

Semmler Gauge Saver

Data Manual



Contents

Part I

Product Overview	3
General Description	3
Features and Use	3
Models Available	4
Dimensions	4
Pressure Recommendations	6
Material Specifications	6
Fluid Sacks	6
Alternative Fluid Sack Types	7
Sack and Fluid Temperature Range	8
Sack Replacement Kits	8
Restrictor Plug	8

Part II

Installation and Servicing Instructions	9
General	9
Installation	9
Replacing or Refilling Fluid Sack	9
Cleaning	10
Notes	10

Part III

Compatibility Tables (A-Z)	11
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Tables

Table 1 Dimensions	5
Table 2 Pressure Recommendations	6
Table 3 Material Specifications	6
Table 4 Fluid Sack Types	7
Table 5 Sack Type and Temperature Range	8

Product Overview

General Description

The Semmler Gauge Saver is a device for use as a protector for pressure gauges or pressure-sensitive switches, or as an interface device. It consists of a hollow body with a drilled and threaded male connection at the bottom for attachment to a pressure line or vessel. Into the top end an insert with a female threaded well is screwed. This Top Insert carries a liquid filled compressible Sack fixed to its inner end, and a Restrictor Plug is screwed into the base of the well. The gauge or pressure switch is screwed into the Top Insert well.

The fluid medium under pressure in the line or vessel is isolated from the gauge or pressure switch. Upon entering the Sealed Snubber body, it surrounds the Sack forcing sack liquid through the Restrictor and into the Bourdon Tube of the gauge or into the pressure switch. Fluctuating pressures are damped by the restrictor, providing steady accurate gauge readings or causing operation of the pressure switch when pre-set pressure is reached.

In the remaining sections of this publication, where reference is made to pressure gauges, the remarks also apply to pressure switches.

Features and Use

Semmler Gauge Savers are made in different Models for various pressure ranges up to 10,000 p.s.i. or 69,000 k.Pa. They have the following features, most of which result in cost savings:

- **Accurate Readings:** The snubbing effect of the Restrictor reduces needle oscillation to a minimum thus giving accurate and quick gauge readings.
- **Longer Gauge Life:** Limited needle oscillation results in considerably longer life.
- **Gauge Cost Savings:** Expensive corrosive resistant gauges are not needed because the pressure medium is isolated from the gauge.
- **Gauge Maintenance Minimised:** Bacteria or clogging ingredients in the pressure medium cannot reach the gauge. The Sealed Snubbed can be quickly and easily dismantled and cleaned on site.

- **Simple Low Cost Installation:** The Sealed Snubber can be fitted on site. There is no factory fitting or installation service required.
- **Accurate Adjustment:** Variable restriction is easily effected either by using a more viscous Sack Fluid or, in severe cases, fitting a different restrictor. This is a simple quick, on site operation.
- **Safety Device:** In the event of Bourdon Tube failure in the gauge, the Sack collapses against the Restrictor thus providing a pressure line seal.

It is suitable to use with all flush, surface, or direct mounted gauges and has been proven invaluable with contact gauges. *It is not recommended for use with vacuum or compound gauges.* When pressure and temperature conditions of a particular pressure medium have been established, the contents of Section 5, plus Sections 7,8 and 9 relating to Fluid Sacks must be studied in conjunction with the Compatibility Table in Section 13 to determine the appropriate Model of Sealed Snubber and Fluid Sack to be used. For use with **oxygen** and **steam** see notes at the end of Part II.

Models Available

Standard Semmler Gauge Savers are available ex-stock in Brass, High Tensile Steel or Stainless Steel models.

Alternative body materials e.g. Manganese, Bronze or Monel Metal, SAF 2205 & SAF 2507 can be provided if required for specific applications, and prices would depend upon the quantity ordered. As a standard, all stock High Tensile Steel and Brass models are fitted with Viton Sacks filled with SAE 20 oil. Stainless Steel models are fitted with Ethylene Propylene Sacks filled with glycerin.

Small bore Restrictor Plugs are provided for High Tensile Steel Sealed Snubbers. Brass and Stainless Steel Gauge Savers are fitted with large bore restrictors.

