



## SAFETY DATA SHEET

WILLOWCHEM 81

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Compilation date: 20/09/2007

Revision date: 10/04/2016

Revision No: 4

### Section 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name: WILLOWCHEM 81

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: PC14: Metal surface treatment products, including galvanic and electroplating products.  
Metal treatment / processing. Pickling solution

#### 1.3. Details of the supplier of the safety data sheet

Company name: MPE Limited  
Unit 6/7 Hirwaun Industrial Estate  
Hirwaun, Aberdare  
Rhondda Cynon Taff  
CF44 9UP  
United Kingdom  
Tel: 01685 812765

Email: sales@mpelimited.co.uk

#### 1.4. Emergency telephone number

Emergency tel: 01685 812765

### Section 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Classification under CHIP: T: R23/24/25; C: R35

Classification under CLP: Skin Corr. 1A: H314; Acute Tox. 2: H310; Acute Tox. 3: H301+331

Most important adverse effects: Toxic by inhalation, in contact with skin and if swallowed. Causes severe burns.

#### 2.2. Label elements

##### Label elements:

Hazard statements: H301+331: Toxic if swallowed or if inhaled.

H310: Fatal in contact with skin.

H314: Causes severe skin burns and eye damage.

Signal words: Danger

Hazard pictograms: GHS05: Corrosion

GHS06: Skull and crossbones



[cont...]

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**Precautionary statements:** P260: Do not breathe dust/fumes/gas/mist/vapours/spray.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P303+361+353: IF ON SKIN (or hair): Take off immediately all contaminated clothing.  
Rinse skin with water/shower.  
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P307+311: IF exposed or concerned: Call a POISON CENTER/doctor/Emergency Department.  
P321: Specific treatment (see ingredients on this label).

## Label elements under CHIP:

**Hazard symbols:** Corrosive.

Toxic.



**Risk phrases:** \* R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.

R35: Causes severe burns.

## 2.3. Other hazards

**PBT:** This product is not identified as a PBT/vPvB substance.

## Section 3: Composition/information on ingredients

### 3.2. Mixtures

#### Hazardous ingredients:

NITRIC ACID - REACH registered number(s): 01-2119487297-23-XXXX

| EINECS    | CAS       | CHIP Classification | CLP Classification                    | Percent |
|-----------|-----------|---------------------|---------------------------------------|---------|
| 231-714-2 | 7697-37-2 | O: R8; C: R35       | Ox. Liq. 3: H272; Skin Corr. 1A: H314 | 10-30%  |

FERRIC SULPHATE - REACH registered number(s): 01-2119513202-59-XXXX

|           |            |                     |   |        |
|-----------|------------|---------------------|---|--------|
| 233-072-9 | 10028-22-5 | Xn: R22; Xi: R36/37 | Acute Tox. 4: H302; Eye Irrit. 2: H319; STOT SE 3: H335 | 10-30% |
|-----------|------------|---------------------|---|--------|

HYDROFLUORIC ACID - REACH registered number(s): 01-2119458860-33-XXXX

|           |           |                       |   |       |
|-----------|-----------|-----------------------|---|-------|
| 231-634-8 | 7664-39-3 | T+: R26/27/28; C: R35 | Acute Tox. 2: H330; Acute Tox. 1: H310; Acute Tox. 2: H300; Skin Corr. 1A: H314 | 1-10% |
|-----------|-----------|-----------------------|---|-------|

## Section 4: First aid measures

### 4.1. Description of first aid measures

**Skin contact:** \* Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Remove all contaminated clothes and footwear immediately unless stuck to skin. Apply Calcium Gluconate gel to site whilst wearing gloves. Transfer to hospital.

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**Eye contact:** \* Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

**Ingestion:** \* Do not induce vomiting. Wash out mouth with water. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

**Inhalation:** \* Remove casualty from exposure ensuring one's own safety whilst doing so. If conscious, ensure the casualty sits or lies down. If unconscious and breathing is OK, place in the recovery position. If unconscious, check for breathing and apply artificial respiration if necessary. Transfer to hospital as soon as possible.

## 4.2. Most important symptoms and effects, both acute and delayed

**Skin contact:** \* Severe burns may occur. Blistering may occur. Progressive ulceration will occur if treatment is not immediate. Absorption through the skin may be fatal. Product is readily absorbed through the skin and may carry such materials into the body and blood stream. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning. Effects can be delayed but onset can result in severe injury.

