



# SANGBONG IS

A world-wide leader with over 20 years of experience  
contribute to the high quality & excellent service

## INTRO

Since Dolphinflex was established in 1993, we have been a top leader in the hoses, couplings, hoses reel technology business.

We have been supplied out special products to the petroleum and chemical industries throughout inland and marine fields in domestic market as well as in worldwide market with specialised agents and distributors.

We also have been equipped with the latest and quality machines for developing and manufacturing the product and completed arrangements of various production lines to supply high quality products to customers in time.

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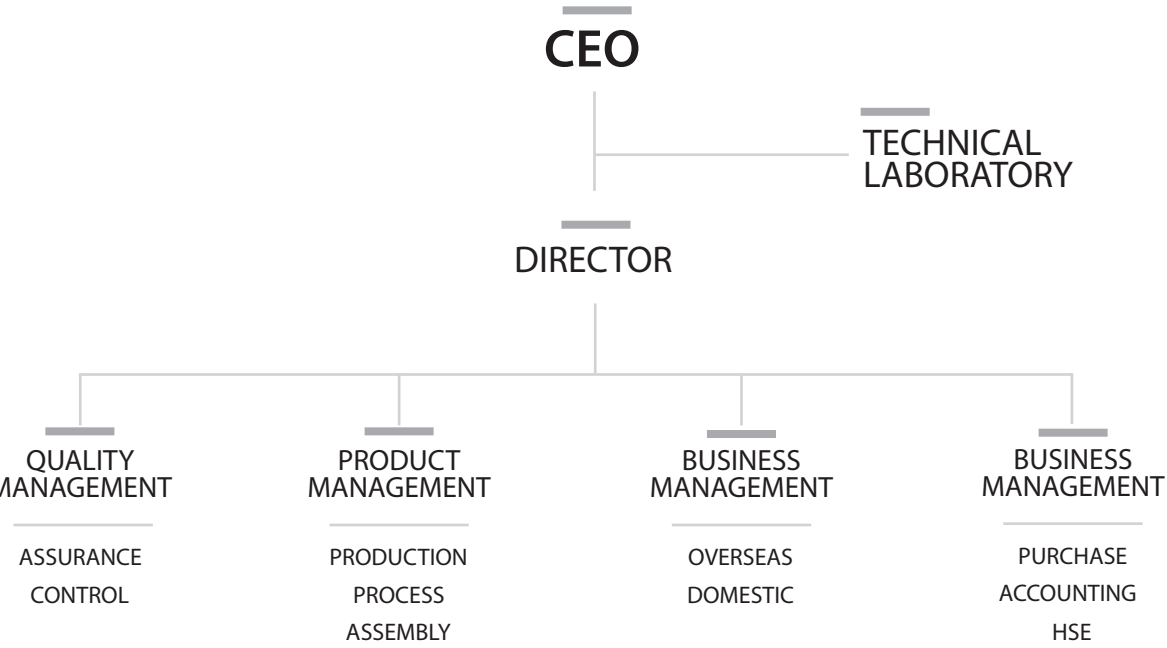




