

# **EASYkleen TEC BRUSH**

## **DC Weld Electropolisher**

# **Commissioning & Operation Manual**



**This document outlines the procedure to commission the EASYkleen TEC Brush (EKT) and also an illustrated step by step operation guide**



**Metal Science**  
TECHNOLOGIES

43 Shelley Road, Moruya, NSW, Australia 2537  
Phone/Fax: +61 2 4474 3394 Website: [www.metalscience.com.au](http://www.metalscience.com.au)

# Technical Specifications & Benefits of the EASYkleen TEC Brush

## Electrical Specs

- Input -240v, 50-60Hz
- Output – 20-60amps
- NLV - <35VDC
- Duty Cycle - 100%
- Power Source – Transformer Driven



## Case and Lead Specs

- Material - High impact structural polymer
- Dimensions - 300mm x 260mm x 130mm
- Weight - 5kgs
- Leads - 8mm<sup>2</sup> PVC, 3m in length

## Technical Benefits

- Ideal for TIG work
- Highest Corrosion Resistance
- Match any finish (2B to Mirror)
- Perfect for material up to 6mm thick



# OH&S



**PVC or nitrile gloves required to be worn**



**Protective clothing should be worn.**



**Eye Protection must be worn.**



**Face protection can be worn.**



**Use in well ventilated areas.**

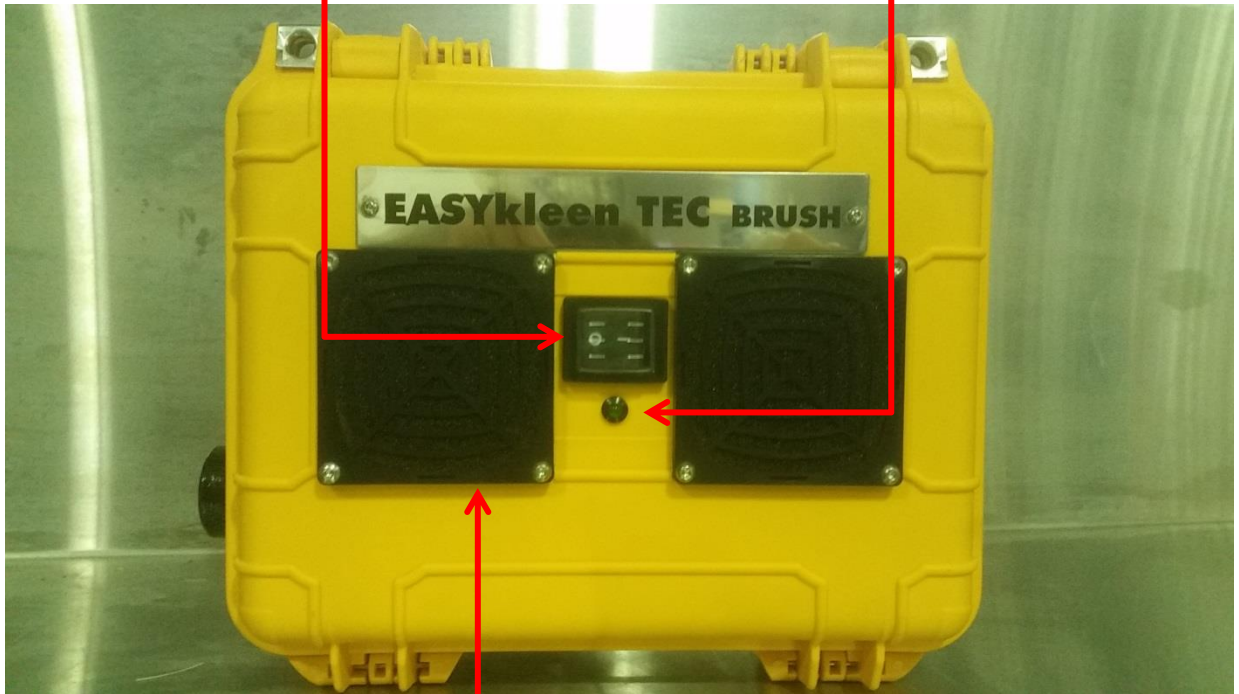


**Enclosed footwear at all times.**

# Front Panel Information

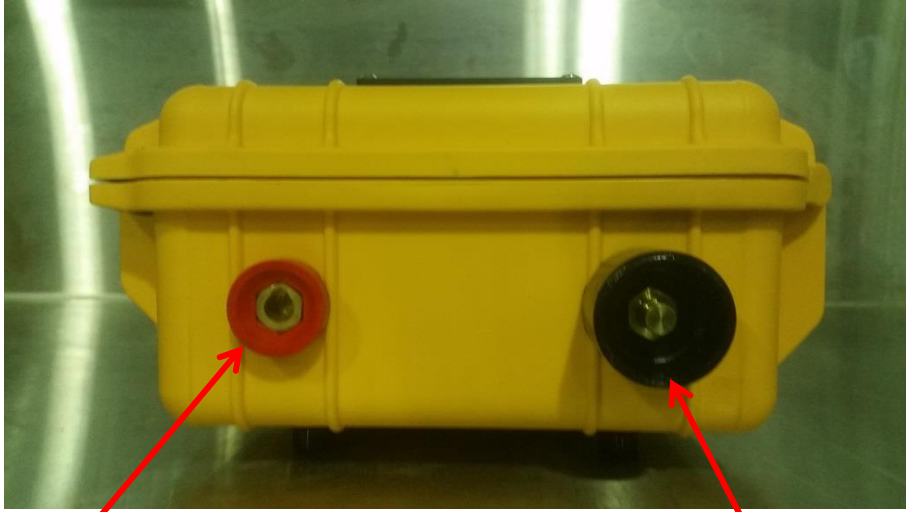
ON/OFF  
Switch

Green  
Indicator  
Light



Cooling 12V Fans

# Side Panels Information



**Dinse panel mount  
(clamp lead)**

**Dinse panel mount  
(torch handle)**



**IEC inlet for mains  
power**

**Primary  
Circuit Breaker**

# 1 – How to commission the EKT

## 1.1

Remove unit from  
its packaging.

Position unit in its  
desired place in  
your factory or  
workshop.

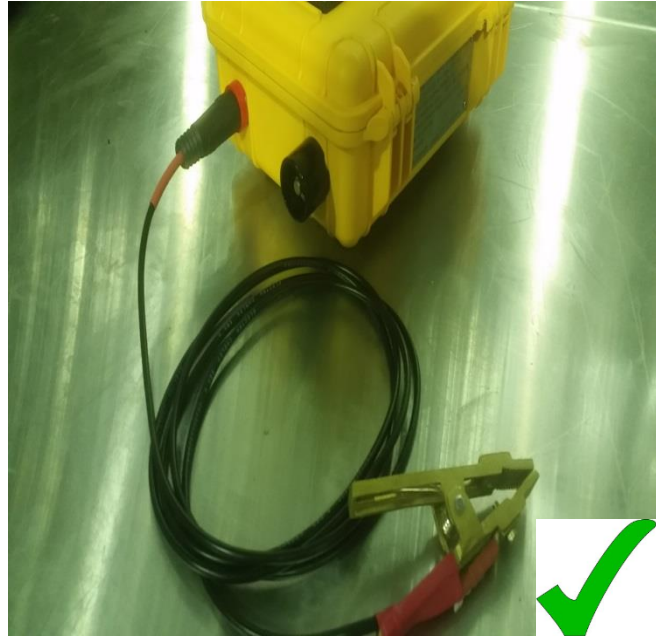


Place on a bench in  
a ventilated work  
area.



