Material Safety Data Sheet

1. Identification of the Product & Company

Product Name：**Hydrochloric Acid**
Other Name：—
Suggested Use and Restriction：--
Company Name, Address, and Telephone No.： Yee Fong Chemical & Industrial Co., Ltd. Taoyuan Plant/No.377, Haihu E. Rd., Lujhu Township, Taoyuan County, Taiwan
Emergency Telephone No./Fax No.： TEL：(03) 3541944；FAX：(03) 3541957

2. Hazard Identification

GHS Classification：

Acute Toxicity Category 4，Corrosive/Skin Irritated Substance Category 2….

Label Element：

- Symbol：

- Signal Word：Warning
- Hazard Statement：

Harmful if Swallowed
Poison if Breathe In
Causes Metal Erosion
Causes Skin Burning and Eyes Damage
Causes Serious Eyes Damage

- Precautionary Statements：

1. Do not breathe in dust/fume/gas/mist/vapors/spray
2. If in eyes, rinse cautiously with water and seek for medical treatment.
3. Wear eye and face protection.
4. Applied in dry and cool place.

Other Hazard：-

3. Composition, Information on Ingredients

English Name：Hydrochloric Acid
Synonym：Hydrochloric Acid Solution, Hydrogen Chloride, Aqueous Hydrogen Chloride
CAS No. ：7647-01-0
Hazardous Ingredients(%) ： 37%

4. First Aid Measures

First Aid Procedures Under Different Exposure： • In Breathe： 1. Make sure self safety before first aid.。 2. Remove contaminated person to fresh air place and keep away from contaminats. 3. If in hard breathing, give patient oxygen by well-trained personnel. 4. Seek for medical treatment immediately. • Skin Contact： 1. Flush with plenty of water immediately for at least 20~30 minutes. 2. Take off contaminated clothes, shoes, leathers while in flushing. 3. Seek for medical treatment immediately. • Eye Contact： 1. Rinse with warm water immediately for at least 20~30 minutes. 2. Be cautious of contaminated water flow into another eye. 3. Seek for medical treatment immediately. • Ingestion： 1. Do not induce vomiting. 2. Give patient drink plenty of water to neutralize the chemicals. 3. Seek for medical treatment immediately.
The Most Dangerous Symptoms & Hazardous Effects： 1. High Corrosiveness 2. Causes irritation, even causes ablepsia.
Protection for Medical Personnel：Avoid eyes and skin contact and wear suitable protective clothing.
Doctor’ s Advices：1. Avoid Gastric Lavage 2. Inform doctor the exposed way.

5. Fire Fighting Measures

Suitable Extinguishing：It is nonflammable, and selects suitable fire

extinguisher aim at flaming substance.
Specific hazard that may be encountered when extinguishing：Produce Hydrogen if contact to metal.
Specific Extinguishing Procedures： 1. Spray the containers with mist. 2. Produce corrosive hydrochloric acid with humidity, produce hydrogen with metal, and may composed the explosive compound.
Specific Protection and Equipment for Fire-fighters：Wear respirator and suitable protective clothing.

6. Accidental Release Measure

Personal Precautions： 1. Restrict to enter leaking area. ◦ 2. Be sure the measure is responsible for well-trained personnel. 3. Wear personal protection equipment.
Environmental Consideration： 1. Cool and exchange the air for leaking area. 2. Remove all the combustion-supporting substances. 3. Report government or environmental organization.
Cleaning Method: 1. Keep the area cool and remove all substances which will react to hydrochloric acid. 2. Spray with mist or water to handle leaking vapor. 3. Try to stop leaking or decreasing leaking if in safe. 4. Avoid flushing into sewer system. 5. Recycle the solution if possible.

7. Handling & Storage

Handling：1. Avoid to vapor and mist leaking to the air of working area and

maintain the air cool and fresh. 2. Add acid into water slowly to avoid splashing when preparing solution. 3. Operate in minimum and in cool and dry place. 4. Containers should be labeled an close in tight to avoid damaging.
Storage：1. Store in cool and dry area and avoid the heat and sunlight. 2. Using incorrupt lighting and air system. 3. Store in limit, and examine whether it is damaged or leaked in regular.

8. Exposure Controls

Engineering Controls：—			
Control Parameters			
Average Allowable Concentration of Eight Hours Time Weighted	Average Allowable Concentration of Short Period	Maximum Allowable Concentration	Biological Indicators
—	—	5ppm	—
Personal Protection： • Respiratory Protection：Protective Respirator • Hand Protection：Rubber Gloves • Eye Protection：Chemical Goggles • Skin & Body Protection：Wear Imperious clothing such as boots or body suits. Body and eye flushing equipment is required in working place.			
Hygienic Measures： 1. Take off contaminated clothes immediately after work and clean thoroughly. 2. Do not smoke, eat, and drink. 3. Wash hands thoroughly after processing. 4. Keep the working place cleaned.			