Dimensions

The threads on the male connection and in the female insert well are 1/4", 3/8" and 1/2" sizes in B.S.P. and N.P.T. types. Stock models are supplied with the same size and type of male and female thread. For a small increase in cost, models may be assembled in the factory with different male and female thread sizes and types. 1/4" and 3/8" size threads may be combined with B.S.P or N.P.T. type threads, but variants of 1/2" size threads cannot be mixed with standard 1/4" and 3/8" sizes.

Example 1

Any of the three models may have a 1/4" B.S.P. thread on the male connection and 3/8" N.P.T. thread inside the well in the female insert.

Example 2

Any of the three models could have a 1/2" N.P.T. male thread with a 1/2" B.S.P. female thread.

Table 1 lists measurements of length, diameter and weight for assembled Gauge Savers. Stainless Steel and High Tensile Steel models are round and Brass models are round with a hexagonal section near the male connection. Length measurements are given as overall figures with, in brackets the body length less the threaded male end. Length measurements may vary by up to 2 mm from the figures shown in Table1. All Sealed Snubbers are individually packed in small cartons measuring 152 X 38 X 38 mm.

Material	Thread Size	Body Length	Diameter	Weight
Brass	1/2" B.S.P	135mm (110mm)	32mm	550g
	3/8" B.S.P.	110mm (90mm)	28mm	400g
	1/4" B.S.P.	110mm (90mm)	28mm	400g
	1/2" N.P.T.	135mm (110mm)	32mm	550g
	3/8" N.P.T.	110mm (90mm)	28mm	400g
	1/4" N.P.T.	110mm (90mm)	28mm	400g
Stainless Steel (316)	1/2" B.S.P.	135mm (110mm)	32mm	550g
	3/8" B.SP.	130mm (108mm)	28mm	400g
	1/4" B.S.P.	130mm (108mm)	28mm	400g
	1/2" N.P.T.	135mm (114mm)	32mm	550g
	3/8" N.P.T.	130mm (108mm)	28mm	400g
	1/4" N.P.T.	130mm(108mm)	28mm	400g
High Tensile Steel	1/2" B.S.P	140mm (114mm)	32mm	550g
	3/8" B.S.P.	130mm (110mm)	32mm	550g
	1/4" B.S.P.	130mm (110mm)	32mm	450g
	1/2" N.P.T.	140mm (114mm)	32mm	550g
	3/8" N.P.T.	130mm (114mm)	32mm	550g
	1/4" N.P.T.	130mm (110mm)	32mm	450g

Pressure Recommendations

Results of tests conducted on random samples of all models under controlled conditions, and the application of a substantial factor of safety, give rise to the following pressure recommendations.

Table 2 Pressure Recommendations	
Model	Maximum Pressure
Brass	2,000 p.s.i.i - 13,800 k.Pa
Stainless Steel (316)	3,000 p.s.i - 20,700 k.Pa
High Tensile Steel	10,000 p.s.i. - 69,000 k.Pa

Material Specifications

Table 3 Material Specifications			
Component	High Tensile Steel	Stainless Steel	Brass
Body	SAE4140	AISI 316	BS249 CZ121 ASH8
Top Insert	Leaded free cutting	AISI 316	BS249CZ121 ASH8
Sealing Washer	Loctite Joint	Teflon	Copper
Bottom Washer (B.S.P. threads)	Copper	Fibre	Fibre

Bodies of all models are made in one piece.

Fluid Sacks

Because of the lack of availability of a single material which can be formed into a pliable pressure Sack which is compatible with all fluids used in industry two different Sack types are provided.

Each sack measures 65 mm x 19 mm diameter and has a capacity of approximately 10 c.c., which is adequate for the Bourdon Tubes of most gauges up to 300 mm. The raw material manufacturers of the Sacks do not disclose the specifications of the material used. In the descriptions below they have provided a broad outline of suitable uses for each type. A more comprehensive Compatibility Table provided by the manufacturers is set out in Section 13.

The manufacturers stress these descriptions and the compatibility tables should be taken as a guide only. The best way to establish if a sack is appropriate is to test it under the conditions in which it is to used.

