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INDUSTRIAL



CATALOGUE

Proprietary Limited

INDUSTRIAL RUBBER HOSE



Quality
ISO 9001

SAI GLOBAL
CERT NO QEC22270

Industrial • Hydraulics • Ducting • Pneumatics

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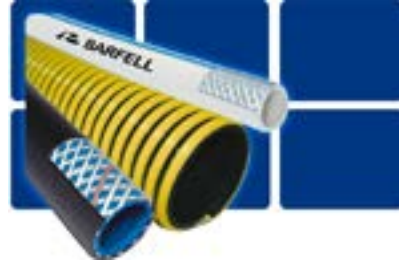
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▶ *Barfell Plastic Hose & Tubes*



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▶ *Plastic Tubing & Recoil Hose*



▶ *Flexible Ducting*



▶ *Hose Clamps & Clips*

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HOSE SELECTION GUIDE

For best performance, a hose should be selected to meet the service conditions under which it is to be used. Before deciding on the size, type and quality of hose, complete information on the actual service requirements should be examined. The selection guide shown here will be of assistance in compiling the information needed.

HOSE DIMENSIONS

- (a) I.D.
(b) O.D.
(c) Length (state whether overall length or length excluding couplings)

TYPE OF SERVICE

- (a) Material to be conveyed through hose
1. Chemical name
2. Concentration
3. Temperature extremes (low and high)
(b) Working pressure (including surge)
(c) Suction or vacuum requirements (water column or inches of mercury)

TYPE OF HOSE, ENDS

- (a) Straight or enlarged
(b) Capped or raw (uncapped)
(c) Soft ends or wire to end

TYPE OF HOSE FITTINGS (IF APPLICABLE)

- (a) Type of fittings
1. Male or female
2. Type of thread
3. Non-re-attachable - (Swaged)
4. Re-attachable

HOSE WITH BUILT-IN OR SWAGED ON FITTINGS

- (a) Pipe ends
1. Threaded (type of thread)
2. Grooved
(b) Flanges
1. Ansi (or ASA) metal composition specification
2. Treatment for specific service requirements
3. Pressure rating
4. Drilling

OPERATING CONDITIONS

- (a) Intermittent service-describe
(b) Continuous service-hours per week
(c) Indoor use
(d) Outdoor use
(e) Flexibility-minimum bend radius
(f) External conditions
1. Abrasion
2. Oil
3. Solvents
4. Acids
5. Temperature range normal/highest/ lowest

HOSE NOW IN USE

- (a) Type of hose
(b) Service life being obtained
(c) Service life desired

CHARACTERISTICS OF IVG HAND-BUILT RUBBER HOSE

IVG hoses, built by hand on mandrels, in lengths of 125 metres (410 ft) up to and including 152 mm (6") inside diameter, offer the following advantages:

- smooth and uniform bore throughout the full length
craftsman-built to customer requirements
wide variations in rubber compounds
- colours
- wall thickness
- pressure ratings
bend radius and flexibility to meet specific operating conditions
hose ends manufactured to meet special requirements:
- enlarged ends
- soft (cuffed) ends
- capped ends
- reinforced ends
- integral rubber tapered nozzle ends
- beaded ends
- built-in nipples, with or without flanges
- fabric and rubber flanges
- swaged fittings

ALL RUBBER HOSE CAN BE CUT TO YOUR REQUIRED LENGTH

TOLERANCES

All IVG hose are manufactured to ISO 1307 - 1975 specifications as follows:

Table with 8 columns: ID mm, ID inch, Tol. mm, Tol. inch, ID mm, ID inch, Tol. mm, Tol. inch. Rows list various hose sizes from 10 to 51 mm.

MONTANA/10 – AIR/WATER HOSE

Air hose suitable for a variety of general purposes in industry, construction and mines.

Tube: Black SBR rubber, oil mist resistant.

Cover: Black, extra thick, smooth (wrapped finish) long lasting EPDM rubber, weather, abrasion and tear resistant. **Layline:** GREEN/BLUE **Temperature Range:** -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
MONTANA/1013	13	1/2	19.5	0.23	10	150	120
MONTANA/1019	19	3/4	26	0.3	10	150	120
MONTANA/1025	25	1	33	0.47	10	150	120
MONTANA/1032	32	1.1/4	42	0.78	10	150	120
MONTANA/1038	38	1.1/2	47	0.86	10	150	120
MONTANA/1045	45	1.3/4	53.5	1.52	10	150	60
MONTANA/1051	51	2	61	1.12	10	150	120
MONTANA/1063	63	2.1/2	75.5	1.73	10	150	60
MONTANA/1076	76	3	87	1.81	10	150	60
MONTANA/10102	102	4	120	3.92	10	150	60

MONTREAL/10 - WATER HOSE

Water discharge hose widely used by industry, construction, mines etc. (Also used for protective sleeving). Water treatment & recycled water. **Tubes:** Black smooth EPDM rubber. **Cover:** BLACK, extra thick, smooth (wrapped finish) long lasting EPDM rubber, weather, abrasion and tear resistant. **Layline:** NIL **Temperature Range:** -35°C to +70°C.

Product No.	Inside Diam. mm	Inside Diam. Inch	O.D. mm	Weight Kg/mt	Working Pressure bar	Working Pressure psi	Coil Length mt
MONTREAL/1060	60	2.3/8	72	1.65	10	150	4
MONTREAL/1089	89	3.1/2	106	3.8	10	150	20
MONTREAL/10152	152	6	168	5.05	10	150	60

MONTANA/20 – HEAVY DUTY AIR HOSE (BLACK)

Heavy duty air hose, mandrel built, designed for rough applications in underground mining, quarries, coal mining, heavy industries, construction. **Tube:** Black SBR rubber, oil mist resistant. **Cover:** BLACK, smooth (wrapped finish), long lasting EPDM rubber, weather, abrasion and tearing resistant. **Layline:** BLUE **Temperature Range:** -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
MONTANA/2019	19	3/4	29	0.48	20	300	120
MONTANA/2025	25	1	35	0.60	20	300	120
MONTANA/2032	32	1.1/4	44	0.74	20	300	120
MONTANA/2038	38	1.1/2	50	1.07	20	300	120
MONTANA/2051	51	2	65	1.57	20	300	120
MONTANA/2063	63	2.1/2	80	2.24	20	300	60/120
MONTANA/2076	76	3	90	2.70	20	300	60/120
MONTANA/20102	102	4	120	3.47	20	300	60/120

MONTANA/20 – HEAVY DUTY AIR HOSE (YELLOW)

Cover: YELLOW, smooth (wrapped finish), long lasting EPDM rubber, weather, abrasion and tearing resistant. **Layline:** BLUE **Temperature Range:** -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
MONTANA/2025Y	25	1	35	0.60	20	300	120
MONTANA/2032Y	32	1.1/4	42	0.74	20	300	120
MONTANA/2051Y	51	2	65	1.57	20	300	120

ALASKA – AIR HOSE (HEAVY DUTY MINING)

Steel wire air hose designed for the most severe jobs in mining, quarries, industrial and construction service, this mandrel built hose has a high margin of safety and gives long and trouble-free service under the most arduous working conditions.

Tube: Black, smooth, SBR synthetic rubber. **Cover:** YELLOW, smooth (wrapped finish), long lasting EPDM synthetic rubber, weather, abrasion and tear resistant. **Layline:** BLUE **Temperature Range:** -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
ALASKA25	25	1	37.5	0.92	45	675	120
ALASKA32	32	1.1/4	44.5	1.21	45	675	120
ALASKA38	38	1.1/2	51	1.46	45	675	120
ALASKA51	51	2	65	1.97	40	600	60/120
ALASKA63	63	2.1/2	80	2.84	35	525	60/120
ALASKA76	76	3	95	4.33	35	525	60/120
ALASKA102	102	4	121	5.65	30	450	60

Note: Other sizes on application for all of the above hoses.

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RUBBER HOSE

AIR HOSE



RUBBER HOSE

WATER HOSE



OSLO/5 – WATER HOSE

A lightweight water discharge hose which is specially suitable for submersible pumps, irrigation and drainage systems, sewer cleaning etc.

Tube: Black smooth. EPDM rubber.

Cover: BLACK, smooth (wrapped finish) SBR rubber.

Layline: YELLOW

Temperature Range: -25°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
OSLO/538	38	1.1/2	43.5	0.43	5	75	120
OSLO/551	51	2	57	0.56	5	75	120
OSLO/563	63	2.1/2	69	0.69	5	75	120
OSLO/576	76	3	82	0.82	5	75	120
OSLO/5102	102	4	108	1.22	5	75	120
OSLO/5127	127	5	133	1.54	5	75	120
OSLO/5152	152	6	158	1.82	5	75	120
OSLO/5203	203	8	211	2.98	5	75	60

Note: Other sizes on application.

OSLO/10 – WATER HOSE

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
OSLO/10203	203	8	213	3.66	10	150	60
OSLO/10254	254	10	265	5.15	10	150	60

TORONTO – WATER SUCTION & DELIVERY

A heavy duty water suction and delivery hose, for full suction and high discharge pressures; it handles sewerage, waste water, mud etc.

Tube: Black smooth. EPDM rubber.

Cover: BLACK, extra thick, smooth (wrapped finish) long lasting EPDM rubber

Layline: GREEN

Temperature Range: -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Bend. Rad. mm	Work. Press. bar	Work. Press. psi	Vacuum atm	Coil Length mtr
TORONTO/LL025	25	1	33	0.50	100	10	150	0.9	120
TORONTO/LL032	32	1.1/4	40	0.98	130	10	150	0.9	120
TORONTO/LL038	38	1.1/2	49	1.32	150	10	150	0.9	120
TORONTO/LL051	51	2	60.5	1.72	200	10	150	0.9	120
TORONTO/LL063	63	2.1/2	75.5	2.35	270	10	150	0.9	60
TORONTO/LL076	76	3	88	2.63	340	10	150	0.9	60
TORONTO/LL102	102	4	114	4.85	510	10	150	0.9	60
TORONTO/LL127	127	5	143	7.17	625	10	150	0.9	20
TORONTO/LL0152	152	6	170.5	10.30	835	10	150	0.9	20

Note: Other sizes on application.

AMBURGO PARA – MATERIALS HANDLING

Corrugated hose for water suction and discharge service, where a rugged yet flexible hose is required by industry, building and agriculture, for overhead irrigation systems or for tank truck use.

Tube: TAN smooth gum rubber (foodgrade). C/W anti-static wire.

Cover: BLACK, (wrapped finish) corrugated EPDM rubber compound weathering, ozone and ageing resistant.

Layline: GREEN

Reinforcement: high strength synthetic cord plus helix wire.

Temperature Range: -30°C to +70°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Bend. Rad. mm	Work. Press. bar	Work. Press. psi	Vacuum atm	Coil Length mtr
AMBURGO76	76	3	-	2.04	275	3	45	0.8	20/60
AMBURGO102	102	4	-	3.63	400	3	45	0.7	20/60
AMBURGO127	127	5	-	4.72	530	3	45	0.7	20/60
AMBURGO152	152	6	-	6.81	690	3	45	0.7	20/60
AMBURGO203	203	8	-	9.80	1010	3	45	0.7	20/60

FOODLAND/IIR – HOT WATER WASH DOWN HOSE

A softwall hose designed for washing with hot water and steam in dairies, abattoirs and food industry in general.

Tube: WHITE smooth food quality, taste free and odourless, IIR rubber compound.

Cover: WHITE, (wrapped finish), 11R rubber compound fatty food and weathering resistant. **Layline:** RED **Temperature Range:** -40°C to +120°C for **hot water** (Max. working pressure 10 bar) & -40°C to +120°C for **saturated steam**. (Max. working pressure 6 bar)

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
FOODLAND/IIR13	13	1/2	23	0.32	see above	-	120
FOODLAND/IIR19	19	3/4	29	0.43	see above	-	120
FOODLAND/IIR25	25	1"	35	0.54	see above	-	120

Note: Other sizes on application. *These sizes are manufactured to order.

MANITOBA

A textile-reinforced steam hose recommended for use with saturated steam at maximum working pressure of 6 bar (90psi).

Tube: BLACK, smooth EPDM rubber compounded to resist the effect of the steam.

Cover: Black, smooth (wrapped finish) EPDM rubber compound with excellent resistance to high temperature, weathering, abrasion and ozone.

Layline: RED **Temperature Range:** -40 °C to +165 °C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
MANITOBA13	13	1/2	25	0.4	6	90	20&120
MANITOBA19	19	3/4	32	0.58	6	90	20&120
MANITOBA25	25	1	38	0.72	6	90	20&120

GARDA – STEAM HOSE (RED COVER) 210°C

A high pressure **wire reinforced** steam hose designed for service with superheated steam in heat control, fire prevention, thawing etc. in many industries at max pressure of 18 Bar. Not recommended for steam cleaner (dry heat).

Tube: Black smooth, EPDM rubber compounded to withstand superheated steam.

Cover: RED, smooth (wrapped finish) EPDM rubber with excellent resistance to high temperature, weathering, abrasion, ageing and oil mist; it is pin pricked to prevent separation. **Temperature Range:** -40°C to +210°C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
GARDA13	13	1/2	25	0.51	18	270	120
GARDA19	19	3/4	31	0.66	18	270	120
GARDA25	25	1	37	0.88	18	270	120
GARDA32	32	1.1/4	46.5	1.29	18	270	60
GARDA38	38	1.1/2	54	1.72	18	270	60
GARDA51	51	2	66.5	2.30	18	270	60

Note: Other sizes on application.

VAPOUR - STEAM AND WASHDOWN

A high pressure wire reinforced steam and wash-down hose designed for service in the food and beverage industry at max pressure of 18 Bar. Not recommended for steam cleaner (dry heat). **Tube:** Black smooth, EPDM rubber compounded to withstand superheated steam. **Cover:** White, smooth (wrapped finish) synthetic rubber with excellent resistance to high temperatures, weathering, abrasion, ageing and oil mist, animal fats. It is pin pricked to prevent separation. **Temperature Range:** -40 °C to +210 °C.

