

TRANSLATION OF THE ORIGINAL  
USER MANUAL

# Ultima-Tig-S



Supplied by Welding Automation  
for your nearest dealer:-  
[sales@weldingautomation.com.au](mailto:sales@weldingautomation.com.au)  
[www.weldingautomation.com.au](http://www.weldingautomation.com.au)

**inelco**  
grinders  
*The way to grind*

## Translation of the original EU statement of compliance

Manufacturer: **INELCO GRINDERS A/S**  
**Industrivej 3, 9690 Fjerritslev, Denmark**  
**Tlf. + 45 96 50 62 33, Fax. + 45 96 50 62 32**  
**Email: info@inelco-grinders.com**  
**VAT No. : DK 32652964**

hereby declare that

the machine for grinding tungsten electrodes for TIG welding:  
**ULTIMA-TIG-S - Type: UT110 and UT220**

is produced in accordance with the provisions of the Commission's Directive on harmonization of national legislation's on machinery 2006/42/EU, EMC-directive 2014/30/EU and RoHS2 directive 2011/65/EU

Authorized to create the technical file. Anders Thy, Industrivej 3, DK 9690 Fjerritslev

ULTIMA-TIG-S is developed and produced according to following international norms:

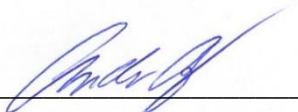
EN 12100:2010, EN 50581:2012, EN 61029-1: 2009+A11,  
EN 61000-6-4: 2005, EN 61000-6-2: 2007

The CE-mark was used first time in 2003.

Person responsible:           Name:       Anders Thy

Date:           01.11.2019

Signed: \_\_\_\_\_



### IMPORTANT SAFETY INSTRUCTIONS

It is important to follow the safety rules enclosed when installing and operating the machine. This instruction manual must be accessible at all times to the person engaged in the installation, operation and maintenance of the machine.

### DISPOSAL



Do not dispose electrical equipment in your ordinary waste disposal. The European guideline 2012/19/EU on Electrical Equipment Waste and its implementation in national laws requires such used equipment to be separately collected and recycled in an environmentally friendly manner

Serial No.: \_\_\_\_\_

Date: \_\_\_\_\_

## Contents

1.	General Machine Description .....	3
2.	What is included .....	4
3.	Operational elements .....	4
4.	Initial Operation .....	4
5.	Safety Procedures .....	4
6.	Fastening the electrode in the electrode holder .....	5
7.	Setting the grinding angle and grinding .....	5
8.	Maintenance .....	6
9.	Replacement of grinding disc .....	7
10.	Field of application .....	8
11.	Technical specifications .....	8
12.	Training .....	8
13.	Safety data sheet for grinding fluid .....	8
14.	Spare Parts overview .....	9
15.	Working table .....	11
16.	Accessories .....	12

## 1. General Machine Description

The **ULTIMA-TIG-S** is a patented grinder for wet grinding of tungsten electrodes for TIG welding. It is very easy and safe to use.

The diamond disc grinds the tungsten electrodes correctly in the longitudinal direction of the electrode, and the variable angle adjustment allows, not only to grind in the right angle, but also to grind the tip flat, if needed.

The grinding liquid in the closed grinding chamber ensures that no harmful dust particles slips out into the surroundings. The cooling effect of the grinding liquid also means that there are no discoloration of the tungsten electrode due to heat.

The harmful grinding dust is collected automatically in the special dust collector and hence can be disposed correctly.