Viton Sacks (Type V)	Ethylene Propylene Sacks (Type E.P.)
<p>Viton is a Dupont product developed to give a high liquid and heat resistance. Viton provides outstanding resistance to many organic and inorganic fluids handled in the chemical, petroleum and petrochemical industries even at elevated temperatures.</p> <p>It is a fluorine containing hydrocarbon rubber. It is claimed that it has excellent compatibility with fluids of chlorinated hydrocarbons and water oil emulsion plus fluids with a petroleum or water glycol base, and good to excellent compatibility with phosphate ester fluids. It is further claimed that it has excellent resistance to compression set at higher temperature, and good resistance to tear and abrasion.</p>	<p>Ethylene Propylene Sacks have good resistance to acids. They are quite satisfactory with low temperature and recommended for use with salt water and many gases.</p> <p>They are not compatible with petroleum oil.</p>

Alternative fluids for sacks

Viton Sacks are filled with SAE 20 oil at the factory and this provides adequate damping in most applications. Greater damping can be achieved with more viscous oils up to SAE 140.

Type “E.P.” Sacks are filled with glycerin because of their incompatibility with petroleum oil. If greater damping is required a more viscous synthetic liquid compatible with Ethylene Propylene should be used.

See Note 1 at the end of Part II concerning use of Silicone fluid for oxygen applications.

Sack Type	Temperature Range (F)	Temperature Range (°C)
Viton	-30 to + 450	-34 to +232
Ethylene Propylene	-65 to +300	-54 to +149

The flash point of the oil used to fill Type V sacks is 240 C. The glycerin used to fill Type E.P. sacks will begin to decompose at 145 C.

Sack replacement kits

All Sacks are the same size and any type may be fitted to any model Sealed Snubber. The Replacement Kit consists of a Sack , Sealing Clip and Clip Fitting Ring. Fitting instructions are set out in Part II.

Restrictor Plug

Restrictor Plugs are made in two sizes -large and small bore. Each consists of a small brass body of identical external dimensions threaded on the outside. Each has a centrally drilled entry hole and each is fitted inside with a flat Restrictor Plate with two fine brass or copper gauze's on either side, held by a tapered plug. Gauze is 120 mesh. Plate is 0.1 mm thick.

The Large Restrictor has a 3 mm diameter entry hole and the Plate has a centrally drilled 0.8 mm diameter hole. It is used for all standard Brass and Stainless Steel models.

The Small Restrictor has a 1.5 mm diameter entry hole with a 0.8 mm hole in the Plate. It gives greater restriction and is fitted to standard High Tensile Steel models.

In extreme cases where more viscous Sack Fluids will not provide adequate damping, Restrictor Plates with a 0.4 mm diameter hole can be supplied for any model.

Installation and Servicing Instructions

General

To obtain best results Semmler Gauge Savers should be mounted in the vertical position.

Installation

The Semmler Gauge Saver Sealed Snubber is supplied ready for immediate installation.

- a. Ensure that the Bourdon Tube in the gauge is clean.
- b. Remove the nylon liquid retaining plug.
- c. Screw directly and tightly to the gauge.
- d. Connect the assembly to the pressure line.

This must be done before connecting the pressure line to ensure that the fluid supply is not lost. The bottom Washer supplied may be inserted between Sealed Snubber and gauge or between Sealed Snubber and pressure line. Note: When gauges with large capacity Bourdon Tubes are used the Bourdon Tube should first be filled with fluid appropriate to that used in the sack.

Replacing or refilling fluid sack

(Brass and Stainless Steel Model only. Note for refilling only, delete steps 4,7 and 8)

1. Disconnect assembly (Sealed Snubber & gauge) from the pressure line.
2. Disconnect gauge.
3. Unscrew the Top (female) Insert and withdraw Insert and Sack.
4. Lift off the old Sealing Clip and remove Sack.
5. Unscrew Restrictor Plug.
6. Thoroughly clean all parts.
7. Fit the new Sack over the Insert.
8. Slide the Clip Fitting Ring containing the Sealing Clip over the Sack and push the Clip
9. onto the Insert taking care not to puncture the Sack.
10. Fill through the Restrictor Hole with appropriate fluid.
11. Reassemble restrictor plug to insert
12. Fit gauge, assemble insert to snubber boy and refit to pressure line ensuring all connections are tight.