Product No.	ID mm	ID Inch	OD mm	Weight kg/mt	Work. Press. bar	Work. Press. psi	Coil Length mtr
VAPOUR13	13	1/2	27	0.60	18	270	120
VAPOUR19	19	3/4	33.5	0.86	18	270	120

NOTE: OTHER SIZES ON APPLICATION.

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CAN BE CUT TO
YOUR REQUIRED
LENGTH



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RUBBER HOSE

HOT WATER & STEAM



RUBBER HOSE

FOODGRADE HOSE



SCOTLAND/LL – PREMIUM FOOD SUCTION & DELIVERY HOSE – 10 BAR

Premium food quality, suction and delivery hardwall hose designed for handling wine and alcohols up to 96° proof especially designed for use in breweries and distilleries. **Hose Sterilization:** max 130°C with steam and detergents. **Tube:** Clear white, smooth, food quality, taste free and odourless IIR rubber compound. FDA approved. **Cover:** RED, smooth, (wrapped finish), EPDM. **Layline:** WHITE Spiral reinforcement PET helix. **Temperature Range:** -40°C to +120°C.

Product No	Inside Diam. Inch	Inside Diam. mm	O.D. mm	Weight Kg/mt	Bending radius mm	Work. press. bar	Work. press. psi	Vacuum atm	Coil Length mt
SCOTLAND/10/LL25	25	1	38	0.91	115	10	150	0.9	60
SCOTLAND/10/LL38	38	1.1/2	52	1.21	145	10	150	0.9	60
SCOTLAND/10/LL51	51	2	65	1.55	245	10	150	0.9	60
SCOTLAND/10/LL63	63	2.1/2	80	2.05	310	10	150	0.9	60
SCOTLAND/10/LL76	76	3	93	3.46	390	10	150	0.9	60
SCOTLAND/10/LL102	102	4	120	4.90	555	10	150	0.9	60

PLEASE NOTE ALSO AVAILABLE IN WHITE COVER 18 BAR (REPLACE 10 IN PART NUMBER WITH 18).

MILLENNIUM – PREMIUM FOOD SUCTION & DELIVERY HOSE – 10 BAR

Premium food quality, suction and delivery hardwall hose. **Hose Sterilization:** max 130°C with steam and detergents, **Tube:** White, smooth, food quality, taste free and odourless, 100% phthalates free, IIR rubber compound. FDA approved. **Cover:** BLUE, corrugated, (wrapped finish), synthetic rubber compound, weathering and ozone resistant. **Layline:** White/red/gold **Temperature Range:** -30°C to +100°C. Embedded helix wire. **Branding:** White/red/gold continuous specification labelling.

Product No.	Inside Diam. mm	Inside Diam. inch	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Vacuum atm	Coil Length mt
MILLENNIUM/10/LL25	25	1	0.66	75	10	150	0.6	60
MILLENNIUM/10/LL32	32	1.1/4	0.86	95	10	150	0.6	60
MILLENNIUM/10/LL38	38	1.1/2	1.06	115	10	150	0.6	60
MILLENNIUM/10/LL51	51	2	1.44	150	10	150	0.6	60
MILLENNIUM/10/LL63	63	2.1/2	1.78	195	10	150	0.6	60
MILLENNIUM/10/LL76	76	3	2.21	240	10	150	0.6	60
MILLENNIUM/10/LL102	102	4	2.97	350	10	150	0.6	60

FOODFLEX/IIR – SUCTION & DELIVERY HOSE

Hardwall suction and delivery hose, suitable for conveying milk and liquid foods. It is extremely flexible and easy to handle. Particularly suitable to be used as milk collection hose, for tanker transport, completely odourless and taste-free.

Hose Sterilization: Max. 100°C with steam and detergents (for a few minutes). **Tube:** WHITE, smooth. Foodflex IIR in chloro-butyl rubber compound. FDA approved. **Reinforcement:** high strength synthetic cord plus helix wires. **Cover:** BLUE, smooth, (wrapped finish), EPDM rubber compound, abrasion and weathering resistant. **Layline:** WHITE **Temperature Range:** -40°C to +120°C.

Product No	Inside Diam. Inch	Inside Diam. mm	O.D. mm	Weight Kg/mt	Bending radius mm	Work. press. bar	Work. press. psi	Vacuum atm	Coil Length mt
FOODFLEX/IIR25	25	1	36	0.75	55	6	90	0.7	60
FOODFLEX/IIR32	32	1.1/4	43	0.96	70	6	90	0.7	60
FOODFLEX/IIR38	38	1.1/2	49.5	1.22	84	6	90	0.6	60
FOODFLEX/IIR51	51	2	62.5	1.65	110	6	90	0.6	60
FOODFLEX/IIR63	63	2.1/2	76.5	2.21	140	6	90	0.5	60
FOODFLEX/IIR76	76	3	89.5	2.7	170	6	90	0.5	60
FOODFLEX/IIR102	102	4	116	3.63	225	6	90	0.4	60

Note: Other sizes on application.

VINO FLEX – WINE/BEVERAGE SUCTION HOSE

Hardwall corrugated hose, lightweight and flexible for the suction and delivery of wines, beverages and alcohols at 96°, odourless and taste-free, Designed especially for wineries, breweries and distilleries, where a low amount of friction is required when the hose is being dragged on the floor, **Hose Sterilization:** max 130°C with steam and detergents (for a few minutes).

Tube: Clear white, smooth, food quality, taste free and odourless IIR rubber compound. FDA approved. Weathering resistant, smooth (wrapped finish), food quality IIR rubber compound.

Layline: WHITE **Cover:**

Product No	Inside Diam. Inch	Inside Diam. mm	Weight Kg/mt	Bending radius mm	Work. press. bar	Work. press. psi	Vacuum atm	Coil Length mt
VINO FLEX025	25	1	0.66	75	10	150	0.6	60
VINO FLEX032	32	1.1/4	0.86	95	10	150	0.6	60
VINO FLEX038	38	1.1/2	1.13	115	10	150	0.6	60
VINO FLEX051	51	2	1.45	150	10	150	0.6	60
VINO FLEX063	63	2.1/2	1.77	195	10	150	0.6	60
VINO FLEX076	76	3	2.19	225	10	150	0.6	60

ALL RUBBER HOSE CAN BE CUT TO YOUR REQUIRED LENGTH

TRUCK SAHARA/LL – HOT AIR BLOWER HOSE – 180°C

Hardwall hose designed for conveying hot, dry air from compressor to bulk dry powder tankers.

Tube: WHITE, smooth EPR rubber (according FDA).

Cover: BLUE, smooth (wrapped finish), EPDM rubber compound; weathering and ozone resistant.

Layline: WHITE

Temperature Range: -40°C to +180°C.

Product No.	Inside Diam.		O.D.	Weight	Bending	Working	Working	Vacuum	Coil
	mm	inch	mm	Kg/mt	Radius	Pressure	Pressure	atm	Length
					mm	bar	psi		mt
SAHARA/LL51	51	2	63	1.73	175	10	150	0.9	60
SAHARA/LL76	76	3	89.5	2.74	270	10	150	0.9	60
SAHARA/LL102	102	4	116	4.12	400	10	150	0.9	60

Note: Other sizes on application.



SUPERTOP/LL UPE – CHEMICAL HOSE – EN12115

A multi purpose chemical hose with helix wire. Cross linked polyethylene tube handles a wide range of chemicals, petroleum products (including aromatics) oils. Due to its versatility SUPERTOP/LL can be an economical solution for hose requirements in plants handling a range of chemicals/petrochemicals.

Tube: WHITE smooth, cross linked polyethylene (UHMWPE). Tube according to FDA requirements.

Cover: GREEN, smooth. EPDM rubber, high resistance to weather and ozone.

Layline: BLUE/WHITE

Temperature Range: -20°C to +100°C.

Product No.	Inside Diam.		O.D.	Weight	Bending	Working	Working	Vacuum	Coil
	mm	inch	mm	Kg/mt	Radius	Pressure	Pressure	atm	Length
					mm	bar	psi		mt
SUPERTOP/LLUPE19	19	3/4	31	0.74	90	16	240	0.9	60
SUPERTOP/LLUPE25	25	1	37	0.90	120	16	240	0.9	60
SUPERTOP/LLUPE32	32	1.1/4	44	1.09	150	16	240	0.9	60
SUPERTOP/LLUPE38	38	1.1/2	51	1.45	180	16	240	0.9	60
SUPERTOP/LLUPE51	51	2	64	1.86	250	16	240	0.9	60
SUPERTOP/LLUPE63	63	2.1/2	78	2.46	320	16	240	0.9	60
SUPERTOP/LLUPE76	76	3	90	3.03	400	16	240	0.8	60
SUPERTOP/LLUPE102	102	4	120	4.46	550	16	240	0.8	60



TRUCK VAC POWER – OIL HOSE – 180°C

Hardwall corrugated hose, extremely flexible, for the suction of organic liquids with traces of oil, liquids that contain aromatic hydrocarbons (max. 30%) and liquids mixed with chemical waste. Designed especially for applications on tank trucks.

Tube: BLACK, smooth anti-static synthetic rubber with very good abrasion resistance.

Cover: BLACK, corrugated (wrapped finish), synthetic rubber, abrasion and weathering resistant.

Layline: RED

Reinforcement: High strength synthetic cord plus steel helix wire.

Temperature Range: -30°C to +70°C.

Product No.	Inside Diam.		Weight	Bend. Rad	Work. Press.	Work. Press	Vacuum	Coil
	mm	inch	kg/mtr	mm	bar	psi	atm	mtr
POWER1520IL	152	6	4.32	300	3	45	0.9	20

Note: Other sizes on application.



SCOTLAND/LL – PREMIUM FOOD SUCTION & DELIVERY HOSE – 18 BAR

Premium food quality, suction and delivery hardwall hose. **Hose Sterilization:** max 130°C with steam and detergents. **Tube:** White, smooth, food quality, taste free and odourless, 100% phthalates free, IIR rubber compound. FDA approved. **Cover:** WHITE, smooth, (wrapped finish), synthetic rubber compound, weathering and ozone resistant. **Layline:** RED **Temperature Range:** -30°C to +100°C. Spiral reinforcement helix. **Branding:** Red continuous specification labelling.

Product No.	Inside Diam.		O.D.	Weight	Bending	Working	Working	Vacuum	Coil
	mm	inch	mm	Kg/mt	Radius	Pressure	Pressure	atm	Length
					mm	bar	psi		mt
SCOTLAND/18/LL25	25	1		0.66	75	18	260	0.6	60
SCOTLAND/18/LL32	32	1.1/4		0.86	115	18	260	0.6	60
SCOTLAND/18/LL38	38	1.1/2		1.06	150	18	260	0.6	60
SCOTLAND/18/LL51	51	2		1.44	195	18	260	0.6	60
SCOTLAND/18/LL63	63	2.1/2		1.78	225	18	260	0.6	60
SCOTLAND/18/LL76	76	3		2.21	350	18	260	0.6	60



RUBBER HOSE

TRUCK & CHEMICAL HOSE



RUBBER HOSE

OIL HOSE



AUSTRALIA – OIL DELIVERY HOSE

Used for delivery and transfer of a wide range of petroleum products up to 30% aromatic content; excellent for use as a tank truck or tank wagon discharge hose.

Tube: Black smooth. Nitrile rubber compound.

Reinforcement: high strength synthetic cord with copper anti-static wire.

Cover: BLACK, (wrapped finish) high grade chloroprene CR rubber, compounded for an excellent resistance to weather, ozone, abrasion and oil.

Layline: BROWN

Temperature Range: -20°C to +90°C.

Product No.	Inside Diam.		O.D.	Weight	Working Pressure	Working Pressure	Coil Length
	mm	inch	mm	Kg/mt	bar	psi	mt
AUSTRALIA19	19	3/4	27	0.37	10	150	120
AUSTRALIA25	25	1	36	0.70	10	150	120
AUSTRALIA32	32	1.1/4	44	0.88	10	150	120
AUSTRALIA38	38	1.1/2	50	1.07	10	150	120
AUSTRALIA51	51	2	63	1.37	10	150	60
AUSTRALIA60	60	2.3/8	72	1.90	10	150	4
AUSTRALIA63	63	2.1/2	74	2.00	10	150	60
AUSTRALIA76	76	3	89	2.60	10	150	60
AUSTRALIA90	90	3.1/2	105	2.87	10	150	60
AUSTRALIA102	102	4	118	3.90	10	150	60

MALMO – OIL SUCTION HOSE

An oil return hose with light weight suction capability specially designed for use on hydraulic systems; can also be used for suction and discharge of various petroleum products with maximum 30% aromatic content.

Tube: Black smooth. Nitrile based compound.

Reinforcement: high strength synthetic cord plus embedded steel helix wire.

Cover: BLACK, (wrapped finish) SBR. Abrasion, weather and oil mist resistant.

Layline: BROWN

Temperature Range: -20°C to +90°C.

Product No.	Inside Diam.		O.D.	Weight	Bending Radius	Working Pressure	Working Pressure	Vacuum	Coil Length
	mm	inch	mm	Kg/mt	mm	bar	psi	atm	mt
MALMO19	19	3/4	30	0.68	80	10	150	0.9	120
MALMO25	25	1	35	0.81	105	10	150	0.9	120
MALMO32	32	1.1/4	42	1.05	135	10	150	0.9	120
MALMO38	38	1.1/2	49	1.35	165	10	150	0.9	120
MALMO51	51	2	63	1.85	230	10	150	0.9	120
MALMO63	63	2.1/2	78	2.81	290	10	150	0.9	60
MALMO76	76	3	89	2.95	360	10	150	0.9	60
MALMO90	90	3.1/2	102	4.02	450	10	150	0.9	60
MALMO102	102	4	116	4.87	515	10	150	0.9	60

Note: Other sizes on application.

IVALO – OIL SUCTION & DELIVERY HOSE

Flexible rubber hose with corrugated cover suitable to convey oil with aromatic content up to 30% (except ester base), hose suitable for suction (vacuum 0.5 bar) and delivery.

Tube: black, smooth, NBR rubber compound for oil.

Reinforcement: high strength synthetic cord plus embedded steel helix wire.