**Eye contact:** \* Risk of serious damage to eyes. Corneal burns may occur. There may be severe pain. May cause permanent damage.

**Ingestion:** \* Ingestion may prove fatal. Corrosive burns may appear around the lips. Causes burns to the gastrointestinal tract. Inhalation of fumes from the stomach may cause symptoms similar to direct inhalation. Severe poisoning can cause shock, unconsciousness and convulsions. The breathing may become shallow and rapid. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion.

**Inhalation:** \* Inhalation may be fatal. There may be a feeling of tightness in the chest with shortness of breath. Corrosive to the mucous membrane. There may be loss of consciousness. Convulsions may occur. Absorption through the lungs can occur causing symptoms similar to those of ingestion. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning. Inhalation of NOx fumes can result in coughing, nausea & tiredness. High exposure levels can cause severe reactions including swelling of airways & the development of fluid on the lungs.

**Delayed / immediate effects:** \* Immediate effects can be expected after short-term exposure. Delayed effects can be expected after short-term exposure. Symptoms of poisoning may only appear several hours later. Symptoms of poisoning may only appear several days later.

[cont...]

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## 4.3. Indication of any immediate medical attention and special treatment needed

**Immediate / special treatment:** \* Show this safety data sheet to the doctor in attendance. A decontamination shower should be available on the premises. Eye bathing equipment should be available on the premises. Immediate medical attention is required. First responders should be careful not to contaminate themselves & should wear suitable PPE for treatment. Use the following antidotes: Calcium gluconate. Treat with calcium gluconate paste. At lower concentrations of hydrofluoric acid symptoms can be delayed. It is recommended that all staff handling this product are provided with a tube of calcium gluconate gel for storage at home & are trained to recognise delayed burns & poisoning.

## Section 5: Fire-fighting measures

### 5.1. Extinguishing media

**Extinguishing media:** \* Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

### 5.2. Special hazards arising from the substance or mixture

**Exposure hazards:** \* Toxic. Corrosive. In combustion emits toxic fumes of hydrogen fluoride. In combustion emits toxic fumes of sulphur oxides. In combustion emits toxic fumes of nitrogen oxides. May produce flammable Hydrogen gas when in contact with metals, with obvious explosion hazards.

### 5.3. Advice for fire-fighters

**Advice for fire-fighters:** \* Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

## Section 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** \* Wear suitable protective clothing. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Remove all incompatible materials as outlined in section 10 of SDS.

### 6.2. Environmental precautions

**Environmental precautions:** \* Do not discharge into drains or rivers. Contain the spillage using bunding.

### 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** \* Absorb into dry earth or sand. Neutralise spillage with alkaline material (i.e. soda ash, sodium bicarbonate). Transfer to a closable, labelled salvage container for disposal by an appropriate method. Wash the spillage site with large amounts of water.

### 6.4. Reference to other sections

**Reference to other sections:** \* Refer to section 8 of SDS. Refer to section 13 of SDS.

[cont...]

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## Section 7: Handling and storage

### 7.1. Precautions for safe handling

**Handling requirements:** \* Wear suitable protective clothing. Ensure there is sufficient ventilation of the area. It is recommended to carry out handling & processing operations utilising a suitable LEV system. It is recommended to have a HF emergency kit to hand whilst carrying out handling and processing operations, and also to avoid lone working conditions. Avoid the formation or spread of mists in the air. Avoid contact with the material and breathing its vapours. Ensure that contaminated clothing is thoroughly laundered prior to re-use.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** \* Store in a cool, well ventilated area. Keep container tightly closed. Avoid incompatible materials and conditions - see section 10 of SDS. Do not store near foodstuffs.

**Suitable packaging:** \* Must only be kept in original packaging. Polyethylene. Plastic. Plastic-lined. Some rubbers and plastics are attacked by the product. Do not use metal containers unless they are protected with plastic. Do not use glass.

