PRODUCT DATA SHEET

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

PRODUCT	SULPHURIC ACID AR/BP
CAS NO.	7664-93-9
TARIFF NO.	280700100
U.N NO.	8/1830
EINECS NO.	231-639-5
IMCO CLASS	CLASS 8
HAZARDS	CORROSIVE

SPECIFICATION REFERENCE	SA583/590/4	DATE DEC 93
REFERENCE NO.	SUACPU/1	DATE DEC 93
PREVIOUS EDITION.		DATE

PRODUCT SPECIFICATION

Product Name	Sulphuric Acid
Alternative Name	
Product Grade	British Pharmacoepia and Analytical Reagent

SALES SPECIFICATION

	BP Grade	AR Grade
Assay	95.0-100.5%w/w	98%w/w min.
Appearance	Clear Liquid	Clear Liquid
Colour	-	10HU max.
Non Volatile Matter	100 ppm max.	20 ppm max
Chloride(Cl)	70ppm max.	0.2 ppm max.
Iron(Fe)	25 ppm max.	1 ppm max.
Nitrate(NO3)	Passes test	0.2 ppm max
Oxidisable Substances	Passes test	-
Arsenic(As)	2 ppm max.	0.05 ppm max.
Lead(Pb)	10 ppm max.	0.05 ppm max.
Ammonium(NH4)	-	2 ppm max.
Subtances Reducing	-	
permanganate	-	1 ppm max.
Aluminium(Al)		0.1 ppm max.
Barium(Ba)		.0.05 ppm max.
Cadmium(Cd)		0.05 ppm max
Calcium(Ca)		.1 ppm max.
Chromium(Cr)		.0.1 ppm max
Cobalt(Co)		0.02 ppm max.
Copper(Cu)		0.02 ppm max
Magnesium(Mg)		0.5 ppm max.
Manganese(Mn)		0.02 ppm max.
Molybdenum(Mo)		0.05 ppm max.
Nickel(Ni)		0.5 ppm max.
Potassium(K)		
Selenium(Se)		1 ppm max.
Sodium(Na)		5 ppm max.
Strontium(Sr)		0.02 ppm max.
Zinc(Zn)		0.5 ppm max.

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formulae:	
Chemical Family Name:	Inorganic acid
CAS No.:	7664-93-9
EINECS No.:	231-639-5

3. HAZARDS IDENTIFICATION

Main Hazards	Corrosive

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

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. Smoking should be prohibited when handling sulphuric acid. When diluting sulphuric acid always add acid to water, slowly and with continual stirring.
Storage	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, Hypolon, ebonite etc. may be suitable, check with equipment supplier. Unsuitable materials: most common metals will be corroded if the acid is weak (<70%), Nylon

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits	TWA 1mg/m3. 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)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Oily liquid
Colour	Colourless to dark brown
Odour	Acrid or odourless
Molecular Weight	98.07 (H_2SO_4)
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

10. STABILITY AND REACTIVITY

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 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.
Hazardous Decomposition Products	Sulphuric acid has the potential to decompose to give sulphur trioxide gas. Sulphuric acid reacts with many metals, giving off highly flammable hydrogen gas.

11. TOXICOLOGICAL INFORMATION

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) have 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 blow the OEL.

12. ECOLOGICAL INFORMATION

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

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

UN No.	1830 (Normal Product)) 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

15. REGULATORY INFORMATION

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)

16. OTHER INFORMATION