Cover: BLACK, corrugated, CR rubber compound, abrasion and weathering resistant; flame retardant according to ASTM C 542.

Layline: RED

Temperature Range: -30°C to +120°C.

Product No.	Inside Diam.		O.D.	Weight	Bending Radius	Working Pressure	Working Pressure	Vacuum	Coil Length
	mm	inch	mm	Kg/mt	mm	bar	psi	atm	mt
IVALO19	19	3/4	33	0.40	50	5	75	0.5	60
IVALO25	25	1	39	0.50	67	5	75	0.5	60
IVALO32	32	1.1/4	46	0.62	85	5	75	0.5	60
IVALO35	35	1.3/8	49	0.64	95	5	75	0.5	60
IVALO38	38	1.1/2	52	0.70	105	5	75	0.5	60
IVALO51	51	2	65	1.01	150	5	75	0.5	60
IVALO76	76	3	90	1.68	240	5	75	0.5	60

Note: Other sizes on application.

IMPORTANT NOTICE

Hoses can be manufactured to your special requirements, including flanged assemblies, ship to shore, materials handling etc.

BOAT ETNA – MARINE WET EXHAUST HOSE

Hardwall corrugated rubber hose specially designed for gas exhaust in pleasure boats.

Tube: BLACK, smooth, CR rubber compound resistant to gas exhaust.

Reinforcement: high strength synthetic cord plus embedded helix wire.

Cover: BLACK, corrugated (wrapped finish) CR rubber compound, flame retardant and weathering resistant.

Layline: BLUE/WHITE

Temperature Range: -30°C to +100°C.

Marine Standards: Nordic Boat Standard MC9 with homologation VVT, Lloyd's Register LR Rules and Regulations for special service craft.

Product No.	Inside Diam. mm	inch	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Coil Length mt
BOAT25	25	1	0.53	120	2	30	60
BOAT29	29	1.1/8	0.61	130	2	30	60
BOAT32	32	1.1/4	0.65	150	2	30	60
BOAT38	38	1.1/2	0.75	160	2	30	60
BOAT45	45	1.3/4	0.87	170	2	30	60
BOAT51	51	2	1.07	180	2	30	60
BOAT58	58	2.1/4	1.20	190	2	30	60
BOAT60	60	2.3/8	1.25	190	2	30	60
BOAT64	64	2.1/2	1.30	200	2	30	60
BOAT70	70	2.3/4	1.40	200	2	30	60
BOAT76	76	3	1.46	250	2	30	60
BOAT89	89	3.1/2	1.73	330	2	30	60
BOAT102	102	4	2.06	410	2	30	60
BOAT114	114	4.1/2	2.33	200	2	30	60
BOAT127	127	5	2.58	560	2	30	60
BOAT152	152	6	3.18	680	2	30	60
BOAT203	203	8	3.69	995	2	30	60

Note: Other sizes on application.

POSEIDON/EXTR – ISO 7840 A1 CE FUEL DELIVERY

Softwall hose suitable for delivery of fuel in pleasure boats.

Reinforcement: high strength synthetic cord plus antistatic copper wire.

Tube: BLACK, smooth PVC/NBR rubber compound, suitable for fuels with up to 50% aromatic content.

Cover: BLACK, smooth (wrapped finish) self-extinguishing CR rubber compound; oil, and weathering resistant.

Temperature Range: -30°C to +100°C.

Marine Standards: ISO 7840 A1-A2-CE, RINA Approved.

SAE J1527

Product No.	Inside Diam. mm	inch	O.D. mm	Weight Kg/mt	Working Pressure bar	Working Pressure psi	Coil Length mt
POSEIDON/EXTR06	6	1/4	16	0.25	3.4	50	100
POSEIDON/EXTR08	8	5/16"	18	0.29	3.4	50	80
POSEIDON/EXTR10	10	3/8	21	0.38	3.4	50	60
POSEIDON/EXTR13	13	1/2	24	0.45	2.5	38	60
POSEIDON/EXTR16	16	5/8	27	0.52	2.5	38	40
POSEIDON/EXTR19	19	3/4	30	0.59	2.5	38	40

Note: Other sizes on application.

BOAT POSEIDON/LL – ISO 7840 A2 CE FUEL SUCTION

Hardwall hose suitable for conveying fuel with aromatic content up to 50% in pleasure boats of up to 24m length.

Tube: Black, Smooth, Synthetic rubber compound.

Reinforcement: High strength synthetic cord plus embedded helix wire.

Cover: BLACK, smooth (wrapped finish), self-extinguishing synthetic rubber compound; oil, abrasion and weathering resistant.

Layline: YELLOW

Marine Standards: ISO 7840:04 A1 CE - RINA Approved. SAE J 1527:04.

Branding: Continuous yellow spiral brand "IVA - POSEIDON LL - year - ID - ISO 7840:04 A1 CE - Dip. 065306IVE RINA Approved. SAE J 1527:04 - USCG Type A1 - NMMA Type accepted".

Temperature Range: -30°C to +100°C.

Product No.	Inside Diam. mm	inch	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Coil Length mt
POSEIDON/LL38	38	1.1/2	1.29	120	10	150	60
POSEIDON/LL51	51	2	1.79	170	10	150	60

Note: Other sizes on application.



RUBBER HOSE



MARINE HOSE



RUBBER HOSE

MATERIALS HANDLING

DON – BULK MATERIALS HANDLING HOSE

Bulk materials handling hose, used to convey cement, sand, gravel, silica and other abrasive materials. It is manufactured with anti-static rubber ensuring complete discharge of static electricity.

Tube: BLACK smooth, Compounded for long wear resistance in handling hard, sharp, abrasive materials.

Cover: BLACK, smooth (wrapped finish) synthetic rubber, abrasion resistant. It is anti-static.

Temperature Range: -40°C to +70°C.

Product No.	Inside Diam. mm	inch	O.D. mm	Weight Kg/mt	Working Pressure bar	Working Pressure psi	Coil Length mt
DON076	76	3	94	2.62	6	90	120
DON102	102	4	119	3.23	6	90	120

Note: Other sizes on application.

CONCRETE PUMPING – TEXTILE REINFORCEMENT 40 BAR (600psi)

Tube: Black conductive NR – abrasion resistant. **Reinforcement:** High tensile textile cords. **Cover:** Black conductive SBR/NR blend abrasion and ozone resistant

Application: Concrete pumping installations. **Safety factor:** 2.5: 1 **Temperature:** -30°C +80°C (-22°C + 176°C)

Product No.	ID mm	ID inch	Weight Kg/mt	Wrkg Prss Bar	Wrkg Prss PSI	Stock length
737AA0516977A0	51	2	1.85	40	600	20
737AA0760477A0	76	3	4.41	40	600	20
737AA0901877A0	90	3.1/2	5.17	40	600	20
737AA1023077A0	102	4	5.85	40	600	20

CONCRETE PUMPING – WIRE REINFORCEMENT 85 BAR (1275psi) WP

Tube: Black conductive NR – abrasion resistant. **Reinforcement:** High tensile steel cords. **Cover:** Black conductive SBR/NR blend – abrasion and ozone resistant

Application: Heavy duty high pressure concrete placement at casting site **Safety factor:** 2: 1 **Temperature:** -30°C +80°C (-22°C + 176°C)

Product No.	ID mm	ID inch	Weight Kg/mt	Wrkg Prss Bar	Wrkg Prss PSI	Stock length
740AA0516977N0	51	2	2.16	85	1275	20
740AA0638577N0	63	2.1/2	3.38	85	1275	20
740AA0760077N0	76	3	4.59	85	1275	20
740AA0901677N0	90	3.1/2	5.93	85	1275	20
740AA1022877N0	102	4	7.51	85	1275	20
740AA1275577N0	127	5	10.94	85	1275	20

SANDBLAST – PREMIUM QUALITY 10 BAR (150psi)

Tube: Black conductive NR – abrasion resistant approx. 50mm3 (ISO 4649/A)

Reinforcement: High tensile textile cords **Cover:** Black conductive SBR/NR blend – abrasion and ozone resistant – pin pricked. **Application:** Sand and shotblast installations designed for extremely long service life in heavy duty applications.

Safety factor: 3: 1 **Temperature:** -30°C +80°C (-22°C + 176°C)

Product No.	ID mm	ID inch	Weight Kg/mt	Wrkg Prss Bar	Wrkg Prss PSI	Stock length
753AA013277SV3	13	1/2	.51	10	150	20
753AA019337SV3	19	3/4	.65	10	150	40
753AA025407SV3	25	1	.80	10	150	40
753AA032487SV3	32	1.1/4	1.15	10	150	20
753AA038557SV3	38	1.1/2	1.51	10	150	40
753AA013337SV0	13	1/2	.81	10	150	20
753AA019407SV3	19	3/4	1.04	10	150	20
753AA025487SV3	25	1	1.41	10	150	20
753AA032557SV3	32	1.1/4	1.69	10	150	20
753AA038647SV3	38	1.1/2	2.33	10	150	20
753AA051767SV3	51	2	2.68	10	150	20

ORTAC MULTI PURPOSE HOSE

ORTAC is a premium quality, economical multi purpose hose. It is ideal for use in factories, workshops, quarries, mines, construction sites, farming projects and concrete handling etc. where a quality multi purpose hose offers a one-off solution to all your needs. The hose is non-conductive construction which has a minimum one megohm resistance per inch at 1000 volts DC.

Applications: Resistant to air, water, petroleum-based products (including oil, kerosene etc), vegetable oils, animal fats, grease, alkalis, salt solutions, many chemicals, solvents and sprays.

Tube: BLACK chemigum synthetic rubber. (NBR) **Cover:** RED carbryn synthetic rubber.
Temperature Range: -29°C to +100°C.



Product No.	Inside Diam. mm inch	O.D. mm	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Reel Length mt
ORTAC6	6 1/4	13	0.12	63	20.6	300	152.4
ORTAC8	8 5/16	15	0.21	82	20.6	300	152.4
ORTAC10	10 3/8	17	0.24	97	20.6	300	152.4
ORTAC13	13 1/2	22	0.30	127	20.6	300	152.4
ORTAC16	16 5/8	27	0.38	160	20.6	300	152.4
ORTAC20	20 3/4	32	0.51	190	20.6	300	152.4
ORTAC25	25 1	36	0.77	200	20.6	300	137.2
ORTAC32	32 1.1/4	44	1.07	230	20.6	300	122.0
ORTAC38	38 1.1/2	50	1.40	254	17.2	250	91.4
ORTAC51	51 2	76	1.80	300	13.8	200	91.4

Burst pressure: Working pressure = 4:1

MPT – MULTI PURPOSE HOSE

Application: Factories, workshops, quarries, mines, construction sites, farming projects and concrete handling etc. where a quality multi purpose hose offers a one-off solution to all your needs. The hose is non-conductive construction which is resistant to air, water, petroleum-based products, many chemicals, solvents and sprays.

Tube: BLACK synthetic rubber. (NBR) (RMA Class A) **Cover:** RED synthetic rubber. (NBR) (RMA Class B). **Temperature Range:** -29°C to +82°C.

Product No.	Inside Diam. mm inch	O.D. mm	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Reel Length mt
MPT06	6 1/4	13	0.12	38	17.2	250	213
MPT10	10 3/8	18	0.25	57	17.2	250	213
MPT13	13 1/2	21	0.36	76	17.2	250	213
MPT16	16 5/8	25	0.42	95	17.2	250	213
MPT20	20 3/4	29	0.54	114	17.2	250	213
MPT25	25 1	36	0.73	178	17.2	250	213

Burst pressure: Working pressure = 4:1



HORIZON 200 – GENERAL PURPOSE HOSE (BLACK)

Economical air and water hose, Horizon is suitable for a wide range of industrial, construction and agricultural applications.

Tube: BLACK Versigard synthetic rubber (medium oil resistance). **Cover:** BLACK Versigard synthetic rubber (medium oil resistance). **Temperature Range:** -40°C to +100°C.

Product No.	Inside Diam. mm inch	O.D. mm	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Reel Length mt
HORIZON06B	6 1/4	12.7	0.13	63	13.7	200	152.4
HORIZON08B	8 5/16	14.8	0.18	82	13.7	200	152.4
HORIZON10B	10 3/8	17.0	0.22	97	13.7	200	152.4
HORIZON12B	12 1/2	20.6	0.30	127	13.7	200	152.4
HORIZON16B	16 5/8	24.6	0.40	160	13.7	200	152.4
HORIZON20B	20 3/4	28.4	0.51	190	13.7	200	152.4
HORIZON25B	25 1	36.6	0.79	200	13.7	200	137.2

Other sizes available: 32mm, 38mm & 50mm.

Also available in YELLOW.



MANGUSTA – GENERAL PURPOSE HOSE

Multipurpose hose suitable to convey air, hot water and non aggressive chemicals.

Tube: BLACK, seamless special EPDM antistatic rubber compound.

Cover: YELLOW, seamless, EPDM rubber compound, heat and weather-resistant.

Reinforcement: High strength synthetic textiles. **Temperature Range:** from -40°C to +120°C.

Product No.	Inside Diam. mm inch	O.D. mm	Weight Kg/mt	Bending Radius mm	Working Pressure bar	Working Pressure psi	Reel Length mt
MANGUSTA13	13 1/2	23	0.37	105	20	300	60
MANGUSTA19	19 3/4	30	0.55	150	20	300	60
MANGUSTA25	25 1	35	0.62	200	20	300	40



RUBBER HOSE

MULTI PURPOSE



RUBBER HOSE

WELDING HOSE



G301 AIRLINE/WELDING HOSE

Meets AS 1335/1995

General purpose, airline or oxygen welding hose.

Coil Length = 100mt

Working Temperature: -29°C - +82°C.

Product No.	Nominal Bore		OD mm	Working Press. bar	Working Press. psi
	inches	mm			
G301-5	3/16"	5	12.2	17.2	250
G301-6	1/4"	6	14.0	17.2	250
G301-8	5/16"	8	16.0	17.2	250
G301-10	3/8"	10	19.0	17.2	250

Add B for Blue (Oxygen) or R for Red (Acetylene) after Product No.

Note: Other sizes on application.



G305 LPG HOSE

Meets AS 1869/C

For LPG transfer.