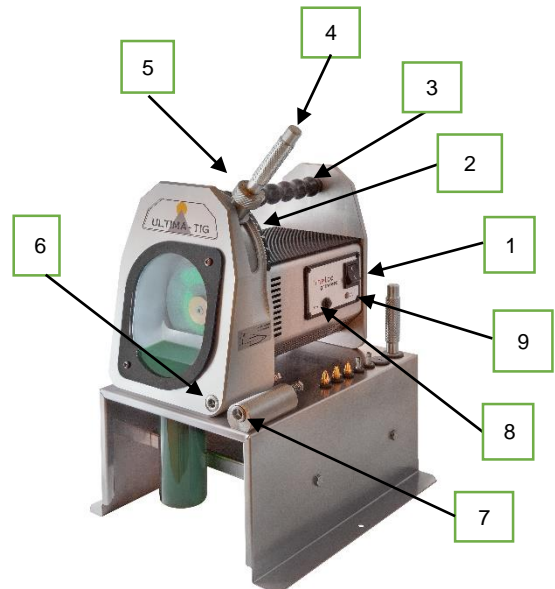
The included electrode holder and electrode clamps, in combination with stick-out adjustment, reduces the waste of electrodes, and ensures a uniform grinding result at each grinding.

The **ULTIMA-TIG-S** can operate in a room with an ambient temperature of 0 ° C to + 40 ° and a relative humidity of up to 50 % at 40 ° C and 90 % at 20 ° C. The machine has been tested acc. Protection class IP21.

## 2. What is included

Upon receipt and unpacking please check, that the following items are included in the package:

- ULTIMA-TIG-S machine with a diamond disc
- Dust Collector with grinding liquid (Item No. 75494500)
- Bottle with 250ml grinding liquid (Item No. 75491200)
- Tungsten electrode holder (Item No. 75521023)
- Tungsten electrode holder (Item No. 75520123)
- Electrode clamp  $\varnothing 1,6\text{mm}$  (Item No. 44510162)
- Electrode clamp  $\varnothing 2,4\text{mm}$  (Item No. 44510164)
- Electrode clamp  $\varnothing 3,2\text{mm}$  (Item No. 44510165)
- Electrode clamp  $\varnothing 4,8\text{mm}$  (Item No. 44510167)
- Electrode clamp  $\varnothing 5,3\text{mm}$  (Item No. 44510168)
- Electrode clamp  $\varnothing 6,4\text{mm}$  (Item No. 44510169)
- Worktable incl. bolts and nuts for mounting



## 3. Operational elements

1. Power Switch
2. Degree scale
3. Transport handle
4. Electrode holder
5. Tightening screw
6. Stick-out adjustment for electrodes  $\varnothing 0,8\text{mm} - 4\text{ mm}$
7. Stick-out adjustment for electrodes  $\varnothing 4,8\text{ mm} - 8,0\text{ mm}$
8. Reset button
9. LED warning light

## 4. Initial Operation

Remove the protective foil on the enclosed worktable and mount the worktable as shown in the drawing in the back of this manual. Fasten the grinder on the worktable and place it securely on a workbench or table.

**IMPORTANT:** The ULTIMA-TIG-S cannot run without grinding liquid!

The ULTIMA-TIG-S grinder does not contain grinding liquid on delivery. Before starting the machine the first time, mount the supplied dust collector and fill extra grinding liquid from the bottle through the tube until the correct liquid level has been reached (please see mark on the inspection cover frame).

Check that the switch is in the OFF position. ("O" on the switch)

Connect the machine to the mains voltage specified on the nameplate.

**IMPORTANT:** Only use single-phase power supply outlet **WITH** an earth connection.

## 5. Safety Procedures

- Never use the product if the grinding disc are damaged.
- Use only Diamond discs recommended by Inelco Grinders A/S

- Use the product only when all parts of the chamber is mounted
- Use only the grinder with EP770 grinding liquid from Inelco Grinders A/S
- Only grind tungsten electrodes with electrode holder
- Always use an appropriate size clamp to the electrode for grinding.

## 6. Fastening the electrode in the electrode holder

Select the size of the electrode clamp that match the diameter of the electrode and mount it loosely in the electrode holder. Then insert the electrode into the clamp, so that approximately 20 mm of the electrode is sticking out of the clamp. Tighten the clamp with your fingers, but not so tightened that the electrode cannot slide in the clamp.