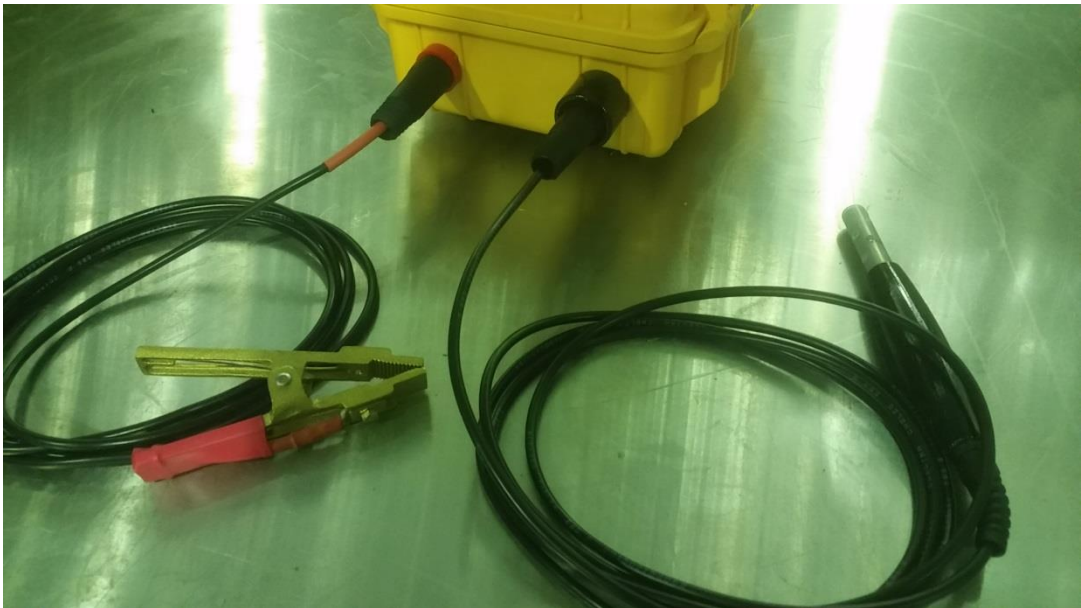
# 1.2

Attach the provided earth clamp and lead to the (red) dinse panel mount.



# 1.3

Attach the handle and lead to the (black) dinse panel mount



# 1.4

Attach the power lead to the IEC inlet, then plug in the power cable into your power source.





# 1.5

The last step before turning the unit on is to choose your brush. Simply screw in the desired brush to the torch head.



### **Express Brush –**

The Spot brush is designed for cleaning spot welds and precision cleaning. Best used with a heat resistant bristle sleeve that reduces the splaying of bristles.



### **Rapid Brush –**

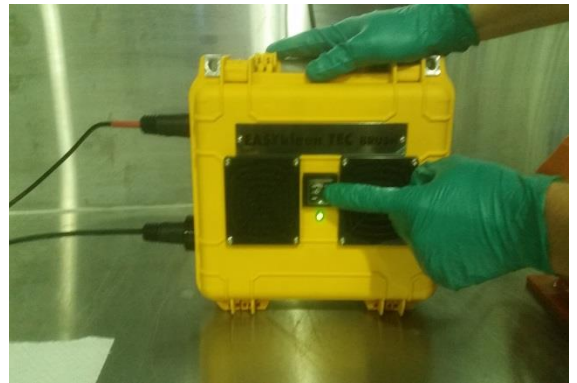
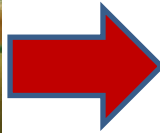
Reduces bristle splay when used vertically and will focus cleaning power on the weld and HAZ. Use vertically /slight angle. Best used at 70 degrees to work piece.

# 2 – Operating the EKP

## 2.1

Now that you have the unit commissioned and ready for use, it is time to begin operation.

To turn machine on, push the on/off switch on top of machine. Red indicator will light up and fans will start.



## 2.2

Attach the clamp to the work piece you wish to clean. The clamp does not need to be right next to the area being cleaned, just as long as there is a good connection.

