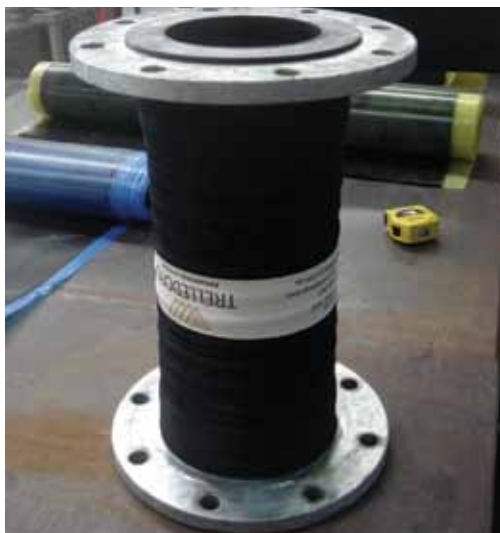


**Trelleborg Mining Hose**





## Trelleborg Wear Resistant Mining Hose

Specialty flexible mining hoses are critical components for effective and efficient material handling in heavy media and slurry processing plants.

Trelleborg has had over 100 years experience in the development and manufacture of rubber products, which we can draw from to ensure a customised quality product is supplied.

Our Specialty Hoses consist of an abrasion or chemical resistant inner liner, rubberised fabric reinforcement, and weather/UV resistant outer cover. High tensile wire reinforcement is moulded in the hose.

Trelleborg hoses are manufactured from various customised rubber compounds including NR, SBR, NBR, EPDM, Silicone and Viton.

Coupling construction is either fully integrated fixed flanges or loose fitting swivel flanges.

When specialised solutions are required, Trelleborg takes into consideration:

- **material being transported**
- **working pressure**

- **operating temperature**
- **exposure to chemicals / saline**
- **atmospheric conditions**

Our Specialty flexible hoses easily compensate for pipe work misalignments and can be used to buffer the vibration and movement typically associated with the interface between pumps and pipes.

Trelleborg Hoses typically range in size from 50mm to 525mm.

Different sizes can be manufactured to suit customised applications.

### Technical Services

Trelleborg mining product specialists are available for onsite audits to identify potential improvements and change-out recommendations.

Failed hoses can be analysed in our factory to identify the root cause of failure with a full report supplied detailing the findings and recommendations for improvement to the hose design.



## 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 other additives each contributing to the physical properties of the finished product, or as a processing aid. 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 Designation | 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 resistance. Poor resistance to petroleum based fluids.    |
| Polyisoprene              | IR               | Isoprene, synthetic                 | Same properties as natural rubber.   |
| Butyl                     | IIR              | Isobutane, 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.                               |
| Chlorobutyl               | CIIR             | Chloro-isobutene-isoprene           | Very good weathering resistance. Low permeability to air. Good physical properties. Poor resistance to petroleum based fluids. |
|                           | XLPE             | Cross Linked Polyethylene           | Excellent resistance to chemicals and petroleum based fluids.  |

## Trelleborg Preformed Rubber Hose Bends & Connectors

A range of preformed rubber hose bends and connectors can be manufactured to customer needs, for use in many applications such as slurry lines, cyclone feed circuits and HDPE pipe connectors.

Our bends and connectors are fully moulded units consisting of an abrasion or chemical resistant liner, rubberised fabric reinforcement and a weather and wear resistant outer cover.

An embedded wire helix is available for suction applications. Standard liner gauge is 6mm with other gauges able to be specified. Various end configurations - plain, cuffed and flanged are all specially manufactured.

Our range includes bore sizes from 50mm to 500mm with angles from 0° to 90°.

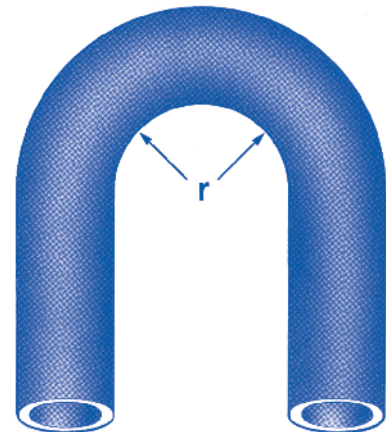
## Minimum Bend Radius Recommendations

The bend radius ( $r$ ) is the radius of the arc through which a hose is bent. The minimum bend radius is the tightest arc in which a hose can be bent without kinking or otherwise damaging the hose.

Bending a hose to a tight radius imposes stresses on the structure of the hose which may cause a reduction in the performance, or in extreme cases cause permanent damage to the hose.