For electrodes  $\varnothing$  0,8-4 mm insert the electrode with the electrode holder into the Stick-out adjustment, placed below on the right front side of the grinding (see picture), until it stops. For electrodes  $\varnothing$  4,8 – 8 mm use the Stick-out adjustment on the side (see picture). Tighten the electrode with a smooth turn of the electrode holder clockwise.



The electrode may only be fasten so tight, that it does not slide in the electrode clamp. If the electrode is fastened too tight, the clamp may be damaged.

On the back of the stick-out adjustments, there is a regulator screw (see picture), which can be adjusted to determine the length of the electrode sticking out of the clamp. The manufacturer has set the regulation screw to grind approx. 0,3 mm in order to obtain the highest number of grindings per electrode as possible.

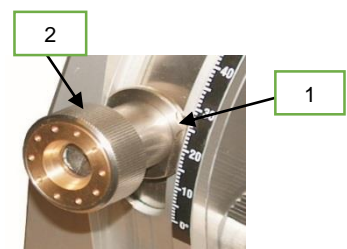


This means, that you can re-grind the electrode up to 450 times. It is necessary to adjust the stick-out as the diamond wheel wears down.

It is often not necessary to break off metal drops on the electrode before grinding. The metal drops do not melt together with the electrode, and will be removed during grinding.

## 7. Setting the grinding angle and grinding

Adjust the grinding angle by placing the cursor (1) at the desired grinding angle. Tighten the electrode guide by tightening the screw (2).



**Note the grinding angle equals half the tip angle!**

After the tungsten electrode is placed in the electrode holder, it is inserted in the angle adjust unit until the electrode almost touches the diamond disc. Start the machine at the on/off switch and turn the electrode holder in a calm and steady pace and with light pressure until the electrode holder cannot go further in. Keep turning the electrode holder for at least five rounds to get the best possible grinding result.

**It is not necessary to press the electrode hard against the diamond wheel, a light pressure are sufficient to grind the electrode.**





**If the electrode is pushed too hard the grinder is overloaded and the LED on the side will blink red. If the overload is continued the grinder will stop and the LED will light red continuously.**

Pull the electrode holder back a little, so that the electrode does not touch the grinding disc. Turn off the grinder and pull out the electrode holder after the grinder has stopped turning.

Remove the electrode from the electrode holder by re-inserting the electrode into the stick-out adjustment and turn it counterclockwise. Then pull out the electrode.

To create a flat tip on the electrode after grinding:

- Set the grinding angle to 90° (while grinder is turned off)
- Put the electrode holder with the electrode in the angle adjustment again
- Turn the tightening screw on the angle setting until you feel the tip of the electrode touches the grinding wheel.
- Then turn the tightening screw down. A point on the brass bearing on top of the screw corresponds to removing 0.1 mm off the tip.
- Pull the electrode away from the grinding disc.
- Start the grinder and gently push down the electrode holder with a turning movement and the tip is flattened.
- Turn off the grinder and pull out the electrode holder



## 8. Maintenance

The ULTIMA-TIG-S must always have sufficient grinding liquid, in order to ensure an optimum collection of dust and cooling of the grinding process. For this reason, check the amount of grinding liquid regularly and top up if necessary. A mark on the glass frame indicates the correct amount of grinding liquid (measured while the grinder is off). To ensure a long service life of the grinder and the diamond disc - only use original Inelco Grinders grinding liquid.

Replace grinding fluid heavily contaminated with dust.

**Deposit grinding fluid and/or containers containing dust in accordance with national regulations depending on the grinding dust content. Please see the data sheet of the selected electrodes.**

### Daily Inspection

In order to ensure free movement of the angle adjustment, move it all the way back and forward every day. Not following this procedure, the machine will gradually collect dust inside the grinding chamber, and as a result, the angle setting will be stuck and it is impossible to change the grinding disc.

