electricity to the brush, all in a safe and easy to use way.

The TIG Brush™ product has resulted from finding a way to combine all of these attributes. The conductive material is fashioned



TIG Brush™ model TBE-550



TIG Brush™ model TBE-700



TIG Brush™ is introduced to the USA during FabTech 2013



## Innovative cleaning solutions for stainless steel welds



Ensitech takes out the Australian Export Award

into a brush that can reach inaccessible welds. The fluid is applied by dipping the brush into a container and then directly painting onto the weld, however hard to reach it is. The electrical power is provided by a small and portable unit, made in a very tough plastic to withstand industrial conditions, and is completely sealed to make it a reliable and long lasting. The electrical energy heats the brush to a high temperature, and the combination works very quickly to remove the heat tint. The resulting product basically does what pickling paste tried to accomplish, but by using modern materials and technology provides a safe, fast and kind-to-the-environment result.

One of the unexpected results of the technology was the ability to “passivate” stainless steel. Stainless steel contains a high percentage of chromium, which forms an oxide layer around the metal to prevent corrosion. However, the heat from welding destroys this protective layer. Early customers informed Ensitech that the TIG Brush™ re-forms this protective oxide, and establishes the anti-corrosive attributes of the welded surface once again. Scientific testing confirmed this feedback, making stainless steel “passivation” one of the more important attributes of this product. Clive states that “listening to customer feedback and being prepared to use the information for product innovation is very much a part of our success.”

2016 is Ensitech’s 10th year of operation. To celebrate this milestone the company has released a new line-up of TIG Brush™ models. The TBE-700 is the fastest weld-cleaning

machine currently available, the TBE-550 model is a general purpose machine and the TBE-440 is the most economic solution. The company recently launched a modified method of applying the technology called the Propel Torch™. The brush bristles are confined to concentrate the effect, an easy adjustment allows the length of the brush to be varied, and a quick-release mechanism enables the user to change brushes quickly. The user grip has been changed to a “Tee” handle shape, providing a more comfortable and ergonomic handle.

An important component of the system is the fluids that react on surface of the metal and produce the desired result. In response to customer demand Ensitech has produced a wide range of fluids that not only remove heat tint, but also prepare the metal for welding by removing contaminants, neutralising the cleaning fluids, and either marking or etching the surface with customer provided designs if required. In order to create this comprehensive range of chemicals, Ensitech has invested heavily in research and development. The fluids are also certified for their applicable industries – for example NSF certification for food-safe equipment. Clive shared that these types of innovations come directly from forming close relationships with clients, and working with them to discover further applications for the product. For example, it was discovered how difficult it is to permanently mark stainless steel with a logo or text. By working with several customers this ability has been developed with the TIG Brush™. Now clients can send their artwork (e.g. either their logo,

or possibly a numeric sequence they want on a particular valve outlet) and Ensitech will provide them with a stencil that can be used with a special TIG Brush™ head that will indelibly mark or etch on the stainless steel surface. These new services are a direct result of working directly with the customer, determining what their needs are and coming up with an innovative solution.

### Customer service & production

Along with high-quality products, Ensitech also offers its clients many after-sales services. With the purchase of a TIG Brush™, customers are trained in the best way to operate the machine. By working with the customer on their application, it is possible to find other uses for the product, and even other ways in which the customer can be helped e.g. with the welding. Another part of customer care is repairing the product if it stops performing to specification, and to that end Authorised Repair Centres have been set up worldwide to provide this.

All of the TIG Brush™ machines are manufactured in Australia. Clive shared that Ensitech, “sources all of its raw materials from local suppliers. Since we are in a suburb of Sydney, most of our suppliers are in the local area and we have a team of about eight people that deal with all the manufacturing. Additionally, we are an ISO 9001 accredited facility. So everything we do is recorded, repeatable and can be traced. After manufacturing 100 percent of the TIG Brush machines undergo a final testing process, and are tested to our final specifications before being shipped to the world.”

### Recent investments

When asked about recent technological investments, Clive was quick to answer that as a company two of the values Ensitech embraces the most are (1), the ideas of safety and efficiency and (2), innovation. In fact, one of the company mottos is ‘Change the way you do business.’ This idea of always trying to find a new way to do business and bring innovation to existing ideas, means that investments in R&D are always taking place, which of course can be expensive. Investments are also always being made to update

the Ensitech literature, manuals and training guides to ensure they contain the latest information on the newest products and their technologies. However, one of the largest and most important recent investments for the company was opening up the American office in Chicago. All of the product parts had to be customized for the US market and all the new staff had to be trained. In terms of product investments, a large investment was made with the Propel brush and soon there will even be a new version of that device.

### A novel approach

When Clive and his team entered the metal fabrication industry and created this innovative technology they were unique, but he laughs when he says, “Imitation is the sincerest form of flattery, so we now have lots of imitators.” He explains that companies all over the world have copied what Ensitech has done, but they are copying what his team was working on last year. Not what they are working on for next year and beyond. The secret to Ensitech’s continual success is that as a company it isn’t afraid of constant innovation and reinvention.

Clive ended our conversation by stating, “When we came into this industry, we had a novel approach and a brand new product that we truly believed was high value. We are really pleased with the way that customers have responded to that and even our competitors have told us that by us coming into the industry, we have reinvigorated the industry for everyone. I think the ideas of high-quality products; innovation and customer care may have been forgotten in the search for a cheaper solution. But we have found that cost is not just what you pay for it upfront, but how much it costs for the whole life of the product. If you have a safe, efficient, well-made product that gets the job done, the total cost of that solution is much less than buying a cheap poorly designed product. At the end of the day, Ensitech’s goal is to be the best at surface finishing and to be known for our customer care and innovative approaches to business and so far we have achieved that.”

All photos: Ensitech



Managing Director Clive White



New innovation the PROPEL TORCH™ in action

### Ensitech at a glance

<b>Company name:</b>	Ensitech
<b>Years in business:</b>	10
<b>Global Headquarters:</b>	144 Old Bathurst Road, Unit 1, Emu Plains, NSW 2750, Australia
<b>American Headquarters:</b>	1005 N Commons Drive, Aurora, Illinois 60504, USA
<b>Products:</b>	TIG Brush®: TBE-160CM, TBE-250, TBE-700; TIG Brush® Marking Kit; TIG Brush® fluids: Pre and post, weld cleaning, neutralizing, steel marking, etc.; Parts & accessories: Brush tips, dual brush adapter, quad brush adapter, insulating shrouds, wands, extension cables, etc.
<b>Industries:</b>	Oil & gas, food & beverage, building & construction, metal fabrication, marine, etc.
<b>Website:</b>	North America: <a href="http://www.tigbrush.com">www.tigbrush.com</a> Global: <a href="http://www.tigbrush.com.au">www.tigbrush.com.au</a>