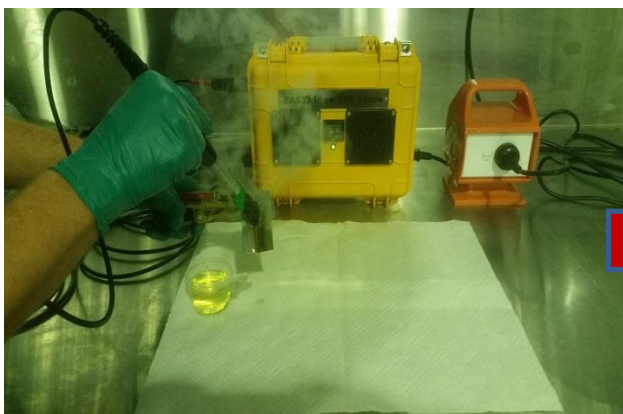
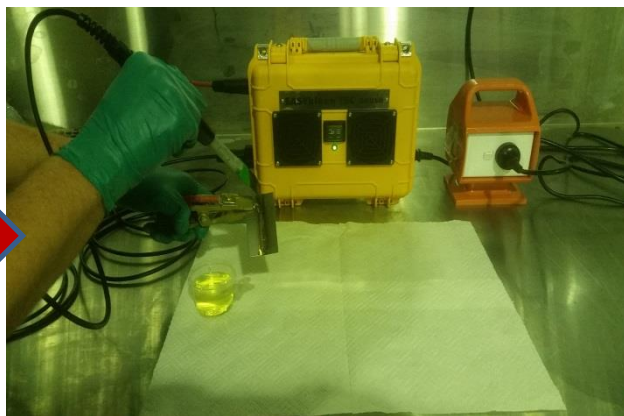
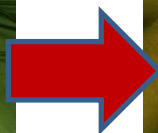
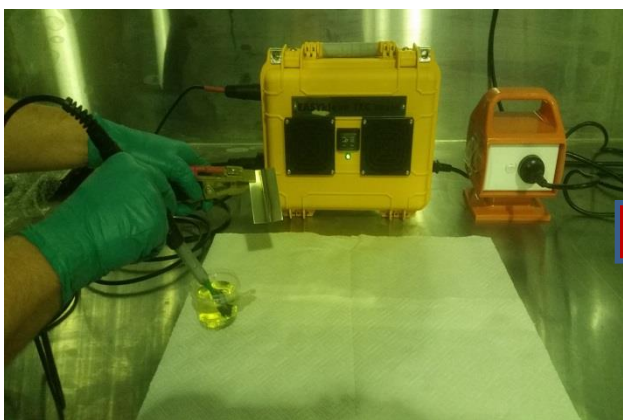


## 2.3

Dip the brush into solution .

Apply the soaked brush to the weld to be cleaned/polished. Use a smooth motion with minimal pressure for best results.

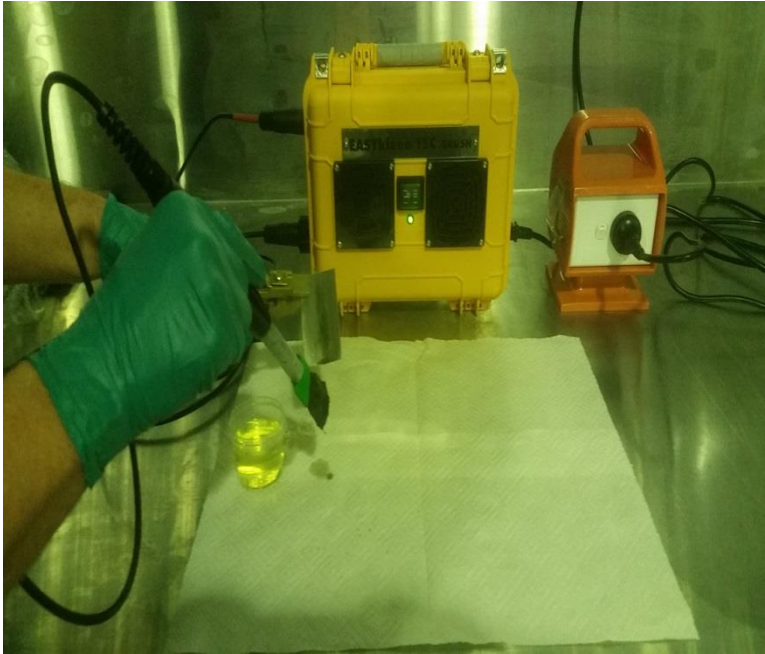
Dip brush into more solution as needed.





