TENNANTS DISTRIBUTION LIMITED
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PRODUCT: HYDROCHLORIC ACID COMMERCIAL (HCLC) REVISION: 3 DATED: 08/07/14

PRODUCT SPECIFICATION	
Product Name	Hydrochloric Acid 28%
Product Grade	Commercial
Specification Reference	99HA280CG01 (03/14/0046920)
SALES SPECIFICATION	
Appearance	Clear, colourless to pale yellow solution, fuming
Hydrochloric Acid % w/w	26.0 – 30.0
Relative Density at 20°C kg/litre	1.129 – 1.150

Further information

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

NOTES

Exclusion of Liability

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.

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Health and Safety

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.

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

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1.4 Emergency telephone number
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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

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 import 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 2with 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

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^3	STEL ppm	STEL mg/m^3	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^3	-
Industry – Long Term – Systemic effects	-	-	-
Industry – Short Term – Local effects	-	15 mg/m^3	-
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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

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^{o}C
Specific Gravity	1.18 (36%) at 15^{o}C (Water = 1 at 4^{o}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

10. STABILITY AND REACTIVITY

10.1 Reactivity
Strong mineral acid. Reacts with – strong oxidising agents, alkalis

10.2 Chemical stability
Stable under normal conditions

10.3 Possibility of hazardous reactions
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

10.4 Conditions to avoid
Skin contact aerosol or mist formation

10.5 Incompatible materials
Attacks many metals

10.6 Hazardous decomposition products
Hydrogen chloride, chlorine, hydrogen

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute Oral Toxicity
NO LD50 available
Will immediately cause corrosion of and damage to the gastrointestinal tract

Acute Inhalation Toxicity
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

Acute Dermal Toxicity
No LD50 available. The corrosive nature of the substance with predominate

Skin Irritation
Causes severe skin burns

Serious eye damage/irritation
Causes severe eye damage

Respiratory irritation
Hydrochloric acid vapour/mist will cause severe irritation to the upper respiratory tract

Sensitisation
Hydrochloric acid is not a skin sensitiser

Repeated dose toxicity
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

Carcinogenicity
Hydrochloric acid has been shown not to be carcinogenic in animal studies

Germ Cell Mutagenicity
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

Reproductive Toxicity
There is no evidence from animal studies that hydrochloric acid has any adverse effects on development or fertility

Specific Target Organ Toxicity – Single exposure (STOT SE)
Mist or vapour will cause irritation or corrosion to the upper respiratory tract, coughing and a choking sensation

Specific Target Organ Toxicity – Repeated exposure (STOT RE)
Not classified

Aspiration Hazard
Not an aspiration hazard

12. ECOLOGICAL INFORMATION

12.1 Toxicity
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

12.2 Persistence and degradability
Will freely disassociate to hydrogen and chloride ions

12.3 Bioaccumulative potential
Hydrochloric acid does not bioaccumulate (log Kow – 2.65)

12.4 Mobility in soil
The product is predicted to have high mobility in soil

12.5 Results of PBT and vPvB assessment
Not classified as PBT or vPvB

12.6 Other adverse effects
Can cause damage to vegetation

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
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

13.2 Additional Information
Disposal should be in accordance with local, state or national legislation

14. TRANSPORT INFORMATION

14.1 Road/Rail (ADR/RID)

UN No.	1789
Proper Shipping Name	Hydrochloric Acid
ADR/RID Class	8
Packing Group	II
Label	8
Tunnel Restriction Code	(E)

14.2 Sea (IMDG)

UN No.	1789
Proper Shipping Name	Hydrochloric Acid
IMDG Class	8
Packing Group	II
Label	8
Marine Pollutant	Not classified as Marine Pollutant

14.3 Air (ICAO/IATA)

UN No.	1789
Proper Shipping Name	Hydrochloric Acid
ICAO-TI Class	8

Packing Group	II
Label	8
14.4 Additional Information	None

15. REGULATORY INFORMATION

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

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 (KECl)

15.2 Chemical safety assessment

A Chemical Safety Assessment has been completed for this substance

16. OTHER INFORMATION

Source of key data used to compile the data sheet

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

Modifications from last revision

The Specification has incurred revision. The Safety Data Sheets remain the same.

Issuer: Technical Manager

Date: 08/07/14