The minimum bend radius that a hose will withstand depends upon many factors including the wall thickness, the presence of a wire helix, the type of reinforcing material and the loss of performance that may be tolerated.

Trelleborg recommends that the following guides be used to determine the minimum bend radius for the range of hose.



| Hose            | Wire Reinforced | Non-wire Reinforced |
|-----------------|-----------------|---------------------|
| Up to 50mm I.D. | 6 Times         | 12 Times            |
| Over 50mm I.D.  | 8 Times         | 12 Times            |





*These figures should be taken as a general guide only and if specific data be required, contact your Trelleborg office.*

## Trelleborg Materials Handling Hose



### T801 Muff Coupling Hose

|                      |  |
|----------------------|--|
| <b>Application</b>   | An abrasive slurry hose to be used in conjunction with split muff couplings. |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).                          |
| <b>Reinforcement</b> | High Tensile Synthetic, incorporating a steel wire helix.                    |
| <b>Cover</b>         | Black, Natural Rubber, Super Abrasion Resistant (S.A.R.).                    |
| <b>Length</b>        | Cut to specific customer requirements.                                       |

|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 75  | 0.7  | 103   | 5.0   |
| 100   | 0.7  | 130   | 6.6   |
| 125   | 0.7  | 156   | 8.3   |
| 150   | 0.7  | 182   | 9.8   |
| 200   | 0.7  | 235   | 15.7  |
| 250   | 0.7  | 287   | 21.0  |
| 300   | 0.7  | 345   | 32.6  |

| Hose Size mm | Flange       |              |           | Sleeve                |              | Maximum Diameter of Fitted Assembly mm | Approx Weight (2 halves & bolts & gasket) kg |
|--------------|--------------|--------------|-----------|-----------------------|--------------|--|--|
|              | No. of Holes | Bolt Size mm | P.C.D. mm | No. of Clamping Holes | Bolt Size mm |  |  |
| 75           | 4            | M16 x 70     | 146       | 4                     | M12 x 70     | 203                                    | 3.6  |
| 100          | 4            | M16 x 70     | 178       | 4                     | M12 x 70     | 215                                    | 4.5  |
| 125          | 8            | M16 x 70     | 210       | 6                     | M12 x 70     | 254                                    | 5.9  |
| 150          | 8            | M16 x 70     | 235       | 6                     | M12 x 70     | 280                                    | 6.8  |
| 200          | 8            | M16 x 80     | 292       | 6                     | M16 x 80     | 335                                    | 10.8   |
| 250          | 8            | M20 x 80     | 356       | 6                     | M20 x 100    | 405                                    | 16.6   |
| 300          | 12           | M20 x 80     | 406       | 6                     | M20 x 100    | 455                                    | 23.0   |

## Coupling Construction

**Material:** High strength alloy - standard aluminium or cast iron.

**Design:** fully integrated sleeve with standard Table D flanges.

Sleeve bore is specifically roughened to give exceptional grip on the hose. This technique avoids the need for rings, ridges or spikes in the bore of the coupling which can depress the hose causing high wear on the inner tube and premature failing at the hose end.

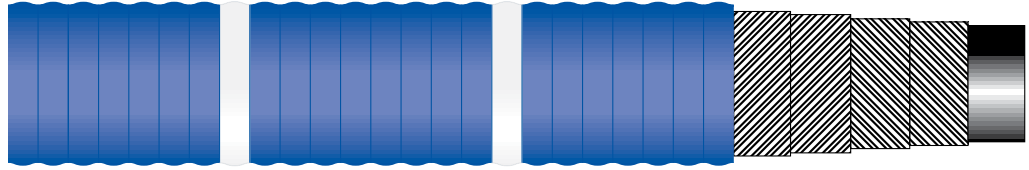
Can also be supplied blank for drilling to other tables.

Also available in stainless steel and other materials to customer requirements.

Maximum W/P 100PSI (0.7 Mpa).



# Trelleborg Materials Handling Hose







## T806-100\* Standard - Delivery\*

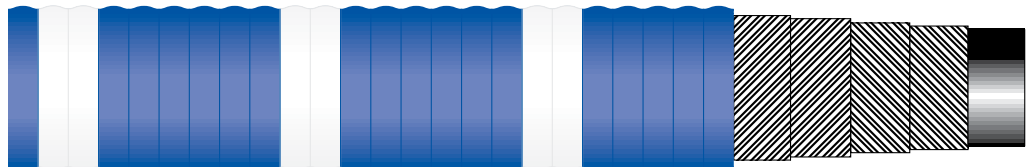
|                      |   |
|----------------------|---|
| <b>Application</b>   | For the delivery of abrasive slurry materials particularly in mining operations.        |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).                                     |
| <b>Reinforcement</b> | High Tensile Synthetic.   |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - White Circumferential Stripe. |
| <b>Length</b>        | Up to 10 metres.  |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.   |

\*May be subject to special manufacture.