### 7.3. Specific end use(s)

**Specific end use(s):** \* No special requirement.

## Section 8: Exposure controls/personal protection

### 8.1. Control parameters

#### \* Workplace exposure limits:

#### Respirable dust

| State | 8 hour TWA                    | 15 min. STEL                  | 8 hour TWA | 15 min. STEL |
|-------|-------------------------------|-------------------------------|------------|--------------|
| UK    | 1.5 mg/m <sup>3</sup> (As HF) | 2.5 mg/m <sup>3</sup> (As HF) | -          | -            |

#### Hazardous ingredients:

#### NITRIC ACID...100%

#### Workplace exposure limits:

#### Respirable dust

| State | 8 hour TWA | 15 min. STEL          | 8 hour TWA | 15 min. STEL |
|-------|------------|-----------------------|------------|--------------|
| UK    | -          | 2.6 mg/m <sup>3</sup> | -          | -            |

#### FERRIC SULPHATE

|    |                     |                     |   |   |
|----|---------------------|---------------------|---|---|
| EU | 1 mg/m <sup>3</sup> | 2 mg/m <sup>3</sup> | - | - |
|----|---------------------|---------------------|---|---|

#### HYDROFLUORIC ACID...100%

|    |                       |                       |   |   |
|----|-----------------------|-----------------------|---|---|
| UK | 1.5 mg/m <sup>3</sup> | 2.5 mg/m <sup>3</sup> | - | - |
|----|-----------------------|-----------------------|---|---|

### DNEL/PNEC Values

DNEL / PNEC No data available.

[cont...]

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## 8.2. Exposure controls

**Engineering measures:** \* Ensure there is sufficient ventilation of the area. Ensure all engineering measures mentioned in section 7 of SDS are in place. It is recommended to carry out handling & processing operations utilising an appropriate LEV system.

**Respiratory protection:** \* Particle filter class P3SL (EN143). Gas/vapour filter, type B: inorganic vapours excl. CO (EN141). Gas/vapour filter, type E: sulphur dioxide and other acid gases (EN141).

**Hand protection:** \* Gloves (acid resistant). Butyl gloves.

**Eye protection:** \* Safety glasses. Face-shield. Ensure eye bath is to hand.

**Skin protection:** \* Acid-resistant protective clothing. Wear full chemical suit. Wear wellingtons. Ensure safety shower is to hand.

**Environmental:** \* No special requirement. Ensure all engineering measures mentioned in section 7 of SDS are in place.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**State:** Liquid

**Colour:** Green

**Odour:** Acidic.

**Evaporation rate:** Negligible

**Oxidising:** Non-oxidising (by EC criteria)

**Solubility in water:** Miscible in all proportions

**Viscosity:** Non-viscous

**Boiling point/range°C:** ~ 100

**Flash point°C:** >93

**Relative density:** ~1.25 g/ml @ 20oC

**pH:** ~ 1

### 9.2. Other information

**Other information:** Product is not flammable. No further information available at this time.

## Section 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity:** \* Stable under recommended transport or storage conditions.

### 10.2. Chemical stability

**Chemical stability:** \* Stable under normal conditions. Will liberate NOx fumes under sealed storage conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous reactions:** \* Hazardous reactions will not occur under normal transport or storage conditions.

### 10.4. Conditions to avoid

**Conditions to avoid:** \* Hot surfaces. Extremes of temperature.

[cont...]

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## 10.5. Incompatible materials

**Materials to avoid:** \* Alkalis. Bases. Oxidising agents. Finely powdered metals. May react with certain metals to liberate flammable Hydrogen gas.

## 10.6. Hazardous decomposition products

**Haz. decomp. products:** \* In combustion emits toxic fumes of sulphur oxides. In combustion emits toxic fumes of nitrogen oxides. In combustion emits toxic fumes of hydrogen fluoride.

## Section 11: Toxicological information

### 11.1. Information on toxicological effects

#### Hazardous ingredients:

#### HYDROFLUORIC ACID...100%

|     |     |      |     |       |
|-----|-----|------|-----|-------|
| IPR | RAT | LDLO | 25  | mg/kg |
| SCU | FRG | LDLO | 112 | mg/kg |

#### Relevant effects for mixture:

| Effect                 | Route       | Basis                 |
|------------------------|-------------|-----------------------|
| Acute toxicity (toxic) | INH DRM ING | Hazardous: calculated |
| Corrosivity            | OPT INH DRM | Hazardous: calculated |

### Symptoms / routes of exposure

**Skin contact:** \* Severe burns may occur. Blistering may occur. Progressive ulceration will occur if treatment is not immediate. Absorption through the skin may be fatal. Product is readily absorbed through the skin and may carry such materials into the body and blood stream. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning. Effects can be delayed but onset can result in severe injury.

**Eye contact:** \* Risk of serious damage to eyes. Corneal burns may occur. There may be severe pain. May cause permanent damage.