Coil Length = 100mt.

Colour: Orange Cover

Product No.	Nominal Bore		OD mm	Working Press. bar	Working Press. psi
	inches	mm			
G305-5	3/16"	5	12	20.7	300
G305-6	1/4"	6	14.5	20.7	300
G305-8	5/16"	8	16.5	20.7	300
G305-10	3/8"	10	19	20.7	300

Note: Other sizes on application.



G307 TWINLINE WELDING HOSE

Meets AS 1335-1995

Premium twinline oxy-acetylene hose.

Coil Length = 100mt

Colour: Red and Blue Cover

Product No.	Nominal Bore		OD mm	Working Press. bar	Working Press. psi
	inches	mm			
G307-5	3/16"	5	12.2x2	17.2	250

Premium twinline oxy-liquid propane gas hose.

Coil Length = 100mt.

Colour: Orange and Blue Cover

Product No.	Nominal Bore		OD mm	Working Press. bar	Working Press. psi
	inches	mm			
G308-5	3/16"	5	12.2x2	17.2	250

Note: Other sizes on application.



GAS TUBING

Our extensive range of tubing, specifically designed and manufactured for the hospital and laboratory, is of the highest quality.

Our extensive range of approx. 50 different sizes from 3mm to 32mm bore with a range of wall thicknesses, means that we'll be able to deliver the tubing you need - fast.

Tubing can be manufactured to your specifications for that special application.

SERIES 7108 - PAINT FLUID HOSE

Designed to handle both water and oil-based paints in medium pressure applications. The Nylon 11 tube will handle ketone solvents, lacquers, thinner and paints with high aromatics. Very flexible for ease of handling. 4:1 safety factor.

Tube: Nylon 11

Cover: BLACK NEOPRENE

Reinforcement: One textile braid

Temperature range: -18°C to +88°C.

Working pressure: 750 psi

Reel Length = 152.4mt

Product No.	Inside Diam.	
	Inches	mm
7108-381	3/8"	10

Note: Other sizes on application.



PROPERTIES OF RUBBER COMPOUNDS

This table is provided as a general guide to the properties of compounds containing natural and synthetic rubbers.

Most compounds used in the manufacture of rubber hose contain about 60% by weight of rubber, the balance is made up of chemicals each contributing something to the physical properties of the finished product, or as an aid in processing. The selection of these components is very much a matter of compromise since the full achievement of one property is usually at the expense of another.



Common Name	ASTM	Composition	General Properties
Neoprene	CR	Chloroprene	Good weather resistance. Flame retarding. Moderate resistance to petroleum based fluids. Good physical properties.
Natural	NR	Isoprene, natural	Excellent physical properties including abrasion and low temperature, poor resistance to petroleum based fluids.
Polyisoprene	IR	Isoprene, synthetic	Same properties as natural rubber.
Butyl	IIR	Isobutene-isoprene	Very good weathering resistance. Low permeability to air. Good physical properties. Poor resistance to petroleum based fluids.
Nitrile	NBR	Nitrile-butadiene	Excellent resistance to petroleum based fluids. Moderate resistance to aromatics. Good physical properties.
SBR	SBR	Styrene-butadiene	Good physical properties including abrasion resistance. Poor resistance to petroleum based fluids.
Hypalon	CSM	Chloro-sulfonyl-polyethylene	Excellent ozone, weathering and acid resistance. Good abrasion and heat resistance. Poor resistance to petroleum based fluids.
Ethylene Propylene Rubber	EPDM		Ethylene-propylene-diene-terpolymer Excellent ozone, chemical and ageing characteristics. Poor resistance to petroleum based fluids.
Cross linked Polyethylene	XLPE UHMWPE	Cross linked Polyethylene	Excellent resistance to chemicals and petroleum based fluids.

TEMPERATURE LIMITS OF RUBBER COMPOUNDS

Rubber Type	Maximum temperature Limits (Water)
Natural (NR)	70°C
Styrene Butadiene (SBR)	70°C
Nitrile (NBR)	90°C
Neoprene (CR)	90°C
Ethylene Propylene (EPDM)	110°C
Hypalon (CSM)	120°C
Butyl (IIR)	120°C
Cross linked Polyethylene (XLPE)	70°C
Ultra High Molecular weight polyethylene (UHMWPE)	100°C

CHEMICAL RESISTANCE CHART LEGEND

- 1 Suitable
- 2 Some attack - limit any exposure
- 3 Not suitable
- No data

WARNING

The following information is based on highly reliable laboratory tests. The list, however, should be used only as a guide since we must assume that when choosing the rubber compound, things may vary such as the temperature, fluid concentration, type of solvent, and working conditions. For heavy duty applications please contact H.I.S. Hose.

All the data are considered valid at 20°C (70°F) except where specified.

CHEMICAL RESISTANCE OF RUBBERS

SOLVENT INFORMATION CHART

Aromatic solvents:	benzene, cumene, p-cumene, naftalene, toluene, xylene, cresol, styrene, cyclohexane and combinations
Alifatic solvents:	propane, butane, pentane, hexane, heptane, dipetene, tripropylene.
Halogenous solvents:	chloroform, dichlorobenzene, dichloroethylene, methylenbromide, methylen chloride, benzyl chloride, carbon tetrachloride, trichloroethylene, carbon disulphite, turpentine, perchloroethylene, dichloroethane
Ketonic solvents:	acetone, methyl ketone, isobutyl ketone, methyl ethyl ketone, methyl isobutyl ketone
Esters solvents:	butyl acetate, methyl acetate, anyl acetate, isobutyl acetate.
Amines:	aniline, ethylene diamine , diethanol amine, triethanolamine, dimethyl amine, monoethanolamine.
Alcohols:	methanol, ethanol, propanol, butanol, glycerol.

Fluid or material conveyed	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Acetaldehyde	3	2	2	1	2	2	3	2	3	3	1	1
Acetic acid, glacial	3	3	2	1	2	3	3	2	3	3	1	1
Acetic acid 10%	2	2	1	1	1	2	3	1	2	2	1	1
Acetic acid 50%	3	3	2	1	2	2	3	1	2	2	1	1
Acetic anhydride	3	3	2	2	2	3	3	1	2	3	1	1
Acetone	3	3	1	1	1	3	3	1	3	3	1	1
Acetone cyanohidrin	-	-	1	1	2	-	-	-	-	-	1	1
Acetophenone	-	-	2	1	2	-	-	2	-	-	1	1
Acetyl acetone	3	3	1	1	2	3	3	2	3	3	1	1
Acetyl chloride	3	3	2	2	2	3	3	1	3	1	1	2
Acetylene	1	1	1	1	1	2	1	1	1	1	1	1
Acetylene dichloride	3	3	3	3	3	3	3	3	3	1	1	2
Acrolein	3	3	2	2	2	-	-	-	2	1	1	2
Acrylonitrile	-	-	3	3	3	-	-	1	-	3	1	2
Adipic acid	2	-	2	1	2	2	-	-	-	-	1	1
Air 60 °C	1	1	1	1	1	1	1	1	1	1	1	1
Air 160 °C	3	3	2	1	2	2	3	2	3	3	3	3
Allyl acetate	-	-	-	-	-	-	-	-	-	2	1	1
Allyl alcohol	1	1	1	1	1	-	1	1	1	1	1	1
Allyl bromide	-	-	-	-	-	-	-	2	-	2	1	2
Allyl chloride	-	-	-	-	-	-	-	2	-	2	1	2
Aluminium acetate	2	2	1	1	2	2	3	1	2	-	1	1
Aluminium chloride	1	1	1	1	1	1	1	1	1	1	1	1
Aluminium fluoride	1	2	1	1	1	1	1	1	1	1	2	1
Aluminium hydroxide 2	1	-	1	1	1	-	1	2	2	1	1	1
Aluminium nitrate	1	1	1	1	1	1	1	1	1	1	1	1
Aluminium sulfate	1	1	1	1	1	1	1	1	1	1	1	1
Aminobenzene	-	-	-	-	-	-	-	2	-	-	1	2
Aminoethanol	2	2	1	1	1	-	2	1	2	-	1	1
Ammonia anhydrous	3	3	3	3	3	3	3	2	3	-	2	2
Ammonia sol. 10%	2	2	1	1	1	1	-	1	1	-	1	1
Ammonia sol. 50%	2	2	1	1	-	1	-	1	1	-	1	1
Ammonium chloride	1	1	1	1	1	1	1	1	1	2	1	1
Ammonium hydroxide	2	2	2	1	-	1	-	1	2	3	1	1
Ammonium nitrate	2	2	1	1	1	1	1	1	1	-	1	1
Ammonium phosphate	1	1	1	1	1	1	1	1	1	-	1	1
Ammonium sulphate	1	1	1	1	1	1	1	1	1	-	1	1
Ammonium sulphite	1	1	1	1	1	-	-	1	1	-	1	1
Ammonium thiosulphate	1	1	1	1	1	-	-	1	1	-	1	1
Amyl acetate	3	3	3	3	2	2	-	-	-	-	1	1
Amyl acetone	3	3	3	3	3	3	-	-	-	-	1	1
Amyl alcohol	2	2	2	1	2	-	-	1	-	-	1	1
Amylamine	2	2	-	1	2	-	-	-	3	-	1	1
Amyl bromide	3	3	2	2	-	-	-	2	-	-	1	1
Amyl chloride	3	3	2	2	-	-	-	2	-	-	1	1
Amyl oleate	-	-	-	-	-	-	1	-	-	-	1	1
Amyl phenol	-	-	-	-	-	-	-	-	-	1	1	1
Amyl phtalate	-	-	2	1	2	-	-	-	-	2	1	1
Anethole	3	3	3	3	3	-	3	2	-	2	2	3
Aniline	3	3	2	1	2	-	-	2	-	2	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Animal fats	3	3	3	3	1/2	2	1	1	2	1	1	1
Antimony pentachlorid	-	-	-	-	-	-	-	-	-	-	1	1
Acqua regia	-	-	-	-	-	-	-	2	-	2	3	3
Aromatic tar	-	-	-	-	-	-	2	-	-	1	1	2
Arsenic acid	2	2	1	1	1	2	2	1	1	1	1	1
Ascorbic acid	-	-	-	1	-	-	-	1	-	-	1	1
Asphalt 80 °C	-	-	-	-	-	-	-	1	-	-	1	3
Asphalt 130 °C	-	-	-	-	-	-	3	-	-	-	2	3
ASTM OIL n°1	3	3	3	3	3	1	1	1	2	1	1	1
ASTM OIL n°2	3	3	3	3	3	2	1	1	2	1	1	1
ASTM OIL n°3	3	3	3	3	3	3	1	2	2	1	1	1
ASTM FUEL A	3	3	3	3	3	3	1	1	2	1	1	1
ASTM FUEL B	3	3	3	3	3	3	1	2	2	1	1	1
ASTM FUEL C	3	3	3	3	3	3	1	3	3	1	2	2
Banana oil	3	3	3	3	2	2	1	1	2	1	1	1
Barium carbonate	1	1	1	1	1	1	1	1	1	1	1	1
Barium chloride	1	1	1	1	1	1	1	1	1	1	1	1
Barium hydroxide	1	1	1	1	1	1	1	1	1	1	1	1
Barium sulfide	1	1	1	1	1	1	1	1	1	1	1	1
Beer	2	1	2	2	1	2	2	2	2	2	1	1
Beet sugar liquors	2	1	2	2	1	2	2	2	2	2	1	1
Benzal chloride	-	-	-	2	-	-	-	-	-	-	1	1
Benzaldehyde	3	3	2	1	2	-	3	-	-	-	1	1
Benzene	3	3	3	3	3	3	3	3	3	1	1	2
Benzene carboxylic ac.	-	-	-	-	-	-	-	2	-	1	1	1
Benzene sulfon ac.10%	-	-	-	-	-	-	-	-	-	1	1	1
Benzine petrol ether	3	3	3	3	3	3	1	2	3	1	1	1
Benzine petrol naphtha	3	3	3	3	3	3	1	2	3	1	1	1
Benzoic acid	3	3	3	3	3	3	-	1	2	1	1	1
Benzoic aldehyde	3	3	2	1	2	-	-	2	-	-	1	1
Benzotrighloride	-	-	-	-	-	-	-	-	-	-	2	3
Benzyl acetate	3	3	3	2	2	-	-	2	-	3	1	2
Benzyl alcohol	3	3	3	2	3	3	-	1	-	1	1	1
Benzyl chloride	-	-	-	2	-	-	-	-	-	2	1	2
Bichromate of soda	-	-	-	2	-	-	-	-	-	-	1	1
Black sulphate liquor	-	-	-	1	1	1	-	-	-	1	1	1
Bleach (2-12% chlorine)	-	-	-	2	-	-	-	-	-	2	1	2
Boric acid	1	-	1	1	1	1	-	1	1	1	1	1
Bordeaux mixture	-	-	1	1	1	-	-	1	1	1	1	1
Brine	1	1	1	1	1	1	-	1	1	1	1	1
Bromic acid	-	-	-	-	-	-	-	-	-	2	3	3
Bromine	3	3	3	3	3	3	3	3	3	2	3	3
Bromobenzene	3	3	3	3	3	3	3	3	3	2	3	3
Bromochloro-methane	3	3	3	2	-	3	3	2	-	-	2	2
Bromoethane	3	3	3	-	-	-	3	2	-	-	-	-
Bromotoluene	3	3	3	3	3	3	3	3	3	2	-	-
Bunker oil	3	3	3	3	3	2	1	2	-	1	1	1
Butadiene	3	3	3	3	3	3	3	3	3	2	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Butane	3	3	3	2	2	2	1	2	2	1	1	1
Butanoic acid	-	-	-	2	-	-	-	1	-	1	1	-
Butanol	1	1	1	1	1	1	1	1	1	1	1	1
Butanone	-	-	-	-	-	-	-	-	-	-	1	1
Butoxyethanol	-	-	-	1	-	-	-	1	-	-	1	-
Butyl acetate	3	3	-	2	2	-	-	2	-	3	1	1
Butyl acrylate	3	3	3	3	3	3	-	2	3	3	1	2
Butyl alcohol	1	1	1	1	1	1	1	1	1	1	1	1
Butyl aldehyde	-	-	2	1	2	-	-	-	-	-	1	1
Butyl amine	-	-	2	1	2	-	2	2	-	-	1	1
Butyl benzene	-	-	-	-	-	-	-	-	-	1	1	1
Butyl bromide	3	3	3	3	3	3	3	3	3	2	2	-
Butyl benzoate	-	-	-	2	-	-	-	-	-	1	1	-
Butyl butyrate	-	-	-	-	-	-	-	-	-	-	2	-
Butyl carbitol	3	3	2	1	-	-	-	-	3	1	1	1
Butyl cellosolve	3	3	2	1	2	2	3	1	2	3	1	1
Butyl chloride	3	3	3	-	-	3	3	3	-	2	2	-
Butyl ether	3	3	-	-	-	2	3	2	-	-	1	1
Butyl ether acetaldehy	-	-	-	1	2	-	-	-	-	-	1	-
Butyl ethil ether	3	3	-	2	-	-	3	-	3	-	1	-
Butyl glycol	-	-	2	1	-	-	-	-	-	-	1	1
Butyl oleate	3	3	-	2	2	-	3	-	-	1	1	-
Butyl Phenol	-	-	-	-	-	-	-	-	-	1	1	1
Butyl phthalate	3	3	-	2	2	-	-	-	-	2	1	1
Butyl stearate	3	3	3	3	3	3	2	2	3	3	1	1
Butylene	-	-	3	3	-	3	2	3	-	1	-	-
Butyraldehyde	3	3	2	1	2	-	3	-	-	3	1	1
Butyric acid	3	3	-	2	-	-	3	2	-	2	1	1
Butyric anhydride	-	-	-	-	-	-	-	-	2	-	1	-
Cadmium acetate	3	3	2	2	-	-	-	1	-	-	1	1
Calcium aluminate	1	1	1	1	-	1	-	1	1	1	1	1
Calcium bichromate	-	-	2	1	2	-	-	1	1	-	1	-
Calcium bisulphite	1	1	1	1	1	1	1	1	1	1	1	1
Calcium carbonate	1	1	1	1	1	1	1	1	1	1	1	1
Calcium chloride	1	1	1	1	1	1	1	1	1	1	1	1
Calcium hydroxide	2	1	1	1	1	-	-	1	2	1	1	1
Calcium hypochlorite	3	3	2	1	2	-	3	1	-	-	1	1
Calcium nitrate	1	1	1	1	1	1	1	1	1	1	1	1
Calcium sulphate	1	1	1	1	1	1	1	1	1	1	1	1
Calcium sulfide	1	1	1	1	1	1	-	1	1	1	1	1
Calcium acetate	3	3	2	1	2	2	-	1	3	3	1	1
Caprylic acid	3	3	-	2	-	-	-	2	-	-	1	1
Carbamide	-	-	-	1	-	-	-	1	-	-	1	1
Carbitol	-	-	2	1	2	2	-	1	-	-	1	1
Carbolic acid phenol	-	-	-	2	2	-	-	1	-	1	1	1
Carbon dioxide	1	1	1	1	1	1	1	1	1	1	1	1
Carbon disulfide	3	3	3	3	-	-	-	-	-	1	2	2
Carbonic acid	1	1	1	1	1	-	-	1	1	-	1	1
Carbon tetrachloride	3	3	3	3	3	3	-	-	-	1	1	2
Carbon tetrafluoride	-	-	-	-	2	-	-	-	-	-	1	1
Castor oil	2	-	-	-	2	1	1	1	1	1	1	1
Caustic potash	2	1	1	1	1	2	2	1	-	-	1	1
Caustic soda	2	1	1	1	1	2	2	1	-	-	1	1
Cellosolve	-	-	2	1	1	-	2	-	-	-	1	1
Cellosolve acetate	3	3	-	2	2	-	-	-	-	-	1	1
Chlorinated solvents	3	3	3	3	-	3	3	-	-	1	1	1
Chlorine (dry)	3	3	3	3	3	3	3	3	3	1	2	2
Chlorine (wet)	3	3	3	3	3	3	3	3	3	1	2	2