Cleaning (Brass and Stainless Steel Models only)

The gauge and Sealed Snubber are to be removed as an assembly from the pressure line. The Top (female) Insert should then be removed with the gauge still attached. If the Sack is in good condition, no further dismantling should be attempted. Clean body and Top Insert taking care not to damage the Sack and reassemble.

*** Important**

Because of the high pressure for which High Tensile Steel Sealed Snubbers are designed, dismantling is not recommended.

Notes

1. **Oxygen:** Where use with oxygen is intended, it is important that all traces of oil and grease, are removed. The Sack fluids in standard Semmler Sealed Snubbers cannot be used for oxygen application. Distributors should place special orders with the agents for a supply of Sealed Snubbers with Viton Sacks filled with Midland Silicone M S 200.
2. **Steam:** For use with steam it is essential a water trap either U type or Pigtail type be fitted between the steam line or vessel and Sealed Snubber. The trap must contain condensate for two reasons - to prevent steam from having direct contact with the Fluid Sack, and to ensure that, in the event of Sack rupture which could occur with Bourdon Tube failure, oil will not enter the steam line and possibly cause 'hot spots'. A Viton Sack filled with S.A.E. 20 oil is suitable for use with steam. The Sack manufacturer advises that in tests, Viton has with stood intermittent exposure up to 500 F, but the Sack Fluid may become unstable below this temperature, care must be exercised to ensure that there is condensate in the water trap.

Compatibility Tables (A-Z)

The A-Z Tables set out a comprehensive list of fluids with the recommendations of the Fluid Sack manufacturer for the type of fluid Sack use. The recommendations are to be taken as a guide only. It is not feasible to conduct tests with all fluids under all conditions of pressure, temperature and fluid concentration. The best way to establish if a sack is suitable is to test it under the conditions in which it is to be used.

In the following tables: V means Viton Sack and E.P. means Ethylene Propylene Sack. Columns (1) & (2) list first and second preferences respectively for sack type.

f Below 93 °C. + Below 21 °C. x Up to 77 °C - Below 38 °C
/ = Limited Life. * Aqueous solution. No specific concentration implied

A			A		
	(1)	(2)		(1)	(2)
Acetamide	V.	-	Aniline (Oil)	E.P.	+V.
Acetaldehyde	E.P.	-	A.S.T.M. Ref. Fuel Oil B	V.	-
Acetic Acid	E.P.	-	A.S.T.M. Ref. Fuel Oil C	V.	-
Acetylene Tetrabromide	V.	-	Automotive Fuel 2B	+V.	-
Aeroshell 100	V.	-	Automotive Fuel RF2	+V.	-
Aeroshell Fluid No. 4	V.	-	Automotive Fuel 60	+V.	-
Aeroshell Turbine Oil	V.	-	A.V.T.A.G.	+V	-
Air	E.P.	-			
Air (High Temp.)	V.	-	B		
Aldehyde	V.	-	* Barium Chloride	E.P.	-
Alkazene	V.	-	* Barium Hydroxide	E.P.	-
Allylamine	V.	-	* Barium Sulphide	E.P.	-
* Alum	E.P.	-	Beer (food)	E.P.	-
* Aluminium Chloride	E.P.	-	Beet Sugar Liquid (food)	E.P.	-
* Aluminium Fluoride	E.P.	-	Benzene	+V.	-
* Aluminium Sulphate	E.P.	-	Benzol	+V.	-
Amines (mixed)	E.P.	-	Benzyl Alcohol	E.P.	-
* Ammonia (Anhydrous)	E.P.	-	Benzyl Chloride	E.P.	-
* Ammonia (Liquid)	E.P.	-	Black Liquor	V.	-
* Ammonium Carbonate	E.P.	-	Black Sulphate Liquor	E.P.	-
* Ammonium Chloride	E.P.	-	Black Furnace Gas	V.	-
* Ammonium Hydroxide	E.P.	-	Bleaching Powder	V.	-
* Ammonium Nitrate	E.P.	-	* Borax	E.P.	-
* Ammonium Nitrite	E.P.	-	B.P. Aero Hydraulic Fluid No. 1	V.	-
* Ammonium Phosphate	E.P.	-	Brake Fluid (veg. oilbase - auto)	E.P.	-
* Ammonium Sulphate	E.P.	-	Bray Oil	-V.	-
Amyl Acetate	E.P.	-	Bromine	E.P.	+V.
Amyl Alcohol	V.	E.P.	Budium	-V.	-
Amyl Nitrate	V.	-	Bunker Oil	VV.	-
Anderaol L-774	V.	-	Butadiene (Monomer)	+V.	-
Anderol L-826	V.	-	Butyl Acetate	E.P.	-
Anderol L-829	V.	-	Butyl Alcohol	V.	-
			Butyl Pthalate	V.	-
			Butyric Acid	E.P.	-