**Ingestion:** \* Ingestion may prove fatal. Corrosive burns may appear around the lips. Causes burns to the gastrointestinal tract. Inhalation of fumes from the stomach may cause symptoms similar to direct inhalation. Severe poisoning can cause shock, unconsciousness and convulsions. The breathing may become shallow and rapid. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion.

**Inhalation:** \* Inhalation may be fatal. There may be a feeling of tightness in the chest with shortness of breath. Corrosive to the mucous membrane. There may be loss of consciousness. Convulsions may occur. Absorption through the lungs can occur causing symptoms

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similar to those of ingestion. May cause acute systematic poisoning by absorption of fluoride ions through the skin, by inhalation of evolved fumes or by ingestion. Absorption into the blood of fluoride ions by any route can cause acute systemic poisoning.

Inhalation of NOx fumes can result in coughing, nausea & tiredness. High exposure levels can cause severe reactions including swelling of airways & the development of fluid on the lungs.

**Delayed / immediate effects:** \* Immediate effects can be expected after short-term exposure. Delayed effects can be expected after short-term exposure. Symptoms of poisoning may only appear several hours later. Symptoms of poisoning may only appear several days later.

**Other information:** \* There is no further information at this time.

## Section 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity values:** No data available.

### 12.2. Persistence and degradability

**Persistence and degradability:** The product is inorganic so can not be biodegradable, however it is expected to degrade or disassociate.

### 12.3. Bioaccumulative potential

**Bioaccumulative potential:** Product is not expected to bioaccumulate.

### 12.4. Mobility in soil

**Mobility:** Non-volatile. Soluble in water.

### 12.5. Results of PBT and vPvB assessment

**PBT identification:** This product is not identified as a PBT/vPvB substance.

### 12.6. Other adverse effects

**Other adverse effects:** Expected to have an effect on aquatic life if in sufficient quantities. Large doses causes high/low pH which may affect effluent and sewage treatment processes. Discharge of large quantities may kill fish and other aquatic life due to increase/decrease in pH. Fluorides will cause brown discolouration of leaves and shedding at 5 ppb (As F), sensitive at 0.1 ppb. Do not allow to enter watercourses or soils. Spillage in sewers or waterways must be avoided.

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Disposal operations:** Transfer to a suitable container and arrange for collection by specialised disposal company.

**Recovery operations:** No information available at this time.

**Disposal of packaging:** Contaminated containers must not be treated as household waste. Where practical, containers and packaging should be recycled by a licenced contactor.

[cont...]



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**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

## Section 14: Transport information

### 14.1. UN number

**UN number:** UN2922

### 14.2. UN proper shipping name

**Shipping name:** CORROSIVE LIQUID, TOXIC, N.O.S.  
(HYDROFLUORIC ACID; NITRIC ACID)

### 14.3. Transport hazard class(es)

**Transport class:** 8 (6.1)

### 14.4. Packing group

**Packing group:** II

### 14.5. Environmental hazards

**Environmentally hazardous:** No

**Marine pollutant:** No

### 14.6. Special precautions for user

**Tunnel code:** E

**Transport category:** 2

## Section 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**Specific regulations:** \* This product is a Seveso category/named substance in Annex I of Council Directive 96/82/EC. This product is controlled under Regulation (EU) No 98/2013 on the marketing and use of explosives precursors, and The Control of Explosive Precursor Regulations 2014 (SI 1942).

### 15.2. Chemical Safety Assessment

**Chemical safety assessment:** \* A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

## Section 16: Other information

### Other information

**Other information:** This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

This safety data sheet is prepared in accordance with Commission Regulation (EC) No 1272/2008.

\* indicates text in the SDS which has changed since the last revision.

WARNING: For professional use only.

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This product should only be handled by persons who are suitably trained. In addition a first aid kit containing calcium gluconate should be readily available at all storage & handling locations.

**Phrases used in s.2 and s.3:** H272: May intensify fire; oxidiser.  
H300: Fatal if swallowed.  
H301+331: Toxic if swallowed or if inhaled.  
H302: Harmful if swallowed.  
H310: Fatal in contact with skin.  
H314: Causes severe skin burns and eye damage.  
H319: Causes serious eye irritation.  
H330: Fatal if inhaled.  
H335: May cause respiratory irritation.  
R8: Contact with combustible material may cause fire.  
R22: Harmful if swallowed.  
R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.  
R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.  
R35: Causes severe burns.  
R36/37: Irritating to eyes and respiratory system.

**Legal disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.