

# SAFETY DATA SHEET

## 1. Identification

**Product identifier**                      **Worthington Water Soluble Soldering Flux**

**Other means of identification**

**SDS number**                              WC015

**Recommended use**                      Soldering flux.

**Recommended restrictions**        None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer/Supplier**                Worthington Cylinder Corporation

**Address**                                    200 Old Wilson Bridge Road

Columbus, OH 43085

United States

**Email:**                                    cylinders@worthingtonindustries.com

**Telephone Number:**                866-928-2657

**CHEMTREC - 24 HOURS:**

**Within US and Canada**                800-424-9300

**Outside US and Canada**              +1 703-741-5970 (collect calls accepted)

## 2. Hazard(s) identification

**Physical hazards**                        Not classified.

**Health hazards**                         Skin corrosion/irritation                      Category 2

Serious eye damage/eye irritation        Category 1

**Environmental hazards**                Hazardous to the aquatic environment, acute hazard        Category 2

Hazardous to the aquatic environment, long-term hazard                      Category 2

**OSHA defined hazards**                Not classified.

**Label elements**



**Signal word**                                Danger

**Hazard statement**                      Causes skin irritation. Causes serious eye damage. Toxic to aquatic life with long lasting effects.

**Precautionary statement**

**Prevention**                                Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/eye protection/face protection.

**Response**                                 If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Collect spillage.

**Storage**                                    Store away from incompatible materials.

**Disposal**                                    Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)**        None known.

**Supplemental information**            None.

## 3. Composition/information on ingredients

**Mixtures**

Chemical name	CAS number	%
Water	7732-18-5	85
Wax binder	NA	10
Hydrochloric acid	7647-01-0	2.5
Zinc chloride	7646-85-7	2.5

**Composition comments** All concentrations are in percent by weight.

#### 4. First-aid measures

**Inhalation** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention if discomfort persists.

**Skin contact** Remove and isolate contaminated clothing and shoes. Immediately flush with plenty of water for at least 15 minutes. Wash clothing separately before reuse. Get medical attention if irritation develops and persists.

**Eye contact** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

**Ingestion** If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Do not use mouth-to-mouth method if victim ingested the substance. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed** Causes skin irritation. May cause redness and pain. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

**Indication of immediate medical attention and special treatment needed** Treat symptomatically. Exposure may aggravate pre-existing respiratory, lung or kidney disorders.

**General information** Show this safety data sheet to the doctor in attendance.

#### 5. Fire-fighting measures

**Suitable extinguishing media** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media** None.

**Specific hazards arising from the chemical** Fire may produce irritating, corrosive and/or toxic gases.

**Special protective equipment and precautions for firefighters** Firefighters should wear full protective clothing including self contained breathing apparatus.

**Fire fighting equipment/instructions** Move containers from fire area if you can do it without risk.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards** Will release small amounts of HCL upon decomposition.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up** Prevent product from entering drains. Stop the flow of material, if this is without risk. Neutralize with Sodium Bicarbonate or Soda Ash. Dilute with plenty of water. Clean surface thoroughly to remove residual contamination. Do not flush to sewer.

**Environmental precautions** Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

### Precautions for safe handling

Do not get in eyes and avoid contact with skin and clothing. Do not breathe fume/mist/vapors. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

### Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store below melting temperature. Keep away from heat. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	7 mg/m <sup>3</sup>	
Zinc chloride (CAS 7646-85-7)	PEL	5 ppm 1 mg/m <sup>3</sup>	Fume.

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	2 ppm	
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m <sup>3</sup>	Fume.
	TWA	1 mg/m <sup>3</sup>	Fume.

#### US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Hydrochloric acid (CAS 7647-01-0)	Ceiling	7 mg/m <sup>3</sup>	
Zinc chloride (CAS 7646-85-7)	STEL	5 ppm 2 mg/m <sup>3</sup>	Fume.
	TWA	1 mg/m <sup>3</sup>	Fume.

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide easy access to water supply and eye wash facilities.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear approved safety glasses or goggles.

#### Skin protection

##### Hand protection

Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

##### Skin protection

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory protection

Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the OEL. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

Physical state	Semi-solid.
Form	Paste.
Color	White.

<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	1
<b>Melting point/freezing point</b>	140 °F (60 °C) / 14 °F (-10 °C)
<b>Initial boiling point and boiling range</b>	219.2 °F (104 °C)
<b>Flash point</b>	Not applicable.
<b>Evaporation rate</b>	0.6 (Butyl acetate = 1)
<b>Flammability (solid, gas)</b>	Non flammable.
<b>Upper/lower flammability or explosive limits</b>	
<b>Flammability limit - lower (%)</b>	Not applicable.
<b>Flammability limit - upper (%)</b>	Not applicable.
<b>Explosive limit - lower (%)</b>	Not applicable.
<b>Explosive limit - upper (%)</b>	Not applicable.
<b>Vapor pressure</b>	Not applicable.
<b>Vapor density</b>	Not applicable.
<b>Relative density</b>	0.99 (H2O=1)
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Completely soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.
<b>VOC</b>	0 %