\*Various tube thicknesses are available upon request.



|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 0.7  | 69.2  | 2.2   |
| 75  | 0.7  | 95.6  | 3.4   |
| 100   | 0.7  | 121.0   | 4.3   |
| 125   | 0.7  | 146.4   | 5.0   |
| 150   | 0.7  | 171.8   | 6.0   |
| 200   | 0.7  | 227.0   | 10.5  |
| 250   | 0.7  | 278.0   | 11.2  |
| 300   | 0.7  | 328.6   | 14.4  |
| 350   | 0.7  | 379.4   | 16.7  |
| 400   | 0.7  | 434.8   | 21.1  |
| 450   | 0.7  | 485.4   | 25.6  |
| 500   | 0.7  | 536.2   | 28.3  |







## T806-150\* Standard - Delivery\*

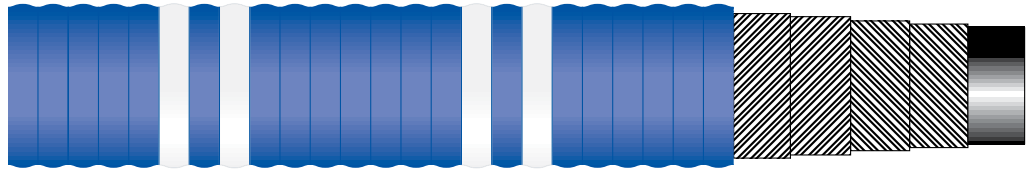
|                      |  |
|----------------------|--|
| <b>Application</b>   | For the delivery of abrasive slurry materials particularly in mining applications.           |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).  |
| <b>Reinforcement</b> | High Tensile Synthetic.  |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - Wide White Circumferential Stripe. |
| <b>Length</b>        | Up to 10 metres.   |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.  |

\*May be subject to special manufacture.

\*Various tube thicknesses are available upon request.

|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 1.0  | 70.2  | 2.1   |
| 75  | 1.0  | 95.6  | 3.2   |
| 100   | 1.0  | 121.0   | 4.1   |
| 125   | 1.0  | 150.8   | 6.8   |
| 150   | 1.0  | 176.4   | 7.0   |
| 200   | 1.0  | 227.0   | 9.8   |
| 250   | 1.0  | 282.4   | 13.4  |
| 300   | 1.0  | 333.0   | 17.6  |
| 350   | 1.0  | 383.8   | 20.3  |
| 400   | 1.0  | 439.0   | 26.9  |
| 450   | 1.0  | 489.8   | 30.0  |

## Trelleborg Materials Handling Hose







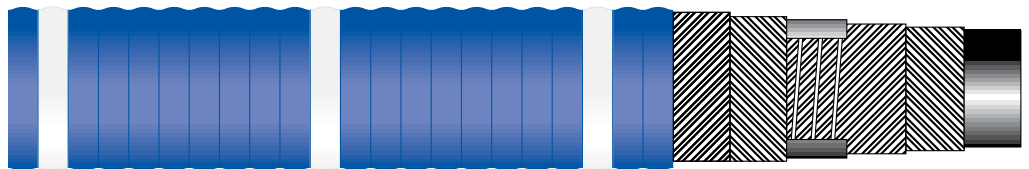
### T806-200\* Super - Delivery\*

|                      |  |
|----------------------|--|
| <b>Application</b>   | For high pressure delivery of abrasive slurry materials particularly in mining operations.   |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).  |
| <b>Reinforcement</b> | High Tensile Synthetic.  |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - Two White Circumferential Stripes. |
| <b>Length</b>        | Up to 10 metres.   |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.  |

\*May be subject to special manufacture.

\*Various tube thicknesses are available upon request.

|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 1.4  | 70.2  | 2.3   |
| 75  | 1.4  | 100.0   | 4.4   |
| 100   | 1.4  | 125.4   | 5.6   |
| 125   | 1.4  | 150.8   | 6.4   |
| 150   | 1.4  | 176.2   | 7.5   |
| 200   | 1.4  | 231.4   | 11.9  |
| 250   | 1.4  | 282.2   | 14.6  |
| 300   | 1.4  | 337.4   | 20.5  |
| 350   | 1.4  | 388.2   | 23.7  |
| 400   | 1.4  | 443.4   | 30.8  |
| 450   | 1.4  | 494.2   | 34.3  |