C			C		
	(1)	(2)		(1)	(2)
* Calcium Acetate	E.P.	-	Crude Oil	V.	-
* Calcium Disulphite	E.P.	-	Cyanic Compound	V.	-
* Calcium Chloride	E.P.	-	Cyanogen	V.	-
* Calcium Hypochlorite	E.P.	-			
* Calcium Nitrate	E.P.	-	D		
* Calcium Sulphide	E.P.	-	D.C. 200	V.	-
Carbinol (Methanol)	V.	E.P.	D.D. 47	V.	-
Carbolic Acid	V.	E.P.	D.V. 4709	V.	-
Carbon Disulphide	V.	-	De-ionised Water	/	-
Carbon Dioxide	E.P.	-	De-natured Alcohol	V.	E.P.
Carbon Monoxide	E.P.	-	Detergent Bleach Solution 1%	V.	-
Carbon Tetrachloride	V.	-	Developing Fluid (Photo)	E.P.	-
Castor Oil (food)	E.P.	-	Dibenzyl Ether	E.P.	-
Caustic Soda	E.P.	-	Dibutyl Amine	E.P.	-
Cellulubes (depends on type)	E.P.	V.	Dibutyl Pthalate	E.P.	-V.
Chlorinated Solvents	V.	-	O-Dichlorobenzene	V.	-
Chlorine (dry)	f V		Diester Syn. Lube		
Chlorine Dioxide			Aeroshell 750 Mobil - Jet 11	V.	-
Chlorine Trifluoride	+V	-	Diethyl Benzene	V.	-
Chloroacetone	E.P.	-	Diethyl Carbonate	V.	-
Chlorobutadiene	V.	-	Diethyl Sebacate	E.P.	-
Chloroform	+V	-	Difluoroethane	V.	-
Citric Acid	E.P.	-	Dimethyl Formanide	E.P.	-
Coal Tar	V.	-	Dioctyl Sebacate	E.P.	V.
Cod Liver Oil	E.P.	-	Dioxane	V.	-
Coke Oven Gas	V.	-	Diphenyl	V.	-
Compass fluid	E.P.	-	Dowtherme	V.	-
* Copper Ammonium Acetate	E.P.	-	Dry Cleaning Fluids	V.	-
* Copper (IC) Acetate	E.P.	-			
* Copper Sulphate	E.P.	-			
Corn Oil Food	E.P.	-			
Creaoate Oil	V.	-			
Cresol Meta	V.	-			
Cresols - Cresylic Acid	V.	-			

