



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 1 OF 7**

<b>PRODUCT SPECIFICATION</b>			
Product Name	Hydrochloric Acid 34 – 36%		
Product Grade	Synthesis Grade		
Specification Reference	99HA360PG01 (03/14/0046920)		
<b>SALES SPECIFICATION</b>			
<b>Property</b>	<b>Units</b>	<b>Specification</b>	<b>Typical Analysis</b>
Hydrochloric Acid	HCL % w/w	34.0 – 36.6%	
Density @ 20°C	kg/litre	1.169 – 1.182	
<b>Properties for 35% HCL</b>			
Appearance		Clear, colourless to pale straw solution, fuming	
Colour	Hazen	<35	<10
Residue on Evaporation	% by weight	<0.1	<0.01
Sulphate	H <sub>2</sub> SO <sub>4</sub> mg/kg	<10	<5
Iron	Fe mg/kg	<5	0.4
Oxidising Substances*	as Cl <sub>2</sub> mg/kg	<10	<5
Lead*	Pb mg/kg	<1	<0.1
Arsenic*	As mg/kg	<1	<0.1
Mercury*	Hg mg/kg	<0.1	<0.02
Cadmium*	Cd mg/kg	<0.1	<0.01
<b>Comments</b>			
*Reduced pro-rata on dilution			
<b>Further information</b>			
Methods of test can be found in BS 3993 and BS EN 939:2009			
This product meets the chemical purity requirements of BS EN 939:2009 Chemicals used for the treatment of water intended for human consumption – Hydrochloric Acid and of European Approved Additive E507 Hydrochloric Acid			
<b>NOTES</b>			
<b>Exclusion of Liability</b>			
Information contained in this publication is accurate to the best of the knowledge and belief of Tennants.			
Any information or advice obtained from Tennants otherwise than by means of this publication and whether relating to Tennants materials or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Tennants materials are suitable for the particular purpose intended.			
Tennants accepts no liability whatsoever (except as otherwise provided by law) arising out of the use of information supplied, the application, adaptation or processing of the products described herein, the use of other materials in lieu of Tennants materials or the use of Tennants materials in conjunction with such other materials.			
<b>Health and Safety</b>			
A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.			



PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 2 OF 7

## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

#### 1.1 Product Identifier

GHS Product Identifier HYDROCHLORIC ACID, CONCENTRATED (>25% Solution)  
EC Index No. 017-002-01-X  
Alternative Names Aqueous hydrogen chloride, 25/36% Hydrochloric acid, Muriatic acid,  
Hydrochloric acid solution  
REACH Registration Number 01-2119484862-27-XXXX

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

Chemical intermediate, washing and cleaning agent, pH regulating agent, laboratory chemical

Uses advised against None

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

Tennants Distribution Limited  
Hazelbottom Road  
Cheetham  
Manchester  
M8 0GR  
Tel: 44(0)161 205 4454  
Fax:44(0) 161 203 4298  
Email: [msds@tennantsdistribution.com](mailto:msds@tennantsdistribution.com)

#### 1.4 Emergency telephone number

Tel: 44(0)844 335 0001(24 hours)

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### Regulation 1272/2008 (CLP)

Skin Corr. 1B  
STOT SE 3  
Met. Corr. 1

##### EEC Directive 67/548 and subsequent amendments. Directive 1999/45/CE and its amendments

C, R34: Causes burns  
Xi, R37: Irritating to respiratory system

#### 2.2 Label elements

Hazard Statements H314: Causes severe burns and eye damage  
H335: May cause respiratory irritation  
H290: May be corrosive to metals

Signal Word(s) DANGER



#### Hazard Pictogram(s)

#### Precautionary Statement(s)

P260: Do not breathe mist/vapours/spray  
P280: Wear protective gloves/protective clothing/eye protection/face protection  
P303 + P361 + P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower  
P 304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P309 + P311: If exposed or if you feel unwell: Call a POISON CENTRE or doctor/physician

Additional label requirements: None



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 3 OF 7**

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Substances**

**- HYDROCHLORIC ACID**

CAS Number	EINECS Number	REACH registration number	ECC Index Number	Classification according to Directive 67/548/EEC	Classification according to Regulation 1272/2008	Content % (w/w)
007647-01-0	231-595-7	01-2119484862-27-XXXX	017-002-01-X	C, R34 Xi, R37	H290, H314, H335	>25%