### T808-100\* Standard - Suction / Delivery\*

|                      |   |
|----------------------|---|
| <b>Application</b>   | For suction and delivery of abrasive slurry materials.                                  |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).                                     |
| <b>Reinforcement</b> | High Tensile Synthetic incorporating a wire helix.                                      |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - White Circumferential Stripe. |
| <b>Length</b>        | Up to 10 metres.  |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.   |

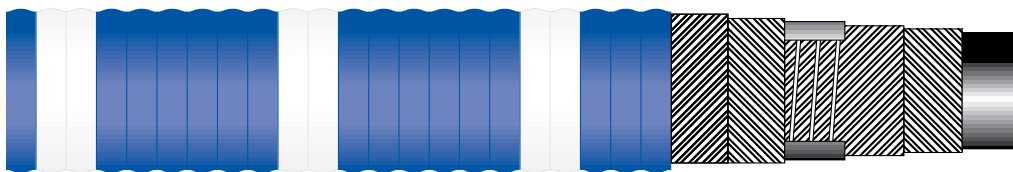
\*May be subject to special manufacture.

\* Various tube thicknesses are available upon request.

|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 0.7  | 74.6  | 3.2   |
| 75  | 0.7  | 100.9   | 4.8   |
| 100   | 0.7  | 128.5   | 6.8   |
| 125   | 0.7  | 153.9   | 8.2   |
| 150   | 0.7  | 180.8   | 10.9  |
| 200   | 0.7  | 233.6   | 15.8  |
| 250   | 0.7  | 284.4   | 19.4  |
| 300   | 0.7  | 342.2   | 31.3  |
| 350   | 0.7  | 393.0   | 37.2  |
| 400   | 0.7  | 443.8   | 43.7  |



## Trelleborg Materials Handling Hose







### T808-150\* Standard - Suction / Delivery\*

|                      |  |
|----------------------|--|
| <b>Application</b>   | For medium pressure suction and delivery of abrasive slurry materials.                       |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).  |
| <b>Reinforcement</b> | High Tensile Synthetic incorporating a wire helix.   |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - Wide White Circumferential Stripe. |
| <b>Length</b>        | Up to 10 metres.   |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.  |

\*May be subject to special manufacture.

\*Various tube thicknesses are available upon request.



|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 1.0  | 75.7  | 3.4   |
| 75  | 1.0  | 101.9   | 5.1   |
| 100   | 1.0  | 128.5   | 6.8   |
| 125   | 1.0  | 153.9   | 8.0   |
| 150   | 1.0  | 180.8   | 10.6  |
| 200   | 1.0  | 238.2   | 18.7  |
| 250   | 1.0  | 291.6   | 24.6  |
| 300   | 1.0  | 342.2   | 30.2  |
| 350   | 1.0  | 393.0   | 35.9  |
| 400   | 1.0  | 448.4   | 46.0  |







### T808-200\* Super - Suction / Delivery\*

|                      |  |
|----------------------|--|
| <b>Application</b>   | For high pressure suction and delivery of abrasive slurry materials.                         |
| <b>Tube</b>          | Natural Rubber - Super Abrasion Resistant (S.A.R.).  |
| <b>Reinforcement</b> | High Tensile Synthetic incorporating a wire helix.   |
| <b>Cover</b>         | Blue, Natural Rubber, Super Abrasion Resistant (S.A.R.) - Two White Circumferential Stripes. |
| <b>Length</b>        | Up to 10 metres.   |
| <b>Couplings</b>     | Swivel, Fixed, Inbuilt.  |

\*May be subject to special manufacture.

\* Various tube thicknesses are available upon request.

|  Nominal Bore (mm) |  Working Pressure (MPa) |  Outside Diameter (mm) |  Mass (Kg/m) |
|---|--|---|---|
| 50  | 1.4  | 75.7  | 3.4   |
| 75  | 1.4  | 101.9   | 4.9   |
| 100   | 1.4  | 128.5   | 6.6   |
| 125   | 1.4  | 158.3   | 9.9   |
| 150   | 1.4  | 185.7   | 12.8  |
| 200   | 1.4  | 240.6   | 20.7  |
| 250   | 1.4  | 291.4   | 26.2  |
| 300   | 1.4  | 346.8   | 35.2  |
| 350   | 1.4  | 397.4   | 44.3  |
| 400   | 1.4  | 448.2   | 50.1  |

# Chemical Resistance of Hoses

The tables below indicate the effects of specific chemicals on rubber hoses. The tables comprise recommendations which do not imply an undertaking or guarantee on the part of Trelleborg.