## 2.4

Once you have removed all weld discolouration, you can remove the used solution in a few ways.  
Ideally, remove the bulk of the used solution firstly with disposable paper towels or similar.



## 2.5

Then use a neutraliser to neutralise the remaining solution on the work piece.



Neutraliser about to be sprayed onto cleaned weld



Neutraliser being sprayed onto cleaned weld

The neutraliser when sprayed onto the cleaned weld may bubble and fizz. This is the neutraliser working to neutralise any left over weld cleaning solution.

Neutraliser is particularly effective for tight corners.



## 2.6

Finally using some flowing water, either by a tap, hose or pressure cleaner to completely wash the work piece down to remove all residual neutraliser.



Remove residual neutraliser with running water



Running water removing neutraliser from work piece



Wipe work piece dry

Using some paper towel, wipe work piece dry.



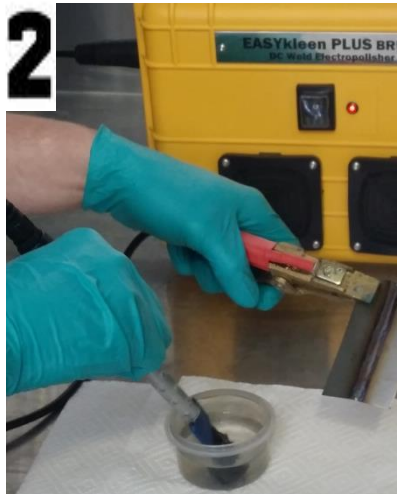
Wipe work piece dry

Work piece has now been cleaned and neutralised. It is now passive with great corrosion resistance, ready for service.

# Simple Application



**1**  
Fill acid-proof  
container



**2**  
Soak brush in  
solution



**3**  
Apply to  
work



**4**  
Apply  
neutraliser



**5**  
Rinse in clean  
water



**6**  
Wipe dry  
with clean  
cloth

# Maintenance

These machines require little maintenance. When used correctly and maintenance adhered to, the machines will have a very good service life.

## Maintenance points –

- Remove brush after each days use (wash brush with water when storing)
- Wash down clamp after each days use
- Wipe down any residue from handle
- Make sure dinse connector terminals are always clean



Un-cleaned  
Clamp with  
corrosion



Corroded  
Brush

# Do's & Don'ts

## A few general do's and don'ts –

### Do –

- Read and adhere to manual
- Use correct solution and brushes
- Make sure silicone sleeve is always covering the stainless steel conductor where the brush screws in
- Make sure the silicone aero shield is always attached
- Follow general maintenance points



### Don't –

- Touch the brush when machine is connected to power supply.
- Touch the brush or unscrew brush immediately after use as it will be hot
- Touch the work piece near the weld/polished area just after it has been polished as it will still be hot.
- Use handle parallel or overhead, as solution may run back down handle
- Wrap or tie brush bristles to stop splaying of the bristles
- Use any other brush or material other than supplied by Metal Science Technologies (Use of other brushes/material voids warranty)





# Troubleshooting

We occasionally have to speak with end users regarding issues that arise.

The vast majority of issues relate to connection, or lack there of.

## The first thing to find out is –

When the EKP unit is switched to on, does the red light next to the ON OFF switch illuminate, and can you hear/feel the fans running?

If the light illuminates and the fans are running but the user is getting no “cleaning power at the brush”, there is a very good chance that there is a connection issue somewhere.