### Monthly/1000 grind service

Clean the grinding chamber when the LED lights yellow or at least once every month following these steps:.

1. Drain out the grinding fluid through the hose into an empty container.
2. Set the angle adjustment to 90°.
3. Remove the two screws, the frame and the inspection cover.
4. Wipe off the grinding chamber with a cloth or paper towel. Eventually remaining stuck dust can carefully be scraped off.



5. Mount the inspection cover and frame and top up with grinding liquid.
6. Reset the service counter by turning on the grinder and pressing and holding the pushbutton for 3 seconds.

If the grinding liquid does not come out of the hose, it may be due to grinding dust inside the grinding chamber, which is blocking the hole. To get the grinding dust away, press a little air or grinding fluid through the hose, using the grinding fluid bottle.



### Quarterly/5000 grind service

When the LED blinks yellow or at least once every three months clean the inside of the grinding chamber following these steps:

The power to the ULTIMA-TIG-S must be turned off – pull out the plug.

1. Drain out the grinding fluid through the hose into an empty container.
2. Set the angle adjustment to 90°.
3. Remove the dust collector under the grinding chamber.
4. Place a support under the motor housing, ~20mm tall. Remove the three torx screws on the back of the grinding chamber and the two bolts under the table. Now you can remove the grinding chamber from the motor housing.
5. Clean out the grinding dust inside the grinding chamber. Dismantle the angle adjust unit if necessary. Make sure the angle adjust unit can slide smoothly all the way back and forth.
6. When assembling the parts add bearing grease to all moving parts, screws and gaskets except for the Inspection cover mounting.
7. Check the O-ring on the backplate before mounting the grinding chamber.
8. Mount and tighten the torx screws and the two bolts.
9. Carefully check the dust collector before mounting and top up with new grinding fluid.
10. Reset the service counter by turning on the grinder and pressing and holding the pushbutton for 5 seconds.

Clean The ULTIMA-TIG-S thoroughly each time the grinding wheel are replaced, when the dust collector is full, or earlier if necessary. Perform cleaning as mentioned above.

It is advisable that the person performing the cleaning is carrying the necessary protective gear.

It can be difficult to remove the grinding dust from the aluminum parts without damaging the parts; boiling hot water is an effective way to dissolve the grinding dust.

**Do not use chemicals, solvents or high pressure cleaning.**

Check the cable regularly. Only qualified personnel must replace it. If necessary, contact Inelco Grinders A/S or your local distributor for service contact.

## 9. Replacement of grinding disc

Please follow the procedure below when disassembling the machine:

The power to the ULTIMA-TIG-S **must** be turned off – pull out the plug.

Tap of the grinding liquid; Remove the two screws, the cover frame and the plastic inspection cover. Set the grinding angle to 90°. The disc is now assessable. Unlock the center screw (**Note:** Left-hand screw). Remove the retaining disc and the Grinding disc and mount a new grinding disc.

## 10. Field of application

**Only use** the grinder for grinding of **tungsten electrodes** .

## 11. Technical specifications

The ULTIMA-TIG-S is covered by Tungsten grinder patent application No. 95942059.7.  
Current class: (single-phase alternating current) 1x110V or 1x220-240V AC. Depending on the model. Please see the nameplate on the grinder for the power supply.  
Safety protected with protective earth. According to directive 2014/35/EU.

## 12. Training

No special education is required to operate the ULTIMA-TIG-S. However, persons who are to operate the ULTIMA-TIG-S machine should read the instruction manual thoroughly beforehand and to have received basic training in use of the machine.