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Chlorine trifluoride	3	3	3	3	3	3	3	3	3	1	2	2
Chloroacetic acid	3	3	2	1	2	-	-	-	-	3	1	1
Chloroacetone	3	3	2	1	2	-	-	-	-	3	1	1
Chlorobenzene	3	3	3	3	3	3	3	3	-	1	1	1
Chlorobenzol	3	3	3	-	-	-	-	-	-	1	1	1
Chlorobromo-methane	-	-	-	-	-	-	-	-	-	-	1	1
Chlorobutane	3	3	3	-	2	-	-	-	-	1	2	2
Chloroform	3	3	-	-	-	-	-	-	-	1	2	2
Chloropentane	3	3	3	3	3	3	-	-	-	1	1	1
Chlorosulfonic acid	3	3	3	3	3	3	3	3	3	3	2	3
Chlorotoluene	3	3	3	3	3	3	3	3	3	2	2	3
Chrome plating solution	3	3	-	2	-	-	-	-	-	1	1	2
Chromic acid	3	3	-	2	-	3	3	2	-	1	1	1
Chromosulfuric acid	3	3	3	3	3	3	3	3	3	-	2	3
Citric acid	1	1	1	1	1	1	1	1	1	-	1	1
Coal oil	3	3	3	3	3	3	1	3	3	1	1	1
Coal tar	3	3	3	3	3	3	1	3	3	1	1	1
Coconut oil	3	3	3	3	2	3	1	-	-	-	1	1
Coke oven gas	3	3	3	3	3	3	2	3	-	1	1	1
Copper chloride	2	2	1	1	1	1	2	1	1	1	1	1
Copper cyanide	2	2	1	1	1	1	-	1	1	1	1	1
Copper hydrate	-	-	-	1	1	-	-	-	2	-	1	1
Copper hydroxide	-	-	2	1	1	-	-	1	2	-	1	1
Copper nitrate	1	2	1	1	1	1	-	1	1	1	1	1
Copper sulphate	1	2	1	1	1	1	-	1	1	1	1	1
Corn oil	3	3	3	3	1	2	1	-	-	1	1	1
Cottonseed oil	3	3	3	3	3	-	-	-	-	1	1	1
Creosote	3	3	3	3	3	-	2	-	-	1	1	1
Cresols	3	3	3	3	3	3	-	2	-	1	1	1
Cresylic acid	3	3	3	3	3	3	-	-	-	1	1	1
Crotonaldehyde	3	3	2	1	2	3	-	1	-	3	1	1
Crude oil	3	3	3	3	3	3	1	-	-	1	1	1
Cumene	3	3	3	3	3	3	2	3	3	1	1	1
Cupric carbonate	2	2	1	1	1	1	1	1	1	1	1	1
Cupric nitrate	1	2	1	1	1	1	1	1	1	1	1	1
Cupric sulphate	1	2	1	1	1	1	1	1	1	1	1	1
Cutting oil	3	3	3	3	-	2	1	-	-	1	1	1
Cyclohexane	3	3	3	3	-	-	1	1	-	-	1	1
Cyclohexanol	3	3	-	2	-	-	-	1	-	1	1	1
Cyclohexanone	3	3	3	2	3	3	3	2	3	3	1	1
Cyclopentane	3	3	3	3	3	3	-	3	3	1	1	1
Cyclopentanol	3	3	2	1	-	-	-	1	-	2	1	1
Cyclopentanone	3	3	-	2	-	-	-	2	-	3	1	1
Decahydro-naphtalene	-	-	-	-	-	-	-	-	-	-	1	1
Decalin	3	3	3	3	3	3	3	3	3	1	1	1
Decanol	-	-	2	1	2	-	1	1	-	2	1	1
Decyl alcohol	1	1	1	1	1	-	-	1	-	-	1	1
Decyl aldehyde	-	-	2	1	1	-	-	-	-	2	1	1
Decyl butyl phthalate	3	3	-	1	1	-	2	-	-	2	1	1
Decyl carbinol	-	-	-	2	-	-	-	1	-	-	1	-
Denatured alcohol	1	1	1	1	1	1	-	1	1	2	1	1
Detergents (water)	2	2	1	1	1	2	1	-	-	1	1	1
Developer sol. (photo)	2	2	-	-	2	1	1	-	1	-	1	1
Diacetone alcohol	2	2	-	1	1	-	-	1	2	2	1	1
Diamylamine	2	3	2	1	2	-	-	1	-	-	1	1
Diamylene	3	3	3	-	3	3	-	-	-	1	1	1
Diamyl naphtalene	3	3	-	-	2	-	-	-	-	2	1	1
Diamyl phenol	3	3	3	3	3	3	-	-	-	1	1	1