See section 16 for the full text of the R, H- and EUH-phrases declared above

Occupational exposure limits, if available, are listed in section 8

**4. FIRST AID MEASURES**

**4.1 Description of first aid measures**

**Inhalation**

Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. During resuscitation, care must be taken to avoid contamination by the substance from the patient

**Skin contact**

SPEED IS ESSENTIAL. Drench with large quantities of water. Remove contaminated clothing. Continue to wash the affected area for at least 10 minutes

**Eye contact**

SPEED IS ESSENTIAL. Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes

**Ingestion**

Wash out mouth with water and give at least 200 – 300 ml (half a pint) of water to drink. Do not induce vomiting

**4.2 Most important symptoms and effects, both acute and delayed**

Causes burns to skin, eyes, respiratory system and gastro-intestinal tract. May cause respiratory irritation

**4.3 Indication of any immediate medical attention and special treatment needed**

SPEED IS ESSENTIAL. OBTAIN IMMEDIATE MEDICAL ATTENTION

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower

Mist or vapour will cause irritation to the upper respiratory tract, coughing and choking sensation. Concentrations of 50 – 100 ppm are barely tolerated for up to 1 hour. Higher concentrations may cause corrosion of the respiratory tract

**5. FIRE FIGHTING MEASURES**

**5.1 Extinguishing Media**

**Suitable Extinguishing Media** As appropriate to the surrounding fire. Water spray should be used to cool containers

**Unsuitable Extinguishing Media** As appropriate for surrounding fire

**5.2 Special hazards arising from the substance or mixture**

Non-combustible. Containers may burst if overheated

Can react with most common metals to produce hydrogen which can form explosive mixtures with air

**5.3 Advice for fire-fighters**

A self contained breathing apparatus and suitable protective clothing must be worn in fire conditions

**6. ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

Ensure full personal protection (including respiratory protection) during removal of spillages

**6.2 Environmental precautions**

Avoid release to the environment. Prevent liquid from enter sewers, basements and any watercourses

**6.3 Methods and material for containment and cleaning up**

Stop leak if safe to do so. Contain spillages

Small spillages: Neutralise small spillages with decontaminant. Wash the spillage area with water

Large spillages: Neutralise with lime or soda ash before disposal

**6.4 Reference to other sections**

See also Section 13

**6.5 Additional Information**

Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body

**7. HANDLING AND STORAGE**

**7.1 Precautions for safe handling**



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 4 OF 7**

Avoid contact with skin and eyes. Avoid inhalation of mists/fumes. Provide adequate ventilation. Atmospheric levels must be controlled in compliance with the workplace exposure limit  
Showers and eye washing equipment must be provided at handling points. Good hygiene practices and housekeeping measures

**7.2 Conditions for safe storage, including any incompatibilities**

Bulk quantities should be stored in rubber lined steel or suitable plastic equipment  
Keep smaller quantities in suitable plastic or glass containers. May be corrosive to metals  
Keep container in a well ventilated place

**7.3 Specific end use(s)**

None

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

Hazardous Ingredient(s)	CAS No.	LTEL 8hr TWA ppm	LTEL 8hr TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Note:
Hydrogen Chloride (gas and aerosol mists)	007647-01-0	1	2	5	8	WEL

**DN(M)EL/PNEC**

**DN(M)EL's**

DNEL	Oral	Inhalation	Dermal
Industry – Long Term – Local effects	-	8 mg/m <sup>3</sup>	-
Industry – Long Term – Systemic effects	-	-	-
Industry – Short Term – Local effects	-	15 mg/m <sup>3</sup>	-
Industry – Short Term – Systemic effects	-	-	-
Consumer – Long Term – Local effects	-	-	-
Consumer – Long Term – Systemic effects	-	-	-
Consumer – Short Term – Local effects	-	-	-
Consumer – Short Term – Systemic effects	-	-	-

**Predicted No Effect Concentrations (PNEC)**

Aquatic Compartment (including sediment)  
PNECwater (freshwater) = 36 µg/l  
PNECwater (marine water) = 36 µg/l  
PNECintermittent releases = 45 µg/l  
PNECsewage treatment plant = 36 µg/l  
PNECSTP = not applicable  
PNECoral = Not applicable  
Terrestrial Compartment = no information given  
Atmospheric Compartment = no information given