## 13. Safety data sheet for grinding fluid

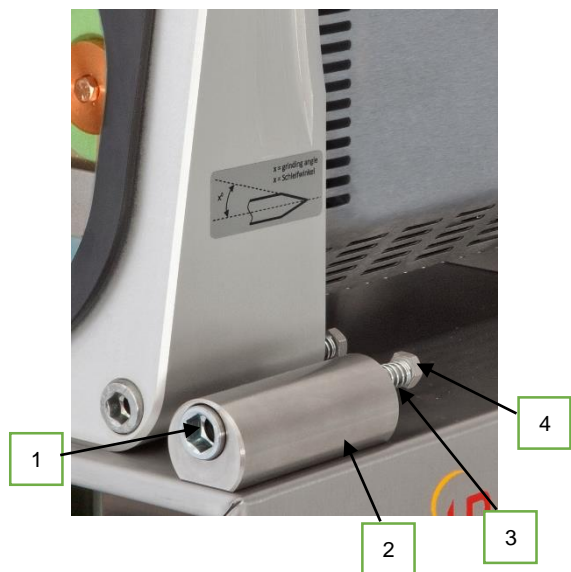
Please go to following link <http://www.inelco-grinders.com/specifications> to find the MSDS data sheet for the grinding fluid.



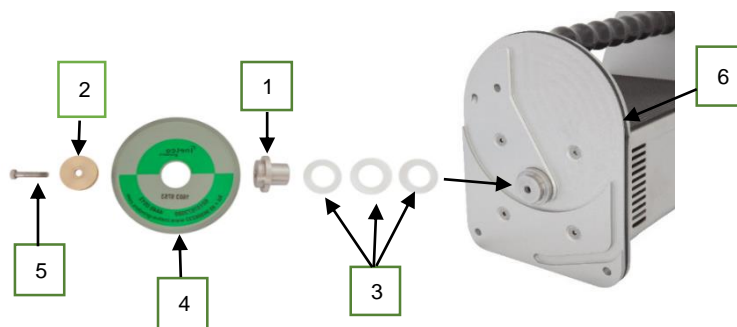
### 14. Spare Parts overview



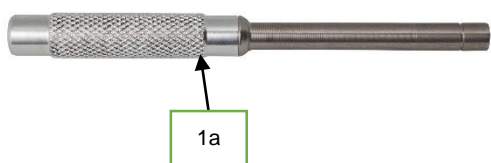
Pos.	Item No.	Description
1	75522500	Drain/filling pipe
2a	44490901	Frame
2b	44490700	Plastic Inspection Cover
2c	44520009	Packing ring f. insp. cover
2d	40320410	Retaining screw M4x10
3	44521001	Angle adjustment 4,8
4	44520007	Metal strip
5	44521008	Logging scale busch 4,8
6	44521022	Stretching screw 4,8
6a	44470312	O-ring ø12x2
7	44521004	Tightning screw 4,8 mm
7a	40310404	Pointed screw M4x6
8	44470124	Rubber pack
9	44521027	Bearing outward 4,8
10	44520024	Screw f. stick-out
11	40040670	Screw M6x70
12	44520028	Spring f. stick-out
13	62189220	Degree scale



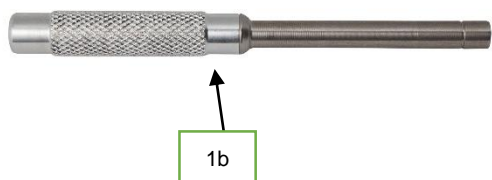
Pos.	Item No.	Description
1	44520025	Bolt for Stickout 4,8 mm
2	44521030	House for stickout 4,8 mm
3	44520028	Spring f. stick-out
4	40040670	Screw M6x70