TECHNICAL INFORMATION

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Dibenzyl ether	3	3	3	2	2	-	-	-	-	-	1	-
Dibromobenzene	3	3	3	3	3	3	3	3	-	1	1	1
Dibromoethane	3	3	3	3	3	3	3	3	3	-	1	1
Dibutyl ether	3	3	-	2	2	-	-	1	-	-	1	1
Dibutyl Phthalate	3	3	-	2	2	-	3	-	3	-	1	1
Dibutyl sebacate	3	3	-	1	2	-	-	1	3	-	1	1
Dibutyl amine	3	3	-	2	3	3	-	1	3	-	-	-
Dicalcium phosphate	1	1	1	1	1	1	1	1	1	1	1	1
Dichloroacetic acid	3	3	-	2	-	3	3	-	3	3	1	1
Dichlorobenzene	3	3	3	3	3	3	3	3	3	1	1	1
Dichlorobutane	3	3	3	3	3	3	-	-	3	1	1	-
Dichlorodifluoro-meth.	3	3	3	3	3	3	3	3	3	2	-	-
Dichloroethane	3	3	3	3	3	3	-	-	-	1	1	1
Dichloroethylene	3	3	3	3	3	3	3	3	3	1	2	2
Dichloroethyl ether	3	3	3	-	3	3	3	2	3	-	1	1
Dichlorohexane	3	3	3	3	3	3	3	-	-	1	1	1
Dichloromethane	3	3	3	3	3	3	3	-	-	1	1	1
Dichloropentane	3	3	3	3	3	3	3	-	-	1	1	-
Dichloropropane	3	3	3	3	3	3	3	-	-	1	1	-
Dichloropropene	3	3	3	3	3	3	3	-	-	1	2	2
Diesel oil	3	3	3	3	3	3	1	2	-	1	1	1
Diethanolamine	2	2	1	1	1	2	2	1	2	-	1	1
Diethylamine	2	2	1	1	1	2	2	1	2	-	1	1
Diethylbenzene	3	3	3	3	3	3	-	-	-	1	1	1
Diethyl carbinol	-	-	1	1	1	-	-	1	-	-	1	1
Diethyl ether	3	3	-	2	-	-	-	1	-	3	1	1
Diethyl ketone	3	3	2	1	2	3	-	-	-	3	1	1
Diethyl oxalate	1	1	1	1	1	-	-	1	-	-	1	1
Diethyl phthalate	3	3	-	1	2	3	2	2	-	-	1	1
Diethyl sebacate	3	3	-	1	2	3	-	2	-	-	1	1
Diethyl sul fate	-	-	-	2	-	-	-	1	-	-	1	-
Diethylamine	2	2	2	1	2	-	-	1	-	-	1	1
Diethylene glycol	1	1	1	1	1	1	1	1	1	1	1	1
Dihydroxydiethylether	-	-	1	1	1	-	-	1	1	-	1	1
Diisobutyl ketone	-	-	2	1	-	-	-	-	-	-	1	1
Diisodecyl phthalate	3	3	2	1	1	-	3	-	-	3	1	1
Diisooctyl adipate	3	3	2	1	1	-	3	-	-	3	1	1
Diisooctyl phthalate	3	3	2	1	1	-	3	-	-	3	1	1
Diisopropyl amine	2	2	-	1	1	-	-	2	2	-	1	1
Dimethyl amine	2	2	2	1	1	-	2	2	-	-	1	1
Dimethyl benzene	3	3	3	3	3	3	3	3	3	1	1	1
Dimethyl carbinol	2	2	1	1	1	-	2	1	1	3	1	1
Dimethyl ether	3	3	-	2	-	-	-	1	-	3	1	1
Dimethyl formamide	-	-	-	2	2	-	-	2	-	-	1	1
Dimethyl ketone	3	3	-	1	-	-	-	1	-	3	1	1
Dimethyl phenol	3	3	3	3	3	3	3	3	3	1	-	-
Dimethyl phthalate	3	3	-	2	2	-	-	1	-	2	1	1
Dimethyl sul fate	3	3	-	3	3	-	-	1	-	-	1	1
Dimethyl sulfoxide	3	3	-	-	-	-	-	-	-	-	1	1
Dinitrobenzene	3	3	-	2	2	-	-	-	-	1	1	1
Diocetyl adipate	3	3	-	1	1	-	2	-	-	2	1	1
Diocetyl phthalate	3	3	-	1	1	-	-	-	-	2	1	1
Dioxane	3	3	2	2	2	-	3	2	-	3	1	1
Dioxolane	3	3	3	2	3	-	-	2	-	3	1	1
Dipentene	3	3	-	-	-	-	-	2	-	1	-	-
Diphenyl phthalate	3	3	-	1	-	-	-	1	-	-	1	1
Dipropylamine	2	2	2	1	1	-	2	1	2	-	1	1
Dipropylene glycol	1	1	1	1	1	-	1	1	1	1	1	1
Disodium phosphate	1	1	1	1	1	-	1	1	1	-	1	1
Divinyl benzene	3	3	3	3	3	3	3	3	3	1	1	1
Dodecyl benzene	3	3	3	3	3	3	3	3	3	1	1	1
Dowper	3	3	3	3	3	-	2	-	-	1	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Dowtherm A and E	3	3	3	3	3	3	3	3	-	1	1	1
Dry cleaning fluids	-	-	-	-	-	-	2	-	-	1	-	-
Ethanol	1	1	1	1	1	1	1	1	1	2	1	1
Ethanol amine	2	2	1	1	1	2	2	1	3	3	1	1
Ethyl acetate	3	3	-	2	2	3	3	2	3	3	1	1
Ethyl acetoacetate	3	3	-	2	2	3	3	2	3	3	1	1
Ethyl acetone	3	3	-	1	2	3	3	2	3	3	1	1
Ethyl acrylate	3	3	-	2	2	3	3	2	3	3	2	1
Ethyl aldehyde	-	-	2	1	1	-	-	-	-	3	1	1
Ethyl Al dichloride	3	3	-	-	-	-	-	-	-	2	1	1
Ethyl amine	-	-	2	1	1	2	-	1	-	-	1	1
Ethyl benzene	3	3	3	3	3	3	2/3	3	3	1	1	1
Ethyl bromide	3	3	3	3	3	3	2/3	-	-	1	1	1
Ethyl butyl acetate	3	3	2	1/2	1/2	-	-	2	-	3	1	1
Ethyl butyl alcohol	1/2	1/2	1	1	1	-	1/2	1/2	1	2	1	1
Ethyl butyl amine	2	2	1/2	1	1	-	2	1	2	2	1	1
Ethyl butyl ketone	3	3	2	1/2	1/2	-	-	-	2	3	1	1
Ethylbutyraldehyde	3	3	-	1	1	-	-	1/2	3	3	1	1
Ethyl butyrate	3	3	-	1/2	-	-	-	-	-	3	1	1
Ethyl cellulose	2	2	2	1/2	2	2	-	1/2	2	3	1	1
Ethyl chloride	3	3	3	2/3	2/3	-	-	2/3	-	1/2	1	1
Ethyl dichloride	3	3	3	3	3	-	-	2/3	-	2	1	1
Ethyl ether	3	3	-	2	-	-	-	1/2	-	3	1	1
Ethyl formate	3	3	-	2	2	2	-	1/2	3	3	1	1
Ethyl iodide	3	3	-	-	-	-	-	2/3	-	2	2	2
Ethyl phthalate	-	-	-	2/3	-	-	-	2	-	-	1	1
Ethylene chlorohydrine	2/3	2/3	-	2	2	3	3	2	2	1	1	1
Ethylene diamine	2	2	1/2	1	1	1	-	2	2	3	1	1
Ethylene dibromide	3	3	3	2/3	3	3	-	2/3	3	1/2	2	2
Ethylene dichloride	3	3	3	3	3	3	-	3	3	1/2	2	2
Ethylene glycol	1	1	1	1	1	1	1	1	1	1	1	1
Ethylene oxide gas	-	-	3	3	3	-	-	-	-	3	1	1
Fatty acids	3	3	3	3	3	2/3	2/3	2	3	1	1	1
Ferric bromide	1	1	1	1	1	-	-	1	1	1	1	1
Ferric chloride	1	1	1	1	1	-	1	1	1	1	1	1
Ferric nitrate	1	1	1	1	1	1	1	1	1	1	1	1
Ferric sulfate	1	1	1	1	1	1	1	1	1	1	1	1
Ferrous acetate	3	3	2	1/2	1/2	-	-	-	3	3	1	1
Ferrous chloride	1	1	1	1	1	1	1	1	1	1	1	1
Ferrous hydroxide	2/3	2/3	1/2	1	1	-	-	-	2	2	1	1
Ferrous sulfate	1	1	1	1	1	1	1/2	1	1	1	1	1
Fluoboric acid	2	2	1	1	1	2	-	1	1	2	1	1
Fluorine gas	3	3	3	3	3	3	3	3	3	1/2	1	1
Fluorobenzene	-	-	-	-	-	-	-	-	-	-	1	1
Fluosilicic acid	2	2	1	1	1	-	-	1	1	-	1	1
Formaldehyde	2	2	-	1	1	3	3	1	1	2	1	1
Formalin	2	2	1	1	1	-	-	1	1	1	1	1
Formic acid	2	2	1	1	1	-	-	1	2	3	1	1
Freon SO2	-	-	-	1	-	2	-	-	-	-	1	1
Freon 12	3	3	3	3	3	2	-	1	3	2	1	2
Freon 22	3	3	3	3	3	3	3	1	3	3	1	2
Fuel B (ASTM)	3	3	3	3	3	2	1	3	3	1	1	1
Fuel C (ASTM)	3	3	3	3	3	3	1	3	3	1	1	1
Fuel oil	3	3	3	3	3	2	1	2	3	1	1	1
Furan	3	3	3	3	3	3	3	1	3	-	1	1
Furfural	3	3	3	-	2	3	3	1	-	3	1	1
Furfuryl alcohol	3	3	3	2	2	3	3	1	-	2	1	1
Gallic acid	-	-	2	2	2	3	3	1	3	3	1	1
Gas, coke	3	3	-	-	-	-	2	-	1	-	-	-
Gas, liquified petrol	3	3	3	3	3	3	2	-	-	-	1	1
Gasoline	3	3	3	3	3	-	1	2	3	1	1	1
Gluconic acid	3	3	-	2	-	-	3	1	2	-	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Glucose	1	1	2	1	1	2	2	2	1	-	1	1
Glycerine	1	1	1	1	1	1	1	1	1	1	1	1
Glycols	1	1	1	1	1	1	1	1	1	1	1	1
Glycolic acid	-	-	-	2	-	-	-	1	-	-	1	1
Glycil alcohol	-	-	-	1	-	-	-	1	-	-	1	1
Grease	3	3	3	3	3	2	1	-	-	1	1	1
Green sulphate liquor	1	1	1	1	1	2	2	2	1	1	1	1
Halon 1211	-	-	-	-	-	1	1	-	-	-	-	1
Helium	1	1	1	1	1	1	1	1	1	1	1	1
Heptanal	3	3	-	1	1	-	-	2	3	-	1	1
Heptane	3	3	3	3	3	2	1	1	-	1	1	1
Heptane carboxyl.acid	3	3	-	2	-	-	-	1	2	-	1	1
Hexaldehyde	3	3	1	1	2	2	-	-	3	3	1	1
Hexane	3	3	3	3	3	-	1	2	3	1	1	1
Hexanol	1	1	1	1	1	-	1	1	1	2	1	1
Hexene	3	3	3	3	3	2	2	1	2	1	1	1
Hexyl alcohol	1	1	1	1	1	2	1	1	1	2	1	1
Hexylamine	2	2	-	-	1	-	2	2	3	-	1	1
Hexylene glycol	1	1	1	1	1	-	1	1	1	1	1	1
Hexyl methyl ketone	3	3	-	2	2	-	3	2	3	3	1	1
Hydraulic oil	3	3	3	3	3	-	1	1	2	1	1	1
Hydrazine	3	3	3	3	2	2	3	3	1	-	1	1
Hydrobromic acid	3	1	1	1	1	3	3	1	1	3	1	1
Hydrochloric acid 15%	3	1	1	1	1	-	-	1	1	1	1	1
Hydrochl. ac.37% (cold)	3	2	1	1	2	-	-	1	2	1	1	1
Hydrochl. ac.37% (hot)	3	3	3	2	3	-	-	1	3	2	1	1
Hydrocyanic acid	3	3	-	-	2	2	-	3	3	-	1	1
Hydrofluoric acid cold	3	3	3	2	1/2	-	-	1	1	-	1	1
Hydrofluoric acid hot	3	3	3	3	3	-	-	1	3	-	1	1
Hydrofluosilicic acid	3	3	2	1	1/2	3	-	1	1	-	1	1
Hydrogen dioxide 10%	3	3	-	2	2	-	-	1	2	1	1	1
Hydrogen gas	2	2	-	1	1	1	1	1	2	2	1	1
Hydrogen perox. 10%	3	3	-	2	2	-	-	1	2	1	1	1
Hydrogen perox. >10%	3	3	-	3	3	-	-	1	3	1	1	1
Hydrogen sulfide	3	3	2	1	2	-	3	2	3	3	1	1
Iodine	3	3	3	3	3	-	-	1	1	3	1	1
Iron acetate	3	3	2	1	2	-	-	-	3	1	1	1
Iron salts	1	1	1	1	1	1	1	1	1	1	1	1
Isoamyl acetate	3	3	2	1	2	-	-	-	3	1	1	1
Isoamyl alcohol	1	1	1	1	1	-	1	1	1	2	1	1
Isoamyl bromide	3	3	3	2	-	-	-	-	1	1	1	1
Isobutane	3	3	3	3	3	-	1	-	-	1	1	1
Isobutyl acetate	3	3	-	2	-	3	-	3	3	3	1	1
Isobutyl aldehyde	3	3	2	1	1	-	3	-	2	3	1	1
Isobutyl amine	2	2	1	1	1	-	2	1	2	-	1	1
Isobutyl bromide	3	3	3	3	3	3	3	3	3	2	1	-
Isobutyl carbinol	1	1	1	1	1	-	1	1	1	1	1	1
Isobutyl chloride	3	3	3	3	3	3	3	3	3	2	1	-
Isobutylene	3	3	3	-	3	3	2	-	3	1	1	1
Isobutyl ether	3	3	-	2	2	3	3	2	3	-	1	1
Isooctane	3	3	3	3	3	3	1	2	3	1	1	1
Isopentane	3	3	3	3	3	3	1	2	3	1	1	1
Isopropanol amine	2	2	-	1	1	-	2	1	3	-	1	1
Isopropyl acetate	3	3	-	2	2	3	3	-	3	3	1	1
Isopropyl alcohol	1	1	1	1	1	1	1	1	1	2	1	1
Isopropyl amine	2	2	1	1	1	-	2	1	3	-	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Isopropyl benzene	3	3	3	3	3	3	-	-	3	1	1	1
Isopropyl ether	3	3	3	3	3	3	3	-	3	3	1	1
Isopropyl toluene	3	3	3	3	3	3	3	3	3	1	1	1
Jet fuels	3	3	3	3	3	3	1	-	3	1	1	1
Kerosene	3	3	3	3	3	2	1	1	3	1	1	1
Ketones	3	3	1	1	1	3	3	-	3	3	1	1
Laquers solvents	3	3	3	3	3	3	3	3	3	3	1	1
Lactic acid (cold)	2	2	-	1	1	1	3	-	2	1	1	1
Lactic acid (hot)	3	3	-	-	-	-	-	-	-	3	2	2
Lard	3	3	-	2	1/2	1	1	1	3	3	1	1
Lauryl alcohol	1	1	1	1	1	-	1	1	1	2	1	1
Lavender oil	3	3	3	3	3	3	2	-	3	1	1	1
Lauryl alcohol	1	1	1	1	1	-	1	1	1	2	1	1
Lead acetate	3	2	2	1	2	1	2	1	3	3	1	1
Lead sulfate	1	1	1	1	1	1	1	1	1	1	1	1
Lime bleach	2	2	1	1	1	2	1	-	2	1	1	1
Lime sulfur	3	3	1	1	1	1	3	-	1	1	1	1
Linoleic acid	3	3	3	-	-	-	2	-	-	2	1	1
Linseed oil	3	3	-	2	2	-	1	1	-	1	1	1
Liquid Petroleum Gas	3	3	3	3	3	-	1	2	-	1	1	1
Lubricating oils	3	3	3	3	3	2	1	2	-	1	1	1
Lye solutions	2	2	1	1	1	-	-	1	1	2	1	1
Magnesium acetate	3	3	-	2	2	-	-	1	-	-	1	1
Magnesium chloride	1	1	1	1	1	1	1	1	1	1	1	1
Magnesium hydrate	2	2	-	1	1	-	2	1	2	-	1	1
Magnesium hydroxide	2	2	1	1	1	2	2	1	2	2	1	1
Magnesium sulfate	1	1	1	1	1	1	1	1	1	-	1	1
Maleic acid	3	3	3	2	-	3	3	3	3	-	1	1
Maleic anhydride	3	3	3	2	3	3	3	3	3	3	1	1
Malic acid	3	2	-	2	-	-	-	2	2	1	1	1
Manganese sulphate	2	2	1	1	1	-	-	1	1	1	1	1
Manganese sulphite	2	2	1	1	1	-	-	1	1	1	1	1
M.E.K.	3	3	2	1	2	-	-	3	3	3	1	1
Mercury	1	1	1	1	1	1	-	1	1	1	1	1
Mesityl oxide	3	3	2	2	-	-	-	2	-	-	1	1
Methallyl alcohol	1	1	1	1	1	-	1	1	1	3	1	1
Methanecarboxylic acid	3	3	3	-	-	2	-	1	-	-	1	1
Methanoic acid	3	3	-	2	-	-	-	1	-	-	1	1
Methanol	1	1	1	1	1	1	1	1	1	2	1	1
Methoxy ethanol	3	3	-	2	-	-	-	1	-	-	1	1
Methyl acetate	3	3	2	1	2	-	-	1	3	3	1	1
Methyl acetone	3	3	2	1	2	-	-	1	3	3	1	1
Methyl alcohol	1	1	1	1	1	1	1	1	1	2	1	1
Methyl allyl alcohol	-	-	-	2	-	-	-	1	-	-	1	1
Methyl allyl acetate	3	3	-	2	-	-	-	-	-	3	1	1
Methyl allyl chloride	3	3	-	2	-	-	-	3	-	3	1	2
Methyl amyl acetate	3	3	-	2	-	-	-	3	-	3	1	2
Methyl amyl carbinol	1	1	1	1	1	-	-	1	1	3	1	1
Methyl benzene	3	3	3	3	3	3	3	3	3	1	2	2
Methyl bromide	3	3	3	3	3	3	3	3	3	1	2	2
Methyl butane	3	3	3	3	3	-	2	1	-	-	1	-
Methyl butanol	1	1	1	1	1	-	1	1	1	-	1	1
Methyl butyl ketone	3	3	2	1	2	-	-	-	-	3	1	1
Methyl carbitol	3	3	-	2	-	-	-	1	-	3	1	1
Methyl cellosolve	3	3	2	1	2	-	3	1	3	3	1	1
Methyl chloride	3	3	3	3	3	3	2/3	3	3	1/2	1/2	1/2
Methyl cyclohexane	3	3	3	3	3	3	2/3	3	3	1/2	1/2	1/2
Methylene bromide	3	3	3	3	3	3	3	3	3	1/2	1/2	1/2
Methylene chloride	3	3	3	3	3	3	3	3	3	1/2	1/2	1/2
Methyl ethyl ketone	3	3	2	1	2	-	-	3	3	3	1	1