These connection issues will most likely be at either the brush or the clamp.

## Things to try/test –

- Unscrew brush and check the thread (clean if need to). Screw back in and try again.
- Have a look at the clamp teeth. Is there a blue build up (copper phosphate)? This will inhibit connection. Wire brush the teeth, wash with water and try again. Also check where the cable lug attaches.
- Are the dinse connectors secured correctly? Also check for and corrosion/debris.

The other issue that may arise (usually first time users) is the user gets a black stain on their work piece. This is usually because the clamp and handle are around the wrong way (reverse polarity). The red tagged lead (clamp) must go into the red tagged dinse panel mount and obviously the brush lead into the other.



**Ensure 'RED' marked lead is connected to 'RED' marked terminal.**



# 8. Material Safety Data Sheet

## MATERIAL SAFETY DATA SHEET — 16 Sections

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY

#### IDENTIFICATION

<b>Product Identifier</b> EKP-50 Weld Cleaning Solution (EKP-50-1, EKP-50-5 & EKP-50-20)			
<b>Product Use</b> For use in conjunction with the EASYkleen ranges of weld cleaning machines to remove weld discolouration			
<b>Manufacturer's Name</b> Metal Science Technologies Pty Ltd		<b>Supplier's Name</b> Metal Science Technologies Pty Ltd	
<b>Street Address</b> 43 Shelley Road		<b>Street Address</b> 43 Shelley Road	
<b>City</b> Moruya	<b>Province</b> NSW	<b>City</b> Moruya	<b>Province</b> NSW
<b>Postal Code</b> 2537	<b>Emergency Telephone</b> 0411 217 986	<b>Postal Code</b> 2537	<b>Emergency Telephone</b> 0411 217 986
<b>Date MSDS Prepared</b> 05.01.15	<b>MSDS Prepared By</b> Metal Science Technologies Pty Ltd	<b>Phone Number</b> +612 4474 3394	

### SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

<b>Hazardous Ingredients</b> <i>(specific)</i>	<b>%</b>	<b>CAS Number</b>	<b>LD<sub>50</sub> of Ingredient</b> <i>(specify species and route)</i>	<b>LC<sub>50</sub> of Ingredient</b> <i>(specify species)</i>
Phosphoric Acid	< 55	7664-38-2	1530mg/kg Rat	850 mg/kg Rat
Citric Acid	< 5	77-92-9	3000mg/kg Rat	3000mg/kg Rat
Water	< 60	7732-18-5	N/A	N/A
Proprietary Ingredient	< 10	N/A	N/A	N/A

### SECTION 3 — HAZARDS IDENTIFICATION

<b>Classification</b> Hazardous according to Worksafe Australia
<b>Emergency Overview</b> Clear colorless liquid. Odorless. Will not burn. Can form hazardous decomposition products. Contact with metals liberates flammable hydrogen gas. Corrosive. Causes skin burns and eye damage.
<b>GHS Classification</b> Skin corrosion/Irritation – Cat 1B

## SECTION 4 — FIRST AID MEASURES

<b>Eye Contact</b> In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.
<b>Skin Contact</b> In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
<b>Ingestion</b> If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
<b>Inhalation</b> If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

## SECTION 5 — FIRE FIGHTING MEASURES

<b>Flammable</b> No		
<b>Means of Extinction</b> In case of fire in the surroundings, use appropriate extinguishing media.		
<b>Flashpoint (°C) and Method</b> Not applicable	<b>Upper Flammable Limit (% by volume)</b> Not Available	<b>Lower Flammable Limit (% by volume)</b> Not Available
<b>Autoignition Temperature (°C)</b> Not Applicable	<b>Explosion Data — Sensitivity to Impact</b> Not Applicable	<b>Explosion Data — Sensitivity to Static Discharge</b> Not Applicable
<b>Hazardous Combustion Products</b> Non-combustible liquid. Will not burn, or support combustion. Incompatible with oxidising agents, reactive metals zinc and bare steel, strong reducing agents, fluorine, bases, metals, metal oxides, metal alloys, strong bases, sulfur trioxide, phosphorous pentoxide, and sources of ignition. Fumes produced when heated to decomposition may include corrosive phosphorous oxides. This product transforms to pyrophosphoric acid at 200°C.		
<b>NFPA</b> (estimated) Health: 3; Flammability: 0; Instability: 0		