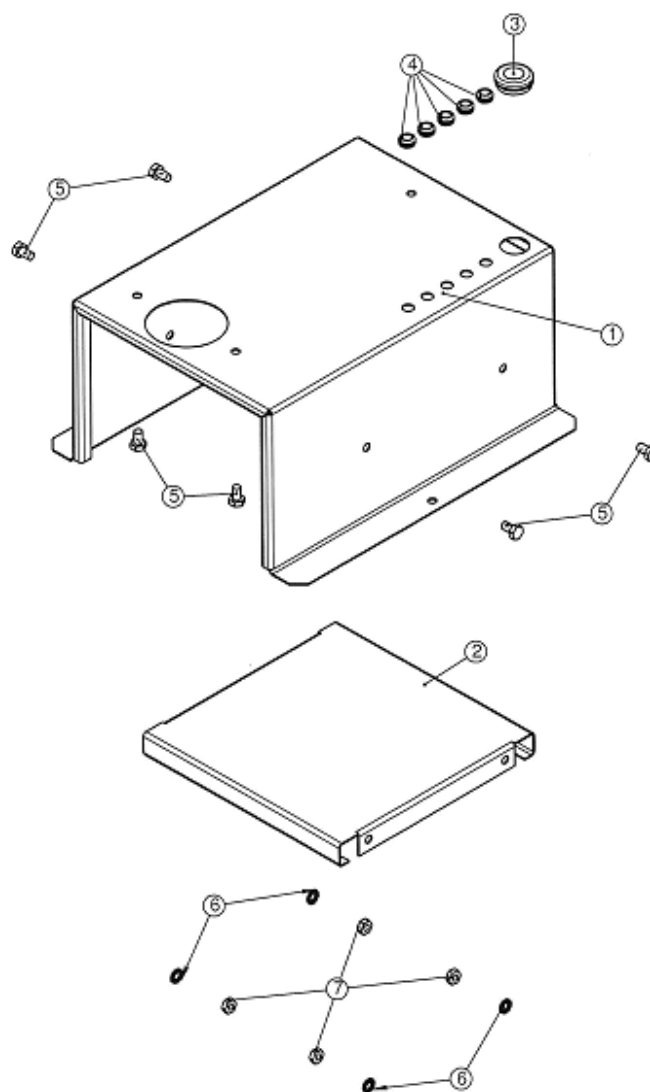
Pos.	Item No.	Description
1	44520017	Bush f. wheel
2	41530530	U-wheel UT
3	44520018	Weather ring f. bush (set)
4	44490512	Diamond disc
5	44496525	Screw M5 left-hand
6	44520010	Packing ring f. rear plate



Pos.	Item No.	Description
1a	75521023	Electrode holder for Ø4,8-8mm
1b	75520123	Electrode holder for Ø0,8-4,0 mm
2	75494500	Liquid container





### 15. Working table



Pos.	Item No.	Description
1	44529011	Desk Console
2	44529002	Stiffening plate
3	44470124	Membrane
4	44470029	Gum lead-in ring
5	40040610	Bolt M6x10
6	41711106	Tooth lock washer Ø6
7	41110605	Nut M6

The worktable has a protective film. Remove it before assembly.

### 16. Accessories

Item No.	Electrode Clamp 	Item No.	For short electrodes 
44510158	Electrode clamp, Diameter 0,8 mm	44511162	Electrode clamp, Diameter 1,6 mm
44510171	Electrode clamp, Diameter 1,0 mm	44511164	Electrode clamp, Diameter 2,4 mm
44510161	Electrode clamp, Diameter 1,2 mm	44511165	Electrode clamp, Diameter 3,2 mm
44510163	Electrode clamp, Diameter 1,5 mm	44511171	Electrode clamp, Diameter 1,0 mm
44510162	Electrode clamp, Diameter 1,6 mm	44511172	Electrode clamp, Diameter 2,0 mm
44510172	Electrode clamp, Diameter 2,0 mm	44511173	Electrode clamp, Diameter 3,0 mm
44510164	Electrode clamp, Diameter 2,4 mm	44511174	Electrode clamp, Diameter 4,0 mm
44510173	Electrode clamp, Diameter 3,0 mm		
44510165	Electrode clamp, Diameter 3,2 mm		
44510174	Electrode clamp, Diameter 4,0 mm		
Item No.	Electrode Clamp 		
44510167	Electrode clamp, Diameter 4,8 mm		
44510168	Electrode clamp, Diameter 5,3 mm		
44510169	Electrode clamp, Diameter 6,45 mm		
44510170	Electrode clamp, Diameter 8,0 mm		