TECHNICAL INFORMATION

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Methyl hexanol	1	1	1	1	1	1	1	1	1	2	1	1
Methyl hexanone	3	3	2	1	1/2	3	3	3	3	3	1	1
Methyl isobut carbinol	2	2	1	1	1	-	-	1	3	3	1	1
Methyl methacrylate	3	3	3	3	3	-	-	-	3	3	1	1
Methyl n amyl chetone	3	3	-	1/2	1/2	-	-	-	-	3	1	1
Methyl propyl ether	3	3	-	2	2	-	-	-	-	3	1	1
Methyl salicylate	3	3	-	1/2	1/2	-	-	-	-	3	1	1
Methyl ter butyl ether	3	3	-	2	2	-	-	-	-	3	1	1
Methyl 1,2-pent-enediol	3	3	-	-	-	-	-	1	-	-	1	1
Methylene bromide	3	3	3	3	3	3	3	3	3	-	2	2
Methylene chloride	3	3	3	3	3	3	3	3	3	-	2	2
Methyl isobutyl cheton	3	3	3	2	2	3	3	-	-	3	1	1
Mineral spirits	3	3	3	-	-	2	1	-	-	-	1	1
Molten sulphur	2	2	2	1/2	2	-	3	1	2	-	-	-
Monobutyl ether	3	3	3	2	2	-	-	-	-	3	1	1
Monochloroacetic acid	3	2	-	2	-	-	-	3	1	3	3	1
Monochlorobenzene	3	3	3	3	3	3	3	3	3	1	1/2	1/2
Monochlorodi-fluormet	3	3	3	-	2	3	-	-	-	-	1/2	1/2
Monoethanol amine	2	1	1	1	1	-	2	-	2	3	1	1
Monoethyl amine	-	-	2	1/2	2	-	-	1	2	-	1	1
MTBE (ter butyl metil Ether)	3	3	-	2	-	-	-	3	-	3	1	-
Muriatic acid	-	1	2	2	2	-	-	1	-	1	1	1
Naphta	3	3	3	3	3	3	1	2	-	1	1	1
Naphtalene	3	3	3	3	3	3	3	2	3	2	1	1
Naphtenic acid	3	3	3	3	3	3	2	2	3	1	1	1
Natural gas	3	3	3	3	3	3	1/2	-	2	1	1	1
Neohexane	3	3	3	3	3	3	1/2	2	-	1	1	1
Nickel acetate	2	2	-	1	2	-	2	-	-	3	1	1
Nickel chloride	1	1	1	1	1	2	1	1	1	1	1	1
Nickel nitrate	1	1	1	1	1	2	1	1	1	1	1	1
Nickel sulphate	1	1	1	1	1	1	1	1	1	1	1	1
Nitric acid 10%	3	3	2	1	1	-	-	-	1	1	1	1
Nitric acid 20%	3	3	3	1	2	-	-	-	2	1	1	1
Nitric acid 30%	3	3	3	2	2	-	-	-	3	1	1	1
Nitric acid 40%	3	3	3	2	3	3	-	-	3	1	1	1
Nitric acid 40-60%	3	3	3	3	3	3	-	-	3	2	2	2
Nitric acid ? fuming	3	3	3	3	3	3	-	-	3	2/3	3	3
Nitrobenzene	3	3	3	3	3	3	-	-	3	2	1	1
Nitrogen gas	1	1	1	1	1	1	1	1	1	1	1	1
Nitromethane	3	2	2	1	1	-	-	-	3	-	1	1
Nitrous oxide gas	1	1	1	1	1	-	-	1	1	-	1	1
Nitrocellulose	-	-	-	-	-	-	-	-	-	-	1	1
Nitropropane	-	-	-	-	-	-	-	-	-	-	1	1
Nonenes	3	3	3	3	3	-	1/2	-	-	1	1	1
Octadecanoic acid	3	3	3	3	3	-	1/2	2	-	-	1	1
Octane	3	3	3	3	3	-	1	-	-	-	1	1
Octanol	2	2	2	1	2	-	2	1	2	2	1	1
Octyl acetate	3	3	2	2	2	-	-	3	3	3	1	1
Octyl alcohol	2	2	2	1	2	-	-	1	-	2	1	1
Octyl aldehyde	3	3	-	1	2	-	-	1	3	3	1	1
Octyl amine	2	2	2	1	2	-	-	2	3	3	1	1
Octyl carbinol	1	1	1	1	1	-	1	1	1	2	1	1
Octylene glycol	1	1	1	1	1	-	1	1	1	-	1	1
Oil ? petroleum	3	3	3	3	3	2/3	1	-	2/3	1	1	1
Oleic acid	3	3	-	2	-	-	2	1	3	2	1	1
Oleum	3	3	3	3	3	3	3	3	3	2	3	3
Olive oil	3	3	-	2	1	1	1	2	3	1	1	1
Orthodichloro-benzene	3	3	3	3	3	3	3	3	3	1	1/2	1/2
Orthodichlorobenzol	3	3	3	3	3	3	3	3	3	1/2	1/2	1/2

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Orthoxylene	3	3	3	3	3	3	3	3	3	1	1	1
Oxalic acid	3	3	1	1	1	3	3	1	3	3	1	1
Oxygen	2	2	1	1	1	-	2	1	1	1	1	1
Ozone	3	3	1	1	1/2	2	3	1	2	3	1	1
Paint	3	3	2	2	-	-	2	-	-	2	1	1
Palmitic acid	3	3	-	2	2	-	1	1	3	3	1	1
Papermakers alum	1	1	1	1	1	1	1	1	1	1	1	1
Paraffin	3	3	3	3	3	2	1	1	3	1	1	1
Paraldehyde	3	3	-	1/2	1/2	3	3	-	-	3	1	1
Paraxylene	3	3	3	3	3	3	3	3	3	1	1/2	1/2
Pelargonic acid	3	3	-	1	1	-	2	1	3	-	1	1
Pentachloroethene	3	3	3	3	3	3	3	3	3	1	1	1
Pentadione	3	3	-	2	-	-	-	2	3	3	1	1
Pentane	3	3	3	3	3	2	1	1	3	1	1	1
Pentanone	3	3	-	2	-	-	-	-	3	3	1	1
Pentasol	1	1	-	1	1	-	-	-	1	1	1	1
Perchloric acid	3	3	-	2	-	3	3	-	2	1	1	1
Perchloroethylene	3	3	3	3	3	3	3	3	3	1	1	1
Petroleum crude	3	3	3	3	3	3	1	1	3	1	1	1
Petroleum ether	3	3	3	3	3	3	1/2	1/2	3	1	1	1
Petroleum oils	3	3	3	3	3	-	1	-	3	1	1	1
Phenol	3	3	3	-	2	-	3	1	-	1	1	1
Phenolsulphonic acid	3	3	3	2/3	2/3	-	-	1/2	3	3	1	1
Phenylamine	-	-	-	2/3	-	-	-	1/2	-	-	1/2	1/2
Phenyl chloride	3	3	3	3	3	3	3	3	3	1	1	1
Phenylhydrazine	2	1/2	2	2	2	3	3	-	3	1	1/2	1/2
Phosphoric acid 10%	1	1	1	1	1	2	-	1	1	1	1	1
Phosphoric acid 10-85%	3	2	1	1	1	2	3	1	1	1	1	1
Picric acid (alcoholic)	2	2	-	1/2	-	-	2	1	3	1	1	1
Pine oil	3	3	3	3	3	3	3	1/2	3	1	1	1
Pinene	3	3	3	3	3	3	2	1	3	1	1	1
Polyethylene glycol	1	1	1	1	1	-	1	1	1	1	1	1
Polyol ester	3	3	3	3	-	-	1/2	-	-	1/2	1	1
Polypropylene glycol	1	1	1	1	1	-	1	1	1	1	1	1
Potassium acetate	3	3	1	1	2	2	2	1	3	3	1	1
Potassium bisulfate	1	1	1	1	1	1	-	1	1	-	1	1
Potassium busulfite	1	1	1	1	1	-	-	1	1	-	1	1
Potassium carbonate	1	1	1	1	1	1	1	1	1	-	1	1
Potassium chloride	1	1	1	1	1	1	1	1	1	-	1	1
Potassium chromate	-	-	-	1	1	-	-	1	2	1	1	1
Potassium cyanide	1	1	1	1	1	-	-	1	1	-	1	1
Potassium dichromate	-	-	-	1	1	-	-	1	2	1	1	1
Potassium hydroxide	2	2	1	1	1	3	3	1	2	3	1	1
Potassium nitrate	1	1	1	1	1	1	1	1	1	1	1	1
Potassium pmanganate	-	-	-	-	-	-	-	2	1	-	1	1
Potassium silicate	1	1	1	1	1	-	-	1	1	1	1	1
Propane	3	3	3	3	3	3	1	1	2	1	1	1
Propanediol	1	1	1	1	1	-	-	1	1	1	1	1
Propanol	1	1	1	1	1	-	-	1	1	2	1	1
Propanolamine	-	-	-	-	-	-	-	1	-	3	1	1
Propanone	-	-	-	1	2	-	-	1	-	3	1	1
Propenenitrile	-	-	-	-	-	-	-	1	-	-	-	-
Propionic acid	-	-	2	1	2	-	-	-	-	-	1	1
Propyl acetate	3	3	2	1/2	2	-	-	1/2	-	3	1	1
Propyl alcohol	1	1	1	1	1	-	2	1	1	-	1	1
Propyl aldehyde	3	3	2	1	2	-	-	1	-	3	1	1
Propyl benzene	3	3	3	3	3	-	2/3	-	-	1	1	1
Propyl chloride	3	3	3	3	3	3	3	-	-	2	1	1/2
Propyl ether	-	-	-	2	-	-	-	1	-	-	1	1/2

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Propylene	3	3	3	3	3	3	3	1	-	1	1	-
Propylene dichloride	3	3	3	3	3	3	3	3	-	2	1	1/2
Propylene glycol	1	1	1	1	1	-	-	1	1	1	1	1
Red oil	3	3	3	3	3	2	1	1	2	1	1	1
Resorcinol	-	-	-	-	-	-	-	-	-	2	1	1/2
Richfield A, 100%	-	-	-	-	-	-	-	-	-	-	1	1
Richfield D, 33%	-	-	-	-	-	-	-	-	-	-	-	1
Sea water	1	1	1	1	1	1	1	1	1	1	1	1
Sewage	2	2	3	3	2	1	1	1	1	-	1	1
Silicate esters	-	-	-	-	-	1	2	1	-	-	1	1
Silicate of soda	1	1	1	1	1	-	-	1	1	-	1	1
Silicone grease	1	1	1	1	1	1	1	1	1	-	1	1
Silicone oil	1	1	1	1	1	1	1	1	1	-	1	1
Silver nitrate	1	1	1	1	1	1	2	1	1	1	1	1
Skydrol 500B	-	-	-	1	2	3	-	2	3	3	1	1
Soap solutions	2	2	2	1	1	2	1	1	1	1	1	1
Soda ash	1	1	1	1	1	1	1	1	1	1	1	1
Soda, caustic	2	2	2	1	1	-	-	1	2	2	1	1
Soda lime	2	2	2	1	1	-	-	1	2	2	1	1
Sodium acetate	3	3	3	1	2	-	-	1	3	3	1	1
Sodium aluminate	1	1	1	1	1	1	-	1	1	-	1	1
Sodium bicarbonate	1	1	1	1	1	1	1	1	1	1	1	1
Sodium bisulphate	2	2	2	1	1	-	1	1	1	-	1	1
Sodium bisulphite	2	2	2	1	1	-	1	1	1	-	1	1
Sodium borate	1	1	1	1	1	1	1	1	1	1	1	1
Sodium chloride	1	1	1	1	1	1	1	1	1	1	1	1
Sodium cyanide	3	3	3	1	1	3	3	1	1	-	1	1
Sodium dichromate	3	3	3	1	1	-	-	1	2	3	1	1
Sodium Hypochlorite	3	3	3	2	2	-	-	1	2	2	1	1
Sodium meta-phosphate	2	2	2	1	1	2	2	1	2	-	1	1
Sodium nitrate	1	1	1	1	1	-	-	1	1	1	1	1
Sodium perborate	2	2	2	1	1	2	2	1	1	-	1	1
Sodium peroxide	2	2	2	1	1	-	-	-	2	-	1	1
Sodium Silicate	1	1	1	1	1	1	-	1	1	-	1	1
Sodium Thiosulfate	1	1	1	1	1	1	-	1	1	1	1	1
Soybean oil	3	3	3	2	1	2	1	-	2	1	1	1
Stannic chloride	1	1	1	1	1	-	-	1	1	-	1	1
Steam, max 176°C	3	3	3	1	1/2	3	3	-	-	3	3	3
Stearic acid	3	3	3	1	2	2	2	1	3	3	1	1
Stoddarts solvent	3	3	3	3	3	-	1	1	3	1	1	1
Styrene	3	3	3	3	3	3	3	3	3	2	2	2
Sulphamic acid	2	2	2	1	1	2	2	1	2	3	1	1
Sulphonic acid	3	3	3	3	3	3	3	2	2	-	1	1
Sulphur	3	3	3	2/3	2/3	-	-	2/3	2/3	2	1	1
Sulphur dioxide	3	3	3	2	-	-	-	-	2	-	1	1
Sulphur trioxide	3	3	3	3	-	-	-	-	-	-	3	3
Sulphuric acid (H2S)	3	3	3	1	1	-	3	1	1	-	1	1
Sulphuric acid 25%	3	3	3	1	1	2	-	1	1	1	1	1
Sulphuric acid 50%	3	3	3	1	1	-	-	1	1	1	1	1
Sulphuric acid 75%	3	3	3	1	2	-	-	1	1	1	1	1
Sulphuric acid 96%	3	3	3	2	3	-	-	2	2	-	1/2	1
Sulphuric acid 98%	3	3	3	3	3	-	-	3	3	-	2	2
Sulphuric acid fuming	3	3	3	3	3	3	3	3	3	3	3	3
Sulphurous acid 10%	2	2	2	1	1	-	-	1	1	-	1	1
Sulphurous acid 85%	3	3	3	1	1	-	-	1	1	-	1	1
Tall oil	3	3	3	3	3	2	1	-	3	1	1	1
Tallow	3	3	3	3	3	-	1	-	3	-	1	1
Tannic acid	2	2	2	1	1	-	-	1	1	-	1	1