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

<b>Leak and Spill Procedures</b> <b>General Information</b> Use proper personal protective equipment as indicated in Section 8.
<b>Spills/Leaks</b> Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Spill may be carefully neutralized with lime (calcium oxide, CaO).

## SECTION 7 — HANDLING AND STORAGE

<b>Handling Procedures and Equipment</b> Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes.
<b>Storage Requirements</b> Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Do not store in metal containers. Store protected from moisture. Store away from alkalis.

## SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

<b>Exposure Limits - ACGIH TLV</b> ACGIH® TLV® - TWA: 1 mg/m <sup>3</sup> ACGIH® TLV® - STEL [C]: 3 mg/m <sup>3</sup>
<b>Specific Engineering Controls (such as ventilation, enclosed process)</b> Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
<b>Personal Protective Equipment</b> <b>Skin</b> PVC or nitrile gloves, coveralls. <b>Respirator</b> If inhalation risk exists, use a type B respirator. <b>Eye</b> Wear chemical safety goggles.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b> Clear liquid	<b>Odour and Appearance</b> Odorless, APHA: 10 max - colorless viscous	<b>Viscosity</b> 3.86 mPa.s
<b>Specific Gravity</b> 1.685 g/cm <sup>3</sup>	<b>Vapour Density (air = 1)</b> 3.4 (air=1)	<b>Vapour Pressure (mmHg)</b> 0.03 mm Hg @ 20 deg C
<b>Evaporation</b> Not available	<b>Boiling Point (□C)</b> 158 deg C @ 760 mm Hg	<b>Freezing Point (□C)</b> 21 deg C
<b>pH</b> 1.0-2.5	<b>Coefficient of Water/Oil Distribution</b> Not Available	<b>Solubility in Water</b> Miscible

## SECTION 10 — STABILITY AND REACTIVITY

<b>Chemical Stability</b> Stable under normal temperatures and pressures.
<b>Incompatibility with Other Substances</b> Metals, strong oxidizing agents, strong bases, amines, ammonia, sulfuric acid, nitromethane, sodium tetrahydroborate, A 5% solution of H <sub>3</sub> PO <sub>4</sub> is DOT corrosive to both aluminum & carbon steel (results: 272.1 mils/yr & 319.6 mils/yr, respectively). A 4% H <sub>3</sub> PO <sub>4</sub> solution corrodes aluminum at 209.1 mils/yr & carbon steel at 240.9 mils/yr.
<b>Reactivity, and under what conditions?</b> Excess heat, exposure to moist air or water.
<b>Hazardous Decomposition Products</b> Oxides of phosphorus.

## SECTION 11 — TOXICOLOGICAL INFORMATION

<b>Effects of Acute Exposure</b> <b>Eye contact</b> Can cause burns. Irritating to eyes. Continual contact with eyes may cause permanent damage.	
<b>Skin</b> Can cause redness, dermatitis, irritation and burns. Continual contact may cause ulceration.	
<b>Inhalation</b> Irritation to the throat and nose. Continual inhalation may cause ulceration and lung tissue damage.	
<b>Effects of Chronic Exposure</b> See effects of acute exposure	
<b>Reproductive Toxicity</b> No information available.	<b>Teratogenicity</b> No information available.
<b>Embryotoxicity</b> No information available.	<b>Mutagenicity</b> No information available.
<b>Name of Synergistic Products/Effects</b> No information available.	