**8.2 Exposure controls**

**Appropriate engineering controls**

Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded. Atmospheric levels should be controlled in compliance with the occupational exposure limit

**Respiratory protection**

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Where a cartridge/canister respirator is suitable use: Type E (EN 141). Check with protective equipment manufacturer's data

**Hand protection**

Wear suitable gloves

**Gloves material**

Neoprene gloves

**Eye protection**

Wear close fitting goggles or full face shield

**Skin protection**

Goggles or full face shield, acid resistant gloves and footwear are essential.  
The following materials are suitable for protective gloves: Polychloroprene CR (0.5 mm), Nitrile rubber (0.35 mm), Butyl rubber (0.5 mm), Fluorocarbon rubber (0.4 mm), Poly (vinyl chloride) PVC (0.5 mm)  
Check with protective equipment manufacturer's data

**Environmental exposure controls**

No further information given



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 5 OF 7**

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>9.1 Information on basic physical and chemical properties</b>	
Form	Fuming liquid
Colour	Almost colourless to pale yellow
Odour	Characteristically pungent
pH in water solution	No information given
Boiling point/boiling range	56.1 (36% HCL)
Flash point	No information given
Flammability (solid, gas)	No information given
Explosive properties	No information given
Oxidising properties	No information given
Vapour pressure	116 (36%) at 20°C
Specific Gravity	1.18 (36%) at 15°C (Water = 1 at 4°C)
Water solubility	Soluble
Freezing Point	-27 (36%)
Fat solubility	No information given
Partition Co-efficient: n-octanol/water	No information given
Viscosity	No information given
Vapour density	No information given
Evaporation rate	No information given
<b>10. STABILITY AND REACTIVITY</b>	
<b>10.1 Reactivity</b> Strong mineral acid. Reacts with – strong oxidising agents, alkalis	
<b>10.2 Chemical stability</b> Stable under normal conditions	
<b>10.3 Possibility of hazardous reactions</b> Attacks most common metals liberating hydrogen, which can form explosive mixtures with air. Can react violently if in contact with oxidising agents, liberating chlorine. Exothermic reaction with alkalis	
<b>10.4 Conditions to avoid</b> Skin contact aerosol or mist formation	
<b>10.5 Incompatible materials</b> Attacks many metals	
<b>10.6 Hazardous decomposition products</b> Hydrogen chloride, chlorine, hydrogen	
<b>11. TOXICOLOGICAL INFORMATION</b>	
<b>11.1 Information on toxicological effects</b>	
<b>Acute Oral Toxicity</b> NO LD50 available Will immediately cause corrosion of and damage to the gastrointestinal tract	
<b>Acute Inhalation Toxicity</b> No LD50 (4hr) available LC50 Rat (5 min exposure to aerosol of aqueous solution) 45.6 mg/l LC50 Rat (30 min exposure to aerosol of aqueous solution) 8.3 mg/l	
<b>Acute Dermal Toxicity</b> No LD50 available. The corrosive nature of the substance with predominate	
<b>Skin Irritation</b> Causes severe skin burns	
<b>Serious eye damage/irritation</b> Causes severe eye damage	
<b>Respiratory irritation</b> Hydrochloric acid vapour/mist will cause severe irritation to the upper respiratory tract	
<b>Sensitisation</b> Hydrochloric acid is not a skin sensitiser	
<b>Repeated dose toxicity</b> Repeated exposure to hydrochloric acid causes local corrosion or irritancy (of the gastro intestinal tract, skin eyes or respiratory tract) but will have no effect on systemic toxicity. Repeated exposure may also cause erosion of the teeth and ulceration of the nasal septum and gums	