9. Physical and Chemical Properties

Appearance：Clear, colorless to light yellowish liquid.	Odor：Irritated Acidity
Odor Threshold：1-5ppm	Melting Point： -35℃
PH：<1	Boiling Point/Boiling Range：110℃
Inflammability (solid/ liquid)：—	Flash Point: Not Flammable
Decomposition：—	Test Method：-
Ignition Temperature：—	Explosion Limits：—
Vapor Pressure：100mmhg@20℃	Vapor Density：1.3
Density：1.19g/cm3	Solubility：All Dissolved
Octanol／Water Partition Coefficient (log Kow)：—	Evaporation Rate：—

10. Stability & Reactivity

Stability：Stable。
Hazardous Reaction under Specific Conditions： 1. Avoid to high temperature(over 150℃) to decompose hydrogen and chlorine. 2. It will not be composed itself, but will compose to epoxide. 3. Metal: React to inflammable hydrogen. 4. Soda: Produce heat and pressure after acute reaction. 5. Aldehyde and epoxide: Be composed and produce heat and pressure. 6. Deoxidizer: React to produce heat and may causes fire and produce inflammable hydrogen. 7. Oxidizer: Produce heat and corrosive chlorine after reaction. 8. Explosive: Produce heat and cause explosion. 9. Acetylene Compound, Bromide, Carbide, Silicide: May react to produce flammable gas. 10. Cyanide, Sulfide: May react to produce toxic gas. 11. Phosphide: May react to produce toxicant and flammable hydrogen phosphide.

Conditions to Avoid： Heat and high temperature.
Substances to be Avoided：Metal, Soda, Aldehyde, epoxide, Deoxidizer, Oxidizer, Explosive, Acetylene Compound, Bromide, Carbide, Silicide, Cyanide, Sulfide, Phosphide.
Hazardous Decomposition：Heat Decomposed

11. Toxicological Information

Routes of Exposure：Inbreathe, Skin Contact, Eyes Contact, Ingest
Symptoms：Irritation, Coughing, Burning, Pulmonary Edema, Dermatitis, Ablepsia, Teeth Discolor, Chronic Bronchitis.
Acute Toxicity： Skin: Causes skin irritation, corrosive damage, and even death. Inbreathe: 1. Highly Corrosive. 2. Vapor and mist of solution causes nose irritation, sore throat, coughing, and hard breathing. 3. In 1000~2000ppm causes fatal pulmonary edema in few minutes, but the symptoms might appear after few hours. Ingest: 1. Corrode wound, throat, gullet, and stomach; symptoms are hard swallow, nausea, vomit, diarrhea, even death. 2. Breathe into lung will cause serious harm and death. Eye Damage: 1. Vapor and mist in low consistency causes eyes irritation immediately. 2. Sprayed by solution or contact with high consistency vapor and mist will causes serious irritation, burning, even ablepsia.
Chronic Toxicity and Long-term Toxicity： 1. In low consistency causes teeth discolor; skin irritation, pain; even causes nose and gums bleed, or chronic tracheitis and gastritis. 2. In high consistency causes teeth rotten.

12. Ecological Information

Eco-toxicity：LC50(Fish): 0.282mg/1/96H
Persistence and Degradability：--
Bioaccumulation：No
The Liquidity of the Soil：Decompose the substances in soil, especially thr substances of carbonate.
Other Adverse effects：--

13. Disposal Considerations

Refer to Toxic Chemical Substances Control Act, the industrial waste storage, clearance and processing methods and related laws, prohibit indiscriminate dumping.

14. Transport Information

UN NO. 1789
International Shipping Name：Hydrochloric Acid
Hazard Classification of Transportation：CATEGORY 8
Packing Group：II
Marine Pollutant (Yes／No)：--
Specific Delivery Methods and Precautious： --

15. Regulatory Information

Applicable Laws & Regulation： 1. Labor Safety and Sanitation rules 2. The rules of the traffic safety

3. General rules of the dangerous and harmful materials 4. Standards of permissible concentration of harmful substances in the working environment

16. Other Information

Reference		
製表單位	Company: Yee Fong Chemical & Industrial Co., Ltd.	
	Add./No.：Yee Fong Chemical & Industrial Co., Ltd. Taoyuan Plant/No.377, Haihu E. Rd., Lujhu Township, Taoyuan County, Taiwan. /(03)354-2161	
製 表 人	職稱：Engineer	姓名(簽章)：Ming-Shang Huang
製表日期	2012/1/10	

☆義芳化學工業有限公司對上術述資料已力求正確，但錯誤恐仍難免，各項數據與資料僅供參考。使用者請依應用需求，自行負責判斷其可用行，本公司不負任何責任。