	SBR	NR	EPDM	EPR	IIR	CR	NBR	CPE	Hypalon®	Viton®	XLPE	UHMW PE
Tar	3	3	3	3	3	2/3	2	-	-	1	3	2
Tartaric acid	3	3	3	1	1	2	2	1	1	-	1	1
Tertiary butyl alcohol	2	2	2	1	1	-	1	1	1	1	1	1
Tertiary butyl mercapt	3	3	3	3	3	-	-	-	-	1	-	-
Tetrachlorobenzene	3	3	3	3	3	3	3	3	3	1/2	2	1/2
Tetrachloroethane	3	3	3	3	3	3	3	3	3	1	2	2
Tetrachloroethylene	3	3	3	3	3	3	3	3	3	1	1/2	1
Tetrachloromethane	3	3	3	3	3	3	3	3	3	1	1	1
Tetrachloro-naphthalene	3	3	3	3	3	3	3	3	3	1/2	1	1
Tetrahydrofuran	3	3	3	3	3	3	3	3	3	-	1/2	1
Tin chloride	2	2	2	1	1	-	2	-	1	-	1	1
Toluene	3	3	3	3	3	-	3	-	-	1	1/2	1/2
Toluidine	3	3	3	3	3	-	3	-	-	2	2	1
Toluol	3	3	3	3	3	-	3	-	3	1	1	1
Transformer oil	3	3	3	3	3	2	1	1	-	1	1	1
Tributyl amine	2	2	2	2	2	2	2	1	3	-	1	1
Trichloroacetic acid	3	3	3	1	2	-	-	-	3	3	1	1
Trichlorobenzene	3	3	3	3	3	3	3	3	3	2	2	2
Trichloroethane	3	3	3	3	3	3	3	3	3	1/2	1/2	1/2
Trichloroethylene	3	3	3	3	3	3	3	3	3	1/2	2	2
Trichloropropane	3	3	3	3	3	3	3	3	3	2	1	1
Tricresyl phosphate	3	3	3	2	2	-	-	1/2	3	3	1	1
Triethanolamine	3	3	3	1/2	1/2	2	3	1	2	3	1	1
Triethylamine	3	3	3	2	2	-	-	1	-	3	1	1
Triethylene glycol	1	1	1	1	1	-	-	1	1	1	1	1
Trimethylamine	3	3	3	-	-	-	-	1	-	3	1	1
Trinitrotoluene	3	3	3	3	3	3	3	-	-	2	2	1/2
Trioctyl phosphate	3	3	3	2	2	-	-	1	-	-	1	1
Tung oil	3	3	3	3	3	2	1	1/2	2	1	1	1
Turpentine	3	3	3	3	3	3	3	2	-	1	1	1
Urea	2	2	2	1	2	2	2	1	1	-	1	1
Vegetable oils	3	3	3	2/3	1	-	1	1	2	1	1	1
Vinegar	2	2	2	1	1	-	3	2	2	3	1	1
Vinyl acetate	3	3	3	2	2	-	-	1	3	3	1	1
Vinyl benzene	3	3	3	3	3	3	3	3	3	2	1/2	1
Vinyl chloride	3	3	3	3	3	3	3	3	3	1	1	1
Vinyl cyanide	3	3	3	3	3	3	3	2	3	-	1/2	1/2
Vinyl ether	3	3	3	-	2	-	-	-	-	-	1	1
Vinyl Trichloride	3	3	3	3	3	-	-	2	-	-	1/2	1/2
Water	1	1	1	1	1	2	1	1	1	1	1	1
White oil	3	3	3	3	3	1/2	1	-	-	-	1	1
Wines	1	1	1	-	1	-	1	-	-	-	1	1
Wood oil	3	3	3	3	3	2	1	1/2	-	1	1	1
Xylene	3	3	3	3	3	3	3	-	-	1	2	2
Zinc acetate	1	1	1	1	1	1	1	1	1	-	1	1
Zinc chloride	1	1	1	1	1	1	1	1	1	-	1	1
Zinc chromate	-	-	-	1	-	-	-	-	-	-	1	1
Zinc sulphate	1	1	1	1	1	1	1	1	1	1	1	1

PRESSURE CONVERSION CHART

PSI	MPa	Kg/cm ²	BARS	ATM	PSI	MPa	Kg/cm ²	BARS	ATM	PSI	MPa	Kg/cm ²	BARS	ATM
25	.17	1.76	1.72	1.70	3400	23.44	239.04	243.60	231.20	7000	48.26	492.15	483.00	476.00
50	.34	3.52	3.45	3.40	3500	24.13	246.07	241.50	238.00	7100	48.95	499.18	489.90	482.80
75	.52	5.27	5.18	5.10	3600	24.82	253.10	248.40	244.80	7200	49.64	506.21	496.80	489.60
100	.69	7.03	6.90	6.80	3700	25.51	260.14	255.30	251.60	7300	50.33	513.24	503.70	496.40
200	1.38	14.06	13.80	13.60	3800	26.20	267.17	262.20	258.40	7400	51.02	520.27	510.60	503.20
300	2.07	21.09	20.70	20.40	3900	26.89	274.20	269.10	265.20	7500	51.71	527.50	517.50	510.00
400	2.76	28.12	27.60	27.20	4000	27.58	281.23	276.00	272.00	7600	52.40	534.33	524.40	516.80
500	3.45	35.15	34.50	34.00	4100	28.27	288.26	282.90	278.80	7700	53.09	541.36	531.30	523.60
600	4.14	42.18	41.40	40.80	4200	28.96	295.29	289.80	285.60	7800	53.78	548.39	538.20	530.40
700	4.83	49.21	48.30	47.60	4300	29.65	302.32	296.70	292.40	7900	54.47	555.42	545.10	537.20
800	5.52	56.24	55.20	54.40	4400	30.34	309.35	303.60	299.20	8000	55.16	562.46	552.00	544.00
900	6.20	63.28	62.10	61.20	4500	31.03	316.38	310.50	306.00	8100	55.85	569.49	558.90	550.80
1000	6.90	70.31	69.00	68.00	4600	31.72	323.41	317.40	312.80	8200	56.54	576.52	565.80	557.60
1100	7.58	77.34	75.90	74.80	4700	32.41	330.44	324.30	319.60	8300	57.33	583.55	572.70	564.40
1200	8.27	84.37	82.80	81.60	4800	33.10	337.47	331.20	326.40	8400	57.92	590.58	576.60	571.20
1300	8.96	91.40	89.70	88.40	4900	33.78	344.50	338.10	333.20	8500	58.61	597.61	586.50	578.00
1400	9.65	98.43	96.60	95.20	5000	34.47	351.53	345.00	340.00	8600	59.30	604.64	593.40	584.80
1500	10.34	105.46	103.50	102.00	5100	35.16	358.57	351.90	346.80	8700	59.98	611.67	600.30	591.60
1600	11.03	112.49	110.40	108.80	5200	35.85	365.60	353.80	353.60	8800	60.67	618.70	607.20	598.40
1700	11.72	119.52	117.30	115.60	5300	36.54	372.63	365.70	360.40	8900	61.36	625.73	614.10	605.20
1800	12.41	126.55	124.20	122.40	5400	37.23	379.66	372.60	367.20	9000	62.05	632.76	621.00	612.00
1900	13.10	133.58	131.10	129.20	5500	37.92	386.69	379.50	374.00	9100	62.74	639.79	627.90	618.80
2000	13.79	140.61	138.00	136.00	5600	38.61	393.72	386.40	380.80	9200	63.43	646.82	634.80	625.60
2100	14.48	147.64	144.90	142.80	5700	39.30	400.75	393.30	387.60	9300	64.12	653.86	641.70	632.40
2200	15.17	154.68	151.80	149.60	5800	39.99	407.78	400.20	394.40	9400	64.81	660.89	648.60	639.20
2300	15.86	161.71	158.70	156.40	5900	40.68	414.81	407.10	401.20	9500	65.50	667.92	655.50	646.00
2400	16.55	168.74	165.60	163.20	6000	41.37	421.84	414.00	408.00	9600	66.19	674.95	662.40	652.80
2500	17.24	175.77	172.50	170.00	6100	42.06	428.87	420.90	414.80	9700	66.88	681.98	669.30	659.60
2600	17.93	182.80	179.40	176.80	6200	42.75	435.90	427.80	421.60	9800	67.57	689.01	676.20	666.40
2700	18.62	189.83	186.30	183.60	6300	43.44	442.93	434.70	428.40	9900	68.26	696.04	683.00	673.20
2800	19.30	196.86	193.20	190.40	6400	44.13	449.96	441.60	435.20	10000	68.95	703.07	690.00	680.00
2900	19.99	203.89	200.10	197.20	6500	44.82	457.00	448.50	442.00	11000	75.84	773.38	759.00	748.00
3000	20.68	210.92	207.00	204.00	6600	45.51	464.03	455.40	448.80	12000	82.74	843.68	828.00	816.00
3100	21.37	217.95	213.90	210.80	6700	46.20	471.06	462.30	455.60	13000	89.63	913.99	897.00	884.00
3200	22.06	224.98	220.80	217.60	6800	46.88	478.09	469.20	462.40	14000	96.53	984.30	966.00	952.00
3300	22.75	232.01	227.70	224.40	6900	47.57	485.12	476.10	469.20	15000	103.42	1054.60	1035.00	1020.00

PSI X .0068948 = megapascals (MPa) = meganewton/metre²

PSI X .070307 = kilogram-force per square centimetre

PSI X .0690 = Bars

PSI X .0680 = Atmospheres

1 Mpa = 10 Bars

1 Bar = 14.5 PSI

1 kgf/cm² = 14.22 PSI

1 PSI = .00689 MPa

VACUUM CONVERSION TABLE

ATM	PSI	Metres of Water	Feet of Water	mm of Mercury	Inches of Mercury	%
0.1	1.4	1	3' 3.3/8"	73.6	2.9	10
0.2	2.8	2	6' 6-3/4"	147.1	5.8	20
0.3	4.2	3	9' 10-1/8"	220.7	8.7	30
0.4	5.7	4	13' 1-1/2"	294.2	11.6	40
0.5	7.1	5	16' 4-13/16"	367.8	14.5	50
0.6	8.5	6	19' 8-3/16"	441.3	17.4	60
0.7	10.0	7	22' 1 1-9/16"	514.9	20.3	70
0.8	11.4	8	26' 2-15/16"	588.4	23.2	80
0.9	12.8	9	29' 6-3/8"	662.0	26.0	90
1.0	14.2	10	32' 9-11/16"	735.5	29.0	100

PROPERTIES OF SATURATED STEAM

TEMPERATURES – PRESSURE EQUIVALENTS OF SATURATED STEAM GAUGE PRESSURE AT SEA LEVEL

Temperature		Lbs per Sq. in.	MPa *	Temperature		Lbs per Sq. in.	MPa *
°F	°C			°F	°C		
306	152.2	58.6	0.404	346	174.4	113.1	0.780
307	152.8	59.7	0.412	347	175.0	114.8	0.792
308	153.3	60.7	0.419	348	175.6	116.5	0.803
309	153.9	61.9	0.427	349	176.1	118.2	0.815
310	154.4	63.0	0.434	350	176.7	119.9	0.827
311	155.0	64.2	0.443	352	177.8	123.5	0.852
312	155.6	65.3	0.450	354	178.9	127.1	0.876
313	156.1	66.5	0.459	356	180.0	130.8	0.902
314	156.7	67.6	0.466	358	181.1	134.5	0.927
315	157.2	68.8	0.474	360	182.2	138.3	0.954
316	157.8	70.0	0.483	362	183.3	142.3	0.981
317	158.3	71.3	0.492	364	184.4	146.2	1.008
318	158.9	72.5	0.500	366	185.6	150.3	1.036
319	159.4	73.7	0.508	368	186.7	154.4	1.065
320	160.0	75.0	0.517	370	187.8	158.7	1.094
321	160.6	76.3	0.526	372	188.9	163.0	1.124
322	161.1	77.5	0.534	374	190.0	167.4	1.154
323	161.7	78.8	0.543	376	191.1	171.9	1.185
324	162.2	80.1	0.552	378	192.2	176.4	1.216
325	162.8	81.5	0.562	380	193.3	181.1	1.249
326	163.3	82.8	0.571	382	194.4	185.8	1.281
327	163.9	84.2	0.581	384	195.6	190.6	1.314
328	164.4	85.6	0.590	386	196.7	195.6	1.349
329	165.0	87.0	0.600	388	197.8	200.6	1.383
330	165.6	88.4	0.610	390	198.9	205.7	1.418
331	166.1	89.8	0.619	392	200.0	210.9	1.454
332	166.7	91.2	0.629	394	201.1	216.2	1.491
333	167.2	92.7	0.639	396	202.2	221.5	1.527
334	167.8	94.1	0.649	398	203.3	227.0	1.565
335	168.3	95.6	0.659	400	204.4	232.6	1.604
336	168.9	97.1	0.670	402	205.5	238	1.641
337	169.4	98.7	0.681	404	206.7	244	1.682
338	170.0	100.2	0.691	406	207.8	250	1.724
339	170.6	101.8	0.702	408	208.9	256	1.765
340	171.1	103.3	0.712	410	210	262	1.806
341	171.7	105.0	0.724	412	211.1	268	1.848
342	172.2	106.5	0.734	414	212.2	275	1.896
343	172.8	108.2	0.746	416	213.3	281	1.937
344	173.3	109.8	0.757	418	214.4	288	1.986
345	173.9	111.5	0.769	420	215.6	294	2.027



H.I.S. HOSE

Proprietary Limited



ON-SITE INSTALLATION & SERVICE

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FLUID POWER SERVICE