Contact your nearest Trelleborg sales office for further information.

| Rating code<br>A Excellent<br>B Good<br>C Conditional<br>X Inappropriate<br>– Please ask | Innerliner of hose |         |             |         |      |          |       |     |        |      |
|--|--------------------|---------|-------------|---------|------|----------|-------|-----|--------|------|
|  | ECO                | NR      | CR          | NBR     | EPDM | CSM      | IIR   | SBR | FKM    | PTFE |
| Chemicals in system  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |
| Acetaldehyde D   | –                  | X       | X           | X       | B    | C        | B     | X   | A      | A    |
| Acetic acid 5%   | B                  | B       | A           | B       | A    | A        | A     | B   | A      | A    |
| 10%  | B                  | B       | B           | B       | A    | B        | A     | B   | A      | A    |
| 20%  | B                  | B       | B           | B       | A    | B        | B     | B   | B      | A    |
| 30%  | B                  | B       | B           | B       | A    | B        | B     | B   | B      | A    |
| 50%  | B                  | B       | C           | C       | A    | B        | B     | C   | C      | A    |
| 99,5% glacial  | X                  | B       | X           | C       | B    | C        | B     | C   | X      | A    |
| Acetic acid. Amhydride   | X                  | C       | C           | X       | A    | C        | A     | C   | X      | A    |
| Acetone  | X                  | B       | C           | X       | A    | C        | A     | C   | X      | A    |
| Acetylene  | –                  | B       | B           | A       | A    | B        | A     | B   | A      | A    |
| Ammonia gas, cold  | –                  | A       | A           | A       | A    | A        | A     | A   | X      | A    |
| Ammonia gas, hot   | –                  | X       | B           | X       | B    | B        | B     | X   | X      | A    |
| Ammonia, liquid  | –                  | B       | A           | B       | A    | B        | A     | B   | X      | A    |
| Ammonium hydroxid  | B                  | B       | B           | C       | A    | A        | A     | B   | B      | A    |
| Amyl acetate   | X                  | C       | X           | X       | A    | C        | A     | X   | X      | A    |
| Aniline  | X                  | X       | X           | X       | B    | X        | B     | X   | B      | A    |
| Aniline dyes   | –                  | B       | B           | C       | B    | B        | B     | B   | B      | A    |
| Animal fats  | A                  | X       | B           | A       | B    | B        | B     | X   | A      | A    |
| Argon  | –                  | X       | X           | C       | A    | X        | B     | X   | A      | A    |
| Arsenic acid   | –                  | B       | B           | B       | A    | A        | A     | B   | A      | A    |
| Beer   | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Benzene (Benzol)   | X                  | X       | X           | X       | X    | X        | X     | X   | A      | A    |
| Black liquer   | –                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Brandy   | –                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Bromine liquid   | –                  | X       | X           | X       | X    | X        | X     | X   | A      | A    |
| Butane   | A                  | X       | A           | A       | X    | B        | X     | X   | A      | A    |
| Butanol (butyl alcohol)  | –                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Butyl acetate  | X                  | X       | X           | X       | B    | C        | X     | X   | X      | A    |
| Calcium hypochlorite   | B                  | C       | X           | C       | A    | A        | B     | X   | A      | A    |
| Caustic potash   | –                  | B       | B           | C       | B    | A        | A     | B   | C      | A    |
| Caustic soda   | –                  | A       | B           | C       | A    | B        | A     | B   | B      | A    |
| Chlorine gas,dry, 40°C   | B                  | X       | X           | X       | C    | C        | X     | X   | A      | A    |
| Chlorine gas,wet, 40°C   | B                  | X       | X           | X       | C    | C        | X     | X   | C      | A    |
| Chlorine solution, 0,1 gr/l  | –                  | –       | –           | A       | A    | A        | –     | –   | A      | A    |
| Chlorine solution, 0,1-1g/l  | –                  | –       | –           | A       | A    | A        | –     | –   | A      | A    |
| Chlorine sol. 1-10g/l, 40°C  | –                  | –       | –           | B       | B    | B        | –     | –   | –      | –    |
| Chlorine sol. >10g/l, 40°C   | –                  | –       | –           | C       | C    | C        | –     | –   | –      | –    |
| Chlorosulphonic acid   | –                  | X       | X           | X       | X    | X        | X     | X   | C      | A    |
| Chromic acid   | –                  | X       | X           | X       | C    | B        | C     | X   | A      | A    |
|  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |

| Rating code<br>A Excellent<br>B Good<br>C Conditional<br>X Inappropriate<br>- Please ask | Innerliner of hose |         |             |         |      |          |       |     |        |      |
|--|--------------------|---------|-------------|---------|------|----------|-------|-----|--------|------|
|  | ECO                | NR      | CR          | NBR     | EPDM | CSM      | IIR   | SBR | FKM    | PTFE |
| Chemicals in system  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |
| Detergent  | A                  | B       | B           | A       | A    | A        | A     | B   | A      | A    |
| Diesel oil   | A                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Ethane   | -                  | X       | B           | A       | X    | B        | X     | X   | A      | A    |
| Ethanol  | B                  | A       | A           | A       | A    | A        | A     | A   | B      | A    |
| Ether, Ethyl ether   | B                  | X       | X           | C       | X    | X        | C     | X   | X      | A    |
| Ethyl acetate  | -                  | X       | X           | X       | B    | X        | C     | X   | X      | A    |
| Ethyl chloride   | B                  | B       | X           | B       | A    | C        | A     | B   | A      | A    |
| Ethyl glycol (Cellosolve)  | -                  | X       | X           | C       | B    | C        | B     | X   | C      | A    |
| Ethylene chloride  | -                  | X       | X           | X       | C    | X        | C     | X   | B      | A    |
| Ethylene glycol  | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Ferrous salts, non oxidizing   | -                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Formaldehyde,formalin, 40°C  | B                  | B       | B           | B       | A    | A        | A     | B   | A      | A    |
| Formic acid, 40°C  | B                  | B       | B           | X       | A    | B        | A     | A   | X      | A    |
| Fuel oil   | A                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Furan (Furfuran)   | -                  | X       | X           | X       | X    | X        | X     | X   | C      | A    |
| Furfural (Furfurol)  | X                  | X       | X           | X       | B    | C        | B     | X   | X      | A    |
| Glucose  | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Glycerine, glycerol  | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Green liquor, white liquor   | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Hydraulic oil (petroleum)  | A                  | X       | B           | A       | X    | B        | X     | X   | A      | A    |
| Hydrobromic acid, max 40°C   | -                  | -       | -           | C       | A    | A        | B     | -   | B      | A    |
| Hydrochloric acid,37%,   | B                  | -       | -           | X       | A    | A        | -     | -   | -      | A    |
| Hydrochloric acid,37%,70°C   | C                  | X       | X           | X       | X    | C        | X     | X   | X      | A    |
| Hydrochloric acid, diluted   | -                  | -       | -           | C       | A    | A        | B     | -   | A      | A    |
| Hydrofluoric acid, 50%, 40°C   | -                  | C       | C           | X       | B    | B        | B     | C   | A      | A    |
| Hydrofluosilicic acid, 40°C  | -                  | A       | B           | B       | A    | A        | A     | B   | A      | A    |
| Hydrogen   | -                  | B       | A           | A       | A    | A        | A     | B   | A      | A    |
| Hydrogen peroxide, 3%,40°C   | -                  | B       | B           | B       | A    | A        | A     | B   | A      | A    |
| 30%,20°C   | -                  | C       | C           | C       | B    | A        | B     | C   | A      | A    |
| 90%,20°C   | -                  | C       | C           | C       | -    | -        | -     | -   | B      | A    |
| Hydrogen sulphide,dry, 20°C  | -                  | A       | A           | A       | A    | A        | A     | A   | X      | A    |
| ,wet,20°C  | B                  | X       | A           | C       | A    | A        | A     | X   | X      | A    |
| ,wet,40°C  | B                  | X       | C           | X       | B    | C        | B     | X   | X      | A    |
| Lactic acid  | -                  | B       | A           | A       | A    | A        | B     | B   | A      | A    |
| Linseed oil  | A                  | X       | B           | A       | B    | B        | A     | X   | A      | A    |
| Liquid manure  | -                  | -       | -           | A       | A    | A        | -     | -   | -      | A    |
| LP- gas  | A                  | X       | B           | A       | X    | X        | X     | X   | A      | A    |
| Lubricating oil  | A                  | X       | C           | A       | X    | X        | X     | X   | A      | A    |
| Methanol, methyl alcohol   | B                  | A       | A           | B       | A    | A        | A     | A   | X      | A    |
|  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |

It applies at ambient temperature unless otherwise stated. For other temperatures, please contact us.