## 10. Stability and reactivity

<b>Reactivity</b>	The product is non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Contact with metals. Excessive heat or cold. Contact with incompatible materials.
<b>Incompatible materials</b>	Alkalines. Strong oxidizing agents. Reducing agents. Cyanides. Combustible material.
<b>Hazardous decomposition products</b>	Thermal decomposition or combustion may liberate corrosive gases or fumes. Hydrogen chloride gas. Zinc oxides. Zinc chloride. Ammonium fume.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Irritating to respiratory system.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes serious eye damage.
<b>Ingestion</b>	May cause discomfort if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Causes skin irritation. May cause redness and pain. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

### Information on toxicological effects

**Acute toxicity** Not expected to be acutely toxic.

Components	Species	Test Results
Hydrochloric acid (CAS 7647-01-0)		
<b>Acute</b>		
<b>Dermal</b>		
LD50	Rabbit	> 5100 mg/kg
<b>Inhalation</b>		
<b>Gas</b>		
LC50	Rat	4.2 mg/l, 1 hours
<b>Oral</b>		
LD50	Rat	238 - 277 mg/kg
Zinc chloride (CAS 7646-85-7)		
<b>Acute</b>		
<b>Oral</b>		
LD50	Mouse	350 mg/kg
<b>Skin corrosion/irritation</b>	Causes skin irritation.	
<b>Serious eye damage/eye irritation</b>	Causes serious eye damage.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	Not a respiratory sensitizer.	
<b>Skin sensitization</b>	Not a skin sensitizer.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Hydrochloric acid (CAS 7647-01-0)	3 Not classifiable as to carcinogenicity to humans.	
<b>NTP Report on Carcinogens</b>		
Not listed.		
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)</b>		
Not regulated.		
<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects.	
<b>Specific target organ toxicity - single exposure</b>	Not classified.	
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.	
<b>Aspiration hazard</b>	Not an aspiration hazard.	
<b>Chronic effects</b>	Can cause delayed lung injury.	
<b>Further information</b>	No other specific acute or chronic health impact noted.	

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

Components	Species	Test Results	
Hydrochloric acid (CAS 7647-01-0)			
<b>Aquatic</b>			
<i>Acute</i>			
Crustacea	EC50	Daphnia magna	0.492 mg/l, 48 Hours
Fish	LC50	Oncorhynchus mykiss	7.45 mg/l, 96 Hours
Zinc chloride (CAS 7646-85-7)			
<b>Aquatic</b>			
Crustacea	EC50	American or virginia oyster (Crassostrea virginica)	0.1511 - 0.2782 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	0.101 - 0.197 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this product.

<b>Bioaccumulative potential</b>	No data available on bioaccumulation.
<b>Mobility in soil</b>	This product is water soluble and may disperse in soil.
<b>Other adverse effects</b>	This product contains one or more substances identified as hazardous air pollutants (HAPs) per the US Federal Clean Air Act (see section 15). The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

### 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Local disposal regulations</b>	Dispose in accordance with all applicable regulations.
<b>Hazardous waste code</b>	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### 14. Transport information

#### DOT

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	Environmentally hazardous substances, solid, n.o.s. (Zinc chloride)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33
<b>Packaging exceptions</b>	155
<b>Packaging non bulk</b>	213
<b>Packaging bulk</b>	240

#### IATA

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	Environmentally hazardous substance, solid, n.o.s. (Zinc chloride)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	9
<b>Packing group</b>	III
<b>Environmental hazards</b>	Yes
<b>ERG Code</b>	9L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

#### IMDG

<b>UN number</b>	UN3077
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC CHLORIDE)
<b>Transport hazard class(es)</b>	
<b>Class</b>	9
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	Yes
<b>EmS</b>	F-A, S-F
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

## 15. Regulatory information

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

### CERCLA Hazardous Substance List (40 CFR 302.4)

Hydrochloric acid (CAS 7647-01-0)	LISTED
Zinc chloride (CAS 7646-85-7)	LISTED

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories**  
Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

### SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Hydrochloric acid	7647-01-0	5000	500		

**SARA 311/312 Hazardous chemical** Yes

### SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Hydrochloric acid	7647-01-0	2.5
Zinc chloride	7646-85-7	2.5

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Hydrochloric acid (CAS 7647-01-0)

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrochloric acid (CAS 7647-01-0)

**Safe Drinking Water Act (SDWA)** Not regulated.

#### Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Hydrochloric acid (CAS 7647-01-0) 6545

#### Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Hydrochloric acid (CAS 7647-01-0) 20 %WV

#### DEA Exempt Chemical Mixtures Code Number

Hydrochloric acid (CAS 7647-01-0) 6545

**US state regulations** California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

#### US. Massachusetts RTK - Substance List

Hydrochloric acid (CAS 7647-01-0)  
Zinc chloride (CAS 7646-85-7)

#### US. New Jersey Worker and Community Right-to-Know Act

Hydrochloric acid (CAS 7647-01-0)  
Zinc chloride (CAS 7646-85-7)

#### US. Pennsylvania Worker and Community Right-to-Know Law

Hydrochloric acid (CAS 7647-01-0)  
Zinc chloride (CAS 7646-85-7)

## US. Rhode Island RTK

Hydrochloric acid (CAS 7647-01-0)

Zinc chloride (CAS 7646-85-7)

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

### 16. Other information, including date of preparation or last revision

Issue date	28-May-2015
Revision date	21-June-2017
Version #	02
NFPA ratings	



#### Disclaimer

All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.