E		F			
	(1)	(2)		(1)	(2)
Esso Transmission Fluid Type A			Freon 12/ASTM Oil No. 2 50//50	V.	-
Ethanolomine	V.	-	Freon 12 Sunisco 46 50/50	V.	-
Ethyl Acetate	E.P.	-	Freon 13 Bi.	V.	-
Ethyl Alcohol	V.	E.P.	Freon 14	V.	-
Ethyl Bromide	V.	-	Freon 22/ASTM Oil No. 2 50/50	V.	-
Ethyl Chloride	E.P.	-			
Ethyl Mercaptan	V.	-	G		
Ethylene Dichloride	V.	-	Gasoline	V.	-
Ethylene Glycol	E.P.	-	Gasoline (low smell)	V.	-
Ethylene Oxide	E.P.	-	Gasoline Antioxidant No. 22	V.	-
Engine Oil E.O.G. 1	V.	-	Gear Lube MD 90	V.	-
Engine Oil E.O.G. 2	V.	-	Gear Lubricant GL- 4A	V.	-
Engine Oil E.O.G. 3	V.	-	Gear Lubricant GL - 4B	V.	-
Engine Oil E.O.G. 4	V.	-	Gear Lubricant Lead Soap		-
Engine Oil E.O.G. 5	V.	-	Active Sulphur	V.	-
Engine Oil E.O.G. 6	V.	-	Gear Lubricant MIL - L - 2015	V.	-
Epichlorohydrin	V.	-	Gelatine (food)	E.P.	-
Esso Golden Gas	V.	-	Glucose (food)	E.P.	-
			Glue	E.P.	-
F			Glycerin (Glycerol)	E.P.	V.
* Ferric Chloride	E.P.	-	Glycerols	E.P.	V.
* Ferric Nitrate	E.P.	-	Grease Machine Oil No. 120	V.	-
* Ferric Sulphate	E.P.	.	Grease - Magnet	V.	-
Freon 113	V.	-	Grease - Swallow	V.	-
Freon 115	V.	-			
Furfurol	V.	-	H		
Flurolube	E.P.	-	H.E.F. - 2	/=V.	-
Fluosilicic Acid	E.P.	-	Hexyl Alcohol	V.	-
Fluothane	E.P.	-	Houghto - Safe 271	V.	-
Flurochloroethylene	V.	-	Houghto - Safe 620	V.	-
Formadelhyde	E.P.	-	Houghto - Safe 1010	V.	-
Freon 11	V.	-	Houghto - Safe 1050	V.	-
Freon 11 (Sunisco 46 50/50)	V.	-	Houghto - Safe 1120	V.	-
Freon 12	V.	-	Houghto - Safe 5040	V.	-

H				L			
		(1)	(2)			(1)	(2)
H.T.F.	/=V.	-		Liquified Petroleum Gas (LPG)		E.P.	-
Hydrazine	E.P.	-		Lubricating Oils		V.	
Hydrobromic Acid	E.P.	-		Lubricating Oils			
Hydrochloric Acid	E.P.	-		- Diester Aeroshell 750		V.	
Hydro-Drive MIH 10.	V.						
Hydro-Drive MIH 50.	V.	-		M			
Hydro Cyanic Acid	E.P.	-		Magnesium Chloride		E.P.	-
Hydrofluoric Acid	E.P.	-		Magnesium Hydroxide		E.P.	-
Hydrogen	V.	E.P.		Magnesium Sulphate		E.P.	-
Hydrogen Sulphide	E.P.	-		Maleic Acid		E.P.	-
				Maleic Anhydride		V.	-
I				Mercaptans		V.	-
Iodine	V.	-		Mercuric Chloride		E.P.	-
Iodoform	V.	-		Mercury (liquid)			
Isobutyl Alcohol	V.	-		Methyl Acetate		E.P.	-
Iso-Propyl Alcohol	V.	-		Methyl Acrylic Acid		V.	E.P.
Iso-Propyl Chloride	V.	-		Methyl Alcohol		V.	-
				Methylchlorophenyl-silicone		V.	-
J				Methylchlorophenyl-silicone		V.	-
J.P. - 4 Fuel	V.	-		Methyl Isobutyl Ketone		E.P.	-
J.P. - 5 Fuel	V.	-		Methylene Dichloride		V.	-
J.P. - 6 Fuel	V.	-		Methyl Ethyl Ketone		E.P.	-
				Methyl Formate		E.P.	-
K				Methylphenylsilicone Fluid		V.	-
Kearsley Thinners	V.	-		Milk (food)		V.	-
Kerosene	V.	-		Mine fluid 3XF		V.	-
				Mineral Oil (food)		V.	-
L				Mobile SX90 Oil		V.	-
Laquers	E.P.	-		Mobile Jet 12			
Lactic Acid (food)	E.P.	-		Movinyl Acetylene		V.	-
Lead Sulphanate	E.P.	-					
Lindol	E.P.	-					
Linoleic Acid	E.P.	-					
Linseed Oil	E.P.	-					