## SECTION 12 — ECOLOGICAL INFORMATION

### Ecotoxicity

Fish: Mosquito Fish: LC50 = 138 mg/L; 96 Hr; Unspecified No data available

### Environmental

The acidity of phosphoric acid may be reduced readily by natural water hardness minerals, but the phosphate may persist indefinitely. During transport through the soil, phosphoric acid will dissolve some of the soil material, in particular, carbonate-based materials. The acid will be neutralized to some degree with adsorption of the proton and phosphate ions also possible. However, significant amounts of acid will remain for transport down toward the groundwater table.

### Physical

No information available

## SECTION 13 — DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## SECTION 14 — TRANSPORT INFORMATION

### Shipping Name

Phosphoric Acid

### Hazard Class

8

### UN Number

3264

### Packing Group

III

## SECTION 15 — REGULATORY INFORMATION

### [NOHSC]

Classified as Hazardous according to criteria

### [Poisons Schedule]

S6

### [Hazard Category]

Corrosive

### [HSNO Approval Number]

HSR001545

*This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.*

## SECTION 16 — OTHER INFORMATION

### MSDS Creation Date: 05.01.15

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*

**End of MSDS**

## 9. Warranty

Thanks for selecting the EASYkleen Plus Brush Weld Cleaning machine. We urge you to complete the warranty registration section and return it to I.W.W.S as it provides warranty for 24 months, Verification of ownership in event of insurance loss, Provides immediate product safety recall

The EASYkleen Plus Brush Weld Cleaning machine has a limited 24month Warranty. The conditions conferred by this Warranty are in addition to all other conditions and warranties in respect to this product which the consumer may have under the Trade Practices Act 1974 of the Commonwealth of Australia and/or similar State, Territory or Country Laws I.W.W.S during the first 12 months of this Warranty will at it's option and subject to terms and conditions stated below in the case of a machine malfunction during the warranty period provide a turn around including return freight, parts and labour. Labour is only covered is the machine is sent back to the manufacturer for repair.

I.W.W.S during the second 12 months of this Warranty will at it's option and subject to terms and conditions stated below in the case of a machine malfunction during the warranty period provide a turn around, parts and labour excluding freight cost. Labour is only covered if the machine is sent back to the manufacturer for repair.

### **Warranty Void if:**

The model number has been removed or rendered illegible

The case or hand piece has been opened or tampered with

The machine has been used in a way other than is recommended by IWWS

Weld Cleaning solution used is other than supplied by IWWS

Weld Cleaning brush used is other than supplied by IWWS

The Safety instructions have not been adhered to

Weld Cleaning solution seeps inside case

Brushes not covered by Warranty

The machine has been wet, submerged or exposed to an unusual amount of dry debris.

Does not cover switches, casing, leads or damage due to mechanical force

Handle and stainless steel conductor not covered by warranty

IWWS accepts no liability pursuant to this warranty for any cost or

consequential damage or economic loss whether direct or indirect to any person or property, arising from breakdown or failure of this machine or any part thereof, and no responsibility is to be implied or accepted over and above the replacement value of the machine.



This warranty is given by I.W.W.S and no other person or organisation is authorised to vary its provision and conditions

**Name of Distributor**

**SERIAL Number (Find on back plaque of EASYkleen Plus Brush)**

**Date of Purchase**

**Date of Deliver**

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Registration Card; SEND THIS PORTION OF WARRANTY to -  
Independent Wholesale Welding Supply Pty Ltd, Unit 2, 170 Power Street  
Glendenning, NSW, Australia 2761 or PO BOX 284, Doonside, NSW 2767 FAX  
+61 2 88342498

**Name of Business**

**Address**

**Phone**

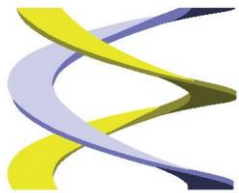
**Email**

**Serial Number**

**Name of Distributor**

**Date of Purchase**

**Manufactured By**



**Metal Science**  
TECHNOLOGIES

**For**



**2/170 Powers Street Glendenning NSW 2761**  
**Phone: 02 8834 2400**  
**[www.iwws.net](http://www.iwws.net)**