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 6 OF 7**

<b>Carcinogenicity</b>	
Hydrochloric acid has been shown not to be carcinogenic in animal studies	
<b>Germ Cell Mutagenicity</b>	
On the basis of a weight of evidence approach, hydrochloric acid should not be classified as genotoxic as the majority of the relevant in-vitro and in-vivo mutagenicity studies were negative	
<b>Reproductive Toxicity</b>	
There is no evidence from animal studies that hydrochloric acid has any adverse effects on development or fertility	
<b>Specific Target Organ Toxicity – Single exposure (STOT SE)</b>	
Mist or vapour will cause irritation or corrosion to the upper respiratory tract, coughing and a choking sensation	
<b>Specific Target Organ Toxicity – Repeated exposure (STOT RE)</b>	
Not classified	
<b>Aspiration Hazard</b>	
Not an aspiration hazard	
<b>12. ECOLOGICAL INFORMATION</b>	
<b>12.1 Toxicity</b>	
Large discharges may contribute to the acidification of water and be fatal to fish and other aquatic life Can cause damage to aquatic plants Acute Aquatic Toxicity: Fish Fresh water LC50 (96h) 20.5 mg/l Aquatic invertebrates Fresh water EC50 (48h) (Daphnia magna) 0.45 mg/l Algae Fresh water EC50 (72h) 0.73 mg/l	
<b>12.2 Persistence and degradability</b>	
Will freely disassociate to hydrogen and chloride ions	
<b>12.3 Bioaccumulative potential</b>	
Hydrochloric acid does not bioaccumulate (log Kow – 2.65)	
<b>12.4 Mobility in soil</b>	
The product is predicted to have high mobility in soil	
<b>12.5 Results of PBT and vPvB assessment</b>	
Not classified as PBT or vPvB	
<b>12.6 Other adverse effects</b>	
Can cause damage to vegetation	
<b>13. DISPOSAL CONSIDERATIONS</b>	
<b>13.1 Waste treatment methods</b>	
Do not release undiluted or unneutralised to the sewer. Do not landfill unneutralised waste. Disposal of the neutralised waste at a licensed landfill site may be permissible. Consult an accredited waste disposal contractor or the authority for advice	
<b>13.2 Additional Information</b>	
Disposal should be in accordance with local, state or national legislation	
<b>14. TRANSPORT INFORMATION</b>	
<b>14.1 Road/Rail (ADR/RID)</b>	
UN No.	1789
Proper Shipping Name	Hydrochloric Acid
ADR/RID Class	8
Packing Group	II
Label	8
Tunnel Restriction Code	(E)
<b>14.2 Sea (IMDG)</b>	
UN No.	1789
Proper Shipping Name	Hydrochloric Acid
IMDG Class	8
Packing Group	II
Label	8
Marine Pollutant	Not classified as Marine Pollutant
<b>14.3 Air (ICAO/IATA)</b>	
UN No.	1789
Proper Shipping Name	Hydrochloric Acid
ICAO-TI Class	8
Packing Group	II
Label	8



**PRODUCT: HYDROCHLORIC ACID 34 - 36% (HCL3436) REVISION: 5 DATED: 07/07/14 PAGE 7 OF 7**

<b>14.4 Additional Information</b>	None
<b>15. REGULATORY INFORMATION</b>	
<b>15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture</b> Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to control chemicals – Control of Substances Hazardous to Health Regulations HSG 193 Inventory status: Listed in: European Union (EINECS/ELINCS) USA (TSCA) China (IESCS)j Philippines (PICCS) Australia (AICS) Canada (DSL/NDSL) Japan (ENCS) New Zealand Inventory (NZIoC) South Korea (KECI)	
<b>15.2 Chemical safety assessment</b> A Chemical Safety Assessment has been completed for this substance	
<b>16. OTHER INFORMATION</b>	
<b>Source of key data used to compile the data sheet</b> Legend WEL: Workplace Exposure Limits (UK HSE EH40) COM: The company aims to control exposure in the workplace to this limit TLV: The company aims to control exposure in the workplace the ACGIH limit TLV-C: The company aims to control exposure in the workplace the ACGIH Ceiling limit MAK : The company aims to control exposure in the workplace the German limit Sk: Can be absorbed through the skin Sen: Capable of causing respiratory sensitisation Bmgv: Biological monitoring guidance value (UK HSE EH40) ILV: Indicative Limit Value (UK HSE EH40) IOELV: Indicative Occupational Exposure Limit Value Key Literature References GESTIS – database of hazardous substances Chemical Safety Report: Hydrogen chloride 2010	
<b>Modifications from last revision</b> The Specification has incurred revision. The Safety Data Sheets remain the same.	
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<b>Date:</b> 07/07/14	
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