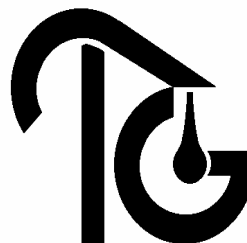


# TENNANTS DISTRIBUTION LIMITED

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## PRODUCT DATA SHEET

(This booklet incorporates the Specification and M.S.D.S.)

<b>PRODUCT</b>	<b>SULPHURIC ACID</b>	
CAS NO.	7664-93-9	
TARIFF NO.	280700100	
U.N NO.	<50% 2796 >50% 1830	
EINECS NO.	231-639-5	
IMCO CLASS	CLASS 8	
HAZARDS	CORROSIVE	
SPECIFICATION REFERENCE	SUL096	DATE APR 98
REFERENCE NO.	SUAC/4	DATE DEC 06
PREVIOUS EDITION.	SUAC/3	DATE MAR 02

## PRODUCT SPECIFICATION

Product Name	Sulphuric Acid
Alternative Name	
Product Grade	Oil of Vitriol R.O.V. (Rectified oil of Vitriol) B.O.V. (Brown oil of Vitriol)

### SALES SPECIFICATION

	50% Commercial Grade	77% Commercial Grade	96% Commercial Grade Low Iron
Mean Assay % mass H <sub>2</sub> SO <sub>4</sub>	50 +/- 1%	77 +/- 1%	96 +/- 1
Maximum limits for Impurities (ppm by mass)			
Residue on Heating	500 ppm	-	500 ppm
Free Sulphur Dioxide	60 ppm SO <sub>2</sub>	100 ppm SO <sub>2</sub>	100 ppm SO <sub>2</sub>
Total Chloride	25 ppm HCl	20 ppm HCl	25 ppm HCl
Ammoniacal Nitrogen	5 ppm NH <sub>3</sub>	-	5 ppm NH <sub>3</sub>
Oxides of Nitrogen	15 ppm HNO <sub>3</sub>	-	15 ppm HNO <sub>3</sub>
Iron	40 ppm Fe	150 ppm Fe	12 ppm Fe
Selenium	5 ppm Se	-	5 ppm Se
Lead	5 ppm Pb	5 ppm Pb	5 ppm Pb
Ammonia		30 ppm NH <sub>3</sub>	
Antimony	1 ppm Sb	-	1 ppm Sb
Arsenic	1 ppm As	1 ppm As	1 ppm As

Figures quoted are maximum limits for impurities (ppm by mass)

#### 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.

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.

#### 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

Product:	Sulphuric Acid	
COMPANY:	TENNANTS DISTRIBUTION LIMITED	
	Hazelbottom Road	Botany Way
	Cheetham	Purfleet
	Manchester	Essex
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	Fax No. 44(0)161 203 4298	Tel No. 44(0)1708 860074
	Emergency Tel No.	01865 407333

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formulae:	
Chemical Family Name:	Inorganic acid
CAS No.:	7664-93-9
EINECS No.:	231-639-5
UN No.	2796 (50% Sulphuric Acid)
UN No.	1830 (77% & 96% Sulphuric Acid)

### 3. HAZARDS IDENTIFICATION

Main Hazards	Corrosive
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### 4. FIRST AID MEASURES

First Aid - Eyes	Immediately flood the eye with plenty of water, holding the eye open if necessary. Obtain medical attention urgently.
First Aid - Skin	Immediately wash skin with water, preferably under a shower, removing contaminated clothing while washing proceeds. Contaminated clothing should be washed or dry cleaned before re-use. Obtain medical attention if blistering occurs or redness persists.
First Aid - Ingestion:	Wash out mouth with water; give plenty of water or other fluids to drink. Do not induce vomiting. Keep warm and at rest. Obtain medical attention. Treatment may be needed for pain and shock.
First Aid - Inhalation	Remove from exposure. Keep warm and at rest. If there is difficulty in breathing give oxygen. If breathing stops or shows signs of failing, give artificial respiration. Obtain medical attention urgently.
Note for Doctors	Harmful by ingestion, inhalation, skin and eye contact. Local corrosive effects predominate. No known systemic effects. No specific antidotal treatment, symptomatic support required. No known delayed effects after single exposure apart from consequence of local tissue damage.

### 5. FIRE FIGHTING MEASURES

Extinguishing Media	Not applicable. Sulphuric acid in non flammable
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### 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Wear full protective clothing.
Environmental Precautions:	If spillage or contaminated washings causes contamination of water courses, drains or vegetation inform relevant authorities
Methods of Cleaning	Small spillages - flood with copious quantities of water. Large spillages - Contain spillage using earth, sand or vermiculite, pump into an emergency tank. Spread soda ash or crushed limestone over area, seep up into containers. Repeat Wash down area with water. Dispose of containers and sulphuric acid if necessary using licensed waste disposal contractors. Collect and treat all water used in the clean up.