Item No.	Grinding Liquid – EP770
75491200	Grinding liquid, 250 ml
75491201	Liquid disposal bottle 250ml
75494000	Grinding liquid, 5 litre
75491301	Grinding Liquid Con. 250 ml
75491300	Grinding liquid Conc. 3 L for 60 L
75491305	Grinding Liquid conc. 4,5 L
44491225	Tap for 5 L canister

AutoGrind for automated grinding on the ULTIMA-TIG-S, can be retrofitted.  
Ask your dealer for more information.



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**5/51 Taunton Drive**  
**Cheltenham Vic 3192**  
**Tel 03 8516 2472**  
**Fax 03 9011 6203**

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**NEUTRA grinding liquid**  
**Ultima TIG Grinding Liquid (concentrate)**

**Material Safety Data Sheet**

## 1. Supplier

**Welding Automation Pty Ltd**  
**5/51 Taunton Drive**  
**Cheltenham**  
**Victoria 3192**

**Phone: 03 8516 2472**

**Fax: 03 9011 6203**

## 2. Product Identification

### Names:

**Neutra Grinding Liquid EP770**

**Ultima TIG Grinding Liquid (concentrate)**

### Part Numbers;

**75491200; 75491301**

**75491300; 75494500**

## 2.1 Use

When diluted (19:1) with water, used as lubricant/coolant in NEUTRA and Ultima-TIG tungsten grinding machines.

## 3.1 Appearance

Green, water-based liquid.

## 3.2 Odour

None detectable.

## 3.3. Ingredients

Alcanolamine compounds,  
glycol derivatives,  
preservatives,  
dye and water.

## 3.4 Physical & chemical properties

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Green
<b>Odour:</b>	Faint
<b>pH:</b>	8,0
<b>Boiling point:</b>	100 ° C
<b>Melting point:</b>	< 0° C
<b>Density:</b>	1,02g/ml
<b>Solubility in water:</b>	Fully miscible.



### 3.5 Hazard Identification

Not classified as hazardous

Repeated or prolonged contact may lead to skin irritation.

### 4. First aid measures

- Eyes:** Immediately flood the eyes with plenty of water for at least 15 min, holding the eye open.  
Obtain medical assistance if soreness or redness persists.
- Skin:** Wash skin with soap and water.
- Inhalation:** Remove the person from exposure.
- Ingestion:** Wash out mouth with water. Do not induce vomiting. Obtain medical assistance.

### 5. Flammability

- Danger of fire:** The product is unable to develop fire or explosion.
- Extinguishing media:** None required.
- Precautions:** Avoid inhalation of hazardous fumes of the fire.

### 6. Accidental release measures

- Spillages:**  
Contain and absorb using earth, sand or other inert material.  
Transfer into suitable container for recovery or disposal

### 7. Handling and storage

- Handling:** Avoid contact with the skin and eyes. Avoid inhalation.
- Storage:** Storage temperature should be controlled between 1- 40° C

### 8. Exposure controls & personal protection

When using the product inside the wet grinder there is no need of personal protection.

If any risk of contact with the skin, use PVC or rubber gloves.

If any risk of eye contact, use chemical goggles.

## **9. Stability & reactivity**

The product is stable under normal conditions

## **10. Toxicological information**

**Short-term effects:** Contact with the eyes will cause irritation

**Long-term effects:** Long-term or repeated skin contact with the concentrate may result in inflammation of the skin.

## **12. Ecological information**

The product is not classified as dangerous to the environment.

The product will leach into soil.

## **13. Disposal**

Used fluid is to be disposed of according to local regulations or returned to Inelco A/S or its distributors.

## **14. Transport information**

The product is not classified as dangerous goods

## **15. Labelling**

Classification : Hazard labelling is not required

R-sentences : none

S-sentences : none

## **16. Other information**

MSDS date revised: January 2019.