# Temperature Limits of Rubber Compounds

| Rubber Type                      | Maximum Temp. Limits (Water) |
|----------------------------------|------------------------------|
| Natural (NR)                     | 70°C                         |
| Styrene Butadiene (SBR)          | 70°C                         |
| Nitrile (NBR)                    | 90°C                         |
| Chloroprene (CR)                 | 90°C                         |
| * Ethylene Propylene (EPDM)      | 110°C                        |
| Hypalon (CSM) <sup>®</sup>       | 120°C                        |
| Butyl (IIR)                      | 90°C                         |
| Cross Linked Polyethylene (XLPE) | 65°C                         |

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| Rating code<br>A Excellent<br>B Good<br>C Conditional<br>X Inappropriate<br>- Please ask | Innerliner of hose |         |             |         |      |          |       |     |        |      |
|--|--------------------|---------|-------------|---------|------|----------|-------|-----|--------|------|
|  | ECO                | NR      | CR          | NBR     | EPDM | CSM      | IIR   | SBR | FKM    | PTFE |
| Chemicals in system  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |
| Methyl chloride  | -                  | X       | X           | X       | C    | X        | C     | X   | A      | A    |
| Methyl ethyl ketone MEK  | X                  | X       | X           | X       | A    | X        | B     | X   | X      | B    |
| Methyl isobutyl ketone   | X                  | X       | X           | X       | B    | X        | C     | X   | X      | A    |
| Methyl isopropyl ketone  | -                  | X       | X           | X       | C    | X        | C     | X   | X      | A    |
| Methylene chloride   | -                  | X       | X           | X       | X    | X        | X     | X   | B      | A    |
| Milk   | -                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Natural gas  | A                  | C       | A           | A       | X    | A        | X     | C   | A      | A    |
| Nitric acid,20%, 40°C  | X                  | X       | C           | X       | A    | A        | A     | X   | A      | A    |
| 20%, 50°C  | X                  | X       | X           | X       | B    | A        | B     | X   | A      | A    |
| 40%, 50°C  | X                  | X       | X           | X       | C    | A        | C     | X   | A      | A    |
| 50%, 50°C  | X                  | X       | X           | X       | X    | B        | X     | X   | A      | A    |
| 60%, 20°C  | X                  | X       | X           | X       | X    | C        | X     | X   | A      | A    |
| 70%, 20°C  | X                  | X       | X           | X       | X    | C        | X     | X   | A      | A    |
| Nitric acid, fuming  | X                  | X       | X           | X       | X    | X        | X     | X   | C      | A    |
| Nitrobenzene   | X                  | X       | X           | X       | B    | X        | B     | X   | B      | A    |
| Nitrogen   | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Nitrous gases  | -                  | X       | X           | X       | C    | X        | X     | X   | X      | B    |
| Oleic acid   | A                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Olive oil  | A                  | X       | C           | A       | C    | C        | C     | X   | A      | A    |
| Oxalic acid  | -                  | C       | C           | A       | B    | A        | B     | B   | A      | A    |
| Oxygen   | B                  | C       | B           | C       | A    | B        | A     | X   | A      | A    |
| Ozone  | A                  | X       | C           | X       | B    | B        | C     | X   | A      | A    |
| Palmitic acid  | B                  | B       | B           | A       | B    | C        | B     | B   | A      | A    |
| Paraffin, kerosene   | -                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Perchloroethylene  | B                  | X       | X           | C       | X    | X        | X     | X   | A      | A    |
| Petrol, 100 octan  | C                  | X       | X           | C       | X    | X        | X     | X   | A      | A    |
| 65 octan   | B                  | X       | X           | B       | X    | C        | X     | X   | A      | A    |
| Petroleum ether  | B                  | X       | B           | B       | X    | X        | X     | X   | A      | A    |
| Petroleum oils,high aromatic   | B                  | X       | X           | B       | X    | X        | X     | X   | A      | A    |
| low aromatic   | A                  | X       | C           | A       | X    | B        | X     | X   | A      | A    |
| Phenol   | -                  | X       | X           | X       | C    | C        | B     | X   | A      | A    |
| Phosphoric acid,45%, 40°C  | -                  | C       | B           | C       | A    | B        | B     | C   | A      | A    |
| 85%, 40°C  | -                  | C       | C           | X       | B    | B        | B     | C   | A      | A    |
| Plating sol. w/o chromium.   | -                  | X       | X           | X       | A    | C        | C     | X   | A      | A    |
| Propane, LP-gas  | A                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
|  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |

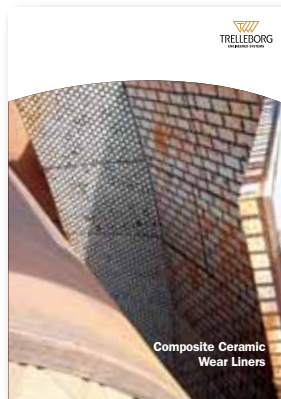
| Rating code<br>A Excellent<br>B Good<br>C Conditional<br>X Inappropriate<br>– Please ask | Innerliner of hose |         |             |         |      |          |       |     |        |      |
|--|--------------------|---------|-------------|---------|------|----------|-------|-----|--------|------|
|  | ECO                | NR      | CR          | NBR     | EPDM | CSM      | IIR   | SBR | FKM    | PTFE |
| Chemicals in system  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |
| Propanol, propyl alcohol   | A                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Rapeseed oil   | A                  | X       | X           | X       | A    | C        | A     | X   | A      | A    |
| Rosin oil  | –                  | X       | C           | A       | X    | C        | X     | X   | A      | A    |
| Salicylic acid   | –                  | A       | C           | B       | A    | A        | A     | B   | A      | A    |
| Salt solutions, non oxidizing  | –                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Sewage water   | –                  | B       | B           | A       | B    | A        | B     | B   | A      | A    |
| Silicofluoric acid, 40°C   | –                  | B       | B           | B       | B    | A        | B     | B   | A      | A    |
| Sodium hypochlorite,<10g/l   | B                  | C       | B           | C       | A    | A        | B     | C   | A      | A    |
| >10g/l   | B                  | X       | X           | X       | B    | B        | C     | X   | A      | A    |
| Styrene, 40°C  | –                  | X       | X           | X       | X    | X        | X     | X   | B      | A    |
| Sugar solutions  | –                  | A       | A           | X       | A    | C        | A     | A   | A      | A    |
| Sulphur chloride, 40°C   | –                  | X       | X           | X       | X    | C        | X     | X   | A      | A    |
| Sulphur, molten  | –                  | X       | X           | X       | B    | B        | C     | X   | A      | A    |
| Sulphur dioxide, dry gas,40°C  | –                  | C       | X           | X       | A    | X        | B     | C   | A      | A    |
| Sulphur trioxide, dry gas  | –                  | X       | X           | X       | B    | X        | C     | X   | A      | A    |
| Sulphuric acid, < 60%  | B                  | C       | C           | X       | B    | B        | B     | X   | A      | A    |
| 60%, 50°C  | X                  | C       | X           | X       | B    | B        | B     | X   | A      | A    |
| 75%, 50°C  | X                  | X       | X           | X       | B    | B        | B     | X   | A      | A    |
| 80%, 50°C  | X                  | X       | X           | X       | C    | B        | C     | X   | A      | A    |
| 96%, 50°C  | X                  | X       | X           | X       | C    | C        | X     | X   | A      | A    |
| Sulphuric acid,fuming,Oleum  | X                  | X       | X           | X       | X    | X        | X     | X   | B      | A    |
| Sulphurous acid, 40°C  | –                  | C       | C           | A       | C    | A        | B     | C   | A      | A    |
| Tar, 40°C  | B                  | X       | C           | B       | X    | C        | X     | X   | A      | A    |
| Toluene, toluol  | X                  | X       | C           | X       | X    | X        | X     | X   | A      | A    |
| Transformer oil,chI.hydrocar.  | –                  | X       | X           | X       | X    | X        | X     | X   | A      | A    |
| mineral based  | –                  | X       | B           | A       | X    | C        | X     | X   | A      | A    |
| Trichloroethylene, 40°C  | –                  | X       | X           | X       | X    | X        | X     | X   | A      | A    |
| Turpentine, terpene  | A                  | X       | X           | A       | X    | X        | X     | X   | A      | A    |
| Vegetable oils   | A                  | X       | C           | A       | X    | B        | X     | X   | A      | A    |
| Water, distilled   | A                  | A       | C           | A       | A    | A        | A     | A   | A      | A    |
| fresh  | A                  | A       | B           | A       | A    | A        | A     | A   | A      | A    |
| fresh ,distilled 100°C   | –                  | C       | C           | B       | A    | B        | B     | C   | A      | A    |
| salt   | –                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Whiskey, Wine  | –                  | A       | A           | A       | A    | A        | A     | A   | A      | A    |
| Xylene, xylol  | X                  | X       | X           | X       | X    | X        | X     | X   | A      | A    |
|  | Epichloridine      | Natural | Chloroprene | Nitrile | EPDM | Hypalon® | Butyl | SBR | Viton® | PTFE |

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# Other Trelleborg Products



Trelleborg Wear Panels



Composite Ceramic Wear Liners



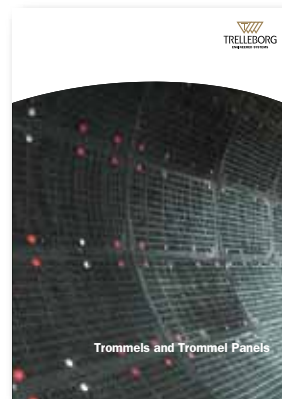
Trelleborg Rubber Mill Liners



Sheet Rubber Products for the Mining Industry



Trelleborg Speciality Mining Hoses



Trommels and Trommel Panels



Trelleborg Rubber Lined Products



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