### 7. HANDLING AND STORAGE

Handling	Provide safety showers and eyebaths in areas where accidental exposure is possible.
Storage	Smoking should be prohibited when handling sulphuric acid. When diluting sulphuric acid always add acid to water, slowly and with continual stirring. Store sulphuric acid away from reactive materials. Sulphuric acid should be stored in a closed vessel. For concentrations greater than 96% some precaution against freezing may be necessary. Suitable materials are: stainless steel (for >70%), mild steel (for >70%),

	PTFE, KEL-F, glass, certain plastics and rubbers, PVC composites, HDPE, Hypalon, ebonite etc. may be suitable, check with equipment supplier. Unsuitable materials: most common metals will be corroded if the acid is weak (<70%), Nylon
<b>8. EXPOSURE CONTROLS/PERSONAL PROTECTION</b>	
Occupational Exposure Limits	TWA 1mg/m <sup>3</sup> . STEL EH40-1993
Eye Protection	Chemical goggles.
Skin Protection	PVC suit, PVC gloves, Acid resistant boots, PVC suit, full BA equipment if there is a risk of exposure to mists.
Installation Control	See Handling and Storage (section 7)
<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>	
Physical State	Oily liquid
Colour	Colourless to dark brown
Odour	Acrid or odourless
Molecular Weight	98.07 (H <sub>2</sub> SO <sub>4</sub> )
pH	Not applicable
Solubility	Completely miscible with water but exothermic
Boiling Point °C	70% 163, 77% 360, 96% 330, 98% 190
Melting Point (°C)	70% -42, 77% -15, 96% -10, 98% 0
Vapour Pressure	at 20°C 65% 2.14mbar 90% 0.006mbar
Flash Point	Not applicable
Flammability	Not applicable
Auto flammability	Not applicable
<b>10. STABILITY AND REACTIVITY</b>	
Stability	Sulphuric acid, if stored correctly will not decompose over time
Conditions to Avoid	See Handling and Storage (section 7)
Materials to Avoid	Water: Much heat is evolved and a violent reaction occurs when a small amount of water is added to a large amount of acid. Always add acid to water Acids: Dangerous reactions with nitric acid, hydrochloric acid, formic acid and dilute acids in general with the possible evolution of toxic gas. Bases/Alkalis: Violent reaction
Hazardous Decomposition Products	Oxidizing Agents: Violent reaction with chlorine oxyacid salts, hydrogen peroxide and permanganates. Toxic fumes may be emitted. No dangerous reaction with halogen. Other Chemicals: Dangerous reactions possible with aldehydes, ketones, halocarbons, nitro compounds, cyanides, phosphorous (III) oxide. Sulphuric acid has the potential to decompose to give sulphur trioxide gas. Sulphuric acid reacts with many metals, giving off highly flammable hydrogen gas.
<b>11. TOXICOLOGICAL INFORMATION</b>	
Effect of Substance	
Eyes	Liquid: severe burns and tissue destruction. Mist or fume: irritation
Skin	Liquid: severe burns and tissue destruction. Mist or fume: irritation, may cause burns at high concentrations
By Skin Absorption	No known systemic effects
By Ingestion	Severe corrosion of the mouth, throat and digestive tract
When Inhaled (acute effect)	Exposure to the mist or fume at concentrations much above the OEL causes moderate to severe irritation of the nose, throat and upper respiratory tract. High concentrations may cause immediate respiratory difficulty and serious damage to lung tissue
When Inhaled (chronic effect)	Prolonged or repeated exposure to mists may cause dental erosion, chronic inflammation of the upper respiratory tract, bronchitis or lung damage. The WHO International Agency for Research on Cancer (IARC) has concluded that occupation exposure to strong inorganic mists containing sulphuric acid is carcinogenic to man. Although no direct link has been established between sulphuric acid and the frequency of cancer in man, it is advisable to minimise exposure to any mist or aerosol during the use of sulphuric acid and if it cannot be avoided it should be kept below the OEL.

<b>12. ECOLOGICAL INFORMATION</b>	
Toxic to fish and algae. Concentrations greater than 1-2mg/l as may be lethal to fish. Lowering pH below about 5 could induce fatalities in aquatic life	
<b>13. DISPOSAL CONSIDERATIONS</b>	
Spillages	Wear full protective clothing - see Exposure Controls/Personal Protection (section 8). See Accidental Release Measures (section 6)
Waste	Dispose of sulphuric acid or materials contaminated with sulphuric acid using a licensed contractor in accordance with Waste Disposal Regulations
<b>14. TRANSPORT INFORMATION</b>	
UN No.	2796 (50% Sulphuric Acid) 1830 (above 50% ) 1832 (Spent Acid) ) Class 8 corrosive
ADR/RID Classification	8.1 (b) ADR HIN 80
IMO Classification	8 Corrosive substance
IATA Classification	Corrosive liquid. White label 1 litre (passenger) 30 litre (cargo)
HAZCHEM Code	2P
Tremcard No.	Normal Product 10A/806-06 (<75%) 10B/80603 (>75%) Spent Acid 652/806-03
Normal Carriage Pressure	Atmospheric
Normal Carriage Temperature	Ambient
<b>15. REGULATORY INFORMATION</b>	
Labelling Information	Corrosive
R phrases	R35: Causes severe burns
S phrases	S2: Keep out of reach of children S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S30: Never add water to this product S45: In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)
<b>16. OTHER INFORMATION</b>	
The Specification for 77% Commercial Grade has been amended only. The Safety Data Sheets remain the same	
Revision Date: 12/12/06	