N				P	
	(1)	(2)		(1)	(2)
Napthalene	V.	-	Propyl Alcohol	V.	E.P.
Napthalenic Acid	V.	-	Propyl Nitrate	E.P.	-
* Nickel Chloride	V.	-	Pydraul AC.	V.	-
* Nickel Sulphate	E.P.	-	Pydraul F9	V.	-
Nitric Acid (dilute)	E.P.	-	Pyrolube	V.	-
Nitrobenzene	E.P.	-			
Nitrogen	V.	E.P.	S		
Nitromethane	E.P.	-	Salt Water	E.P.	-
N-Propyl Alcohol	E.P.	-	Sewage	E.P.	-
			Shell F.R. Fluid	V.	-
O			Shell Gas Super	V.	-
Ortho Dichlorbenzene	V.		Shell Iris	V.	-
OS - 45 Type 11	V.		Silicate Ester	V.	-
* Oxalic Acid	E.P.		Silicone Grease	V.	E.P.
Oxygen <i>see special note at end of Part II, page 10</i>			Soap Solution	E.P.	-
			* Sodium Chloride	E.P.	-
P			* Sodium Cyanide	E.P.	-
Penta Chloro Phenol	V.	-	* Sodium Dichromate	E.P.	-
Perchlorethylene	V.	-	Sodium Hydroxide 20%	E.P.	-
Petroleum Oils	V.	-	Sodium Hydroxide 46%	E.P.	-
Phenol	V.	-	Sodium Hypochlorite	E.P.	-
Phosphoric Acid 40%	E.P.	-	Sodium Liquid	V.	-
Phosphate Eaters	E.P.	-	* Sodium Metaphosphate	E.P.	-
Phthalic Amhydride	V.	-	* Sodium Nitrate	E.P.	-
Piric Cid (Molten)	V.	-	* Sodium Perborate	E.P.	-
* Piric Acid	V.	-	* Sodium Peroxide	E.P.	-
* Potassium Chloride	E.P.	-	* Sodium Phosphate	E.P.	-
* Potassium Cyanide	E.P.	-	* Silver Cynade	E.P.	-
* Potassium Dichromate	E.P.	-	* Sodium Carbonate	E.P.	-
Potassium Hydroxide 50%	E.P.	-	* Sodium Silicate	E.P.	-
* Potassium Permaganate	E.P.	-	* Sodium Thiosulphate	E.P.	-
Propion Adelhyde	V.	-	* Sodium Bicarbonate	E.P.	-
Propyl Acetate	E.P.	-	* Sodium Bisulphate	E.P.	-
* Potassium Sulphate	E.P.	-	Sour Gas	V.	-

S		T			
	(1)	(2)		(1)	(2)
Soybean Oil (food)	E.P.	-	Turpentine	V.	-
* Stannic Chloride	E.P.	-			
S.R. 6	V.	-	U		
S.R. 10	V.	-	Univis	V.	-
Steam <i>see special notes at end of Part II, page 10</i>			Unsym Dimethyl Hydrazine	E.P.	-
Styrene	V.	-	V		
Sulphate of Lime	V.	-	Valclene	V.	-
Sulphur	E.P.	-	Versilube	L.	-
Sulphuric Acid up to 30%	E.P.	V.	Vintle Fluoride	V.	-
Sulphur Chloride	V.	-	Vinegar (food)	E.P.	-
Sulphur Dichloride	V.	-			
Sulphur Dioxide	E.P.	-	W		
Sulphur Hexafluoride	E.P.	-	Water	E.P.	-
Sulphur Trioxide	E.P.	-	Water and Detergent	E.P.	-
			Whiskey (food)	E.P.	-
T			White Oil	E.P.	-
Tannic Acid	E.P.		Wine (food)	E.P.	-
Tartaric Acid	E.P.				
Tetrabromoethane	V.		X,Y,Z		
Tetrachloroethane	V.		Xylene (Xulol)	V.	-
Thionyl Chloride	V.		M-Xylene	V.	-
Toluene (Toluol)	V.		Zinc Chloride	E.P.	-
Transformer Oil	V.		Zinc Sulphate	E.P.	-
Transformer fluids:	V.				
Tri-normal-Butyl Phosphate	E.P.	-			
ATF. 1	V.	-			
ATF. 2	V.	-			
ATF. 3	V.	-			
ATF. 4	V.	-			
ATF. 5	V.	-			
Triethylaluminium	V.	-			
Triethylberane	V.	-			
Trichloroethane	V.	-			