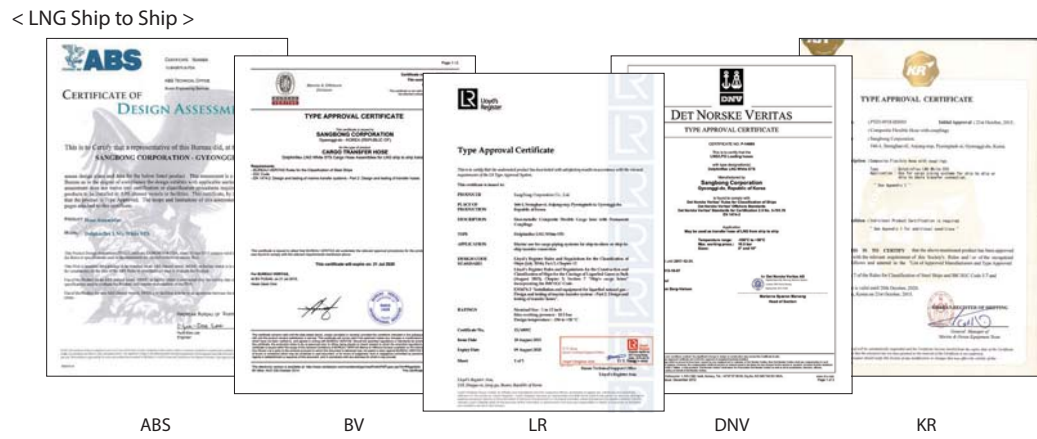
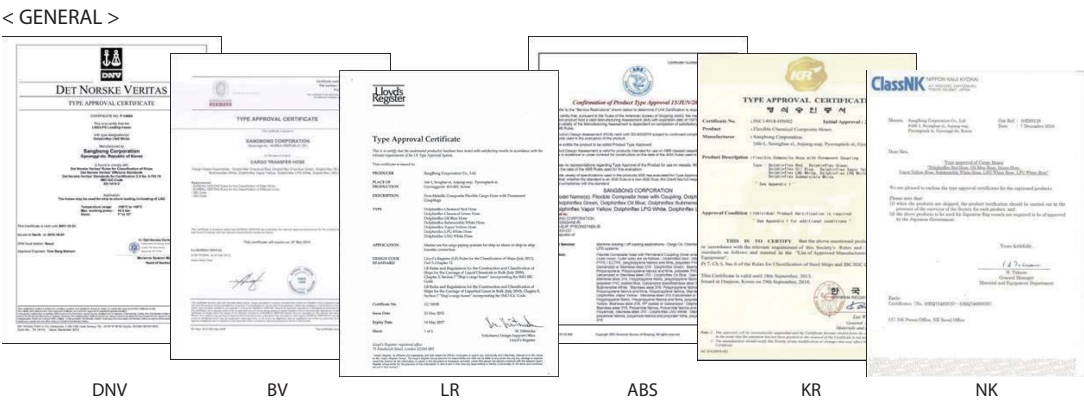
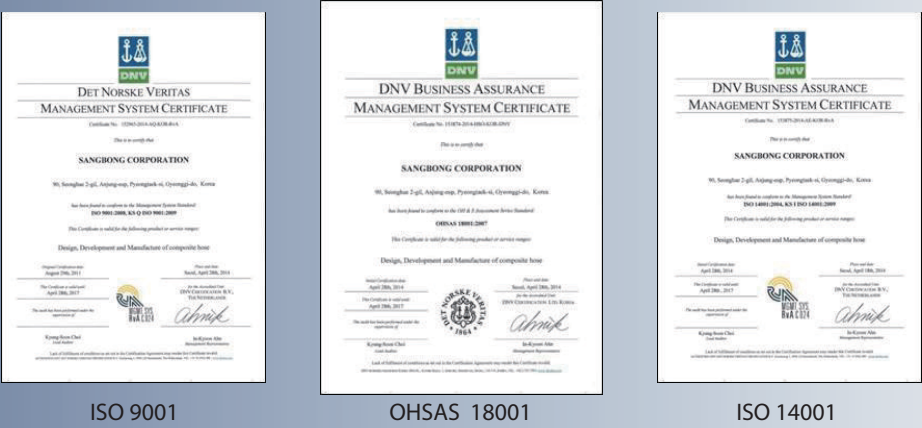
# COMPANY HISTORY

- 1993 SANGBONG Corporation was founded is Seoul, Korea
- 2008 ISO 9001 certified from KR(Korean Register)
- 2009 Type Approval from BV(Bureau Veritas)
- 2010 R & D Department established  
Type Approval from KR(Korean Register)  
Type Approval from NK(Nippon Kaiji Kyokai)  
Type Approval from LR(Lloyd’s Register)
- 2013 Type Approval from ABS(American Bureau of Shipping)  
Type Approval from DNV(Det Norske Veritas)  
Type Approval for LNG STS from ABS/ DNV
- 2014 Complete development of LNG Ship to Ship transfer hose  
ISO 9001 renewed from KR to DNV  
ISO 14001, OHSAS 18001 certified from DNV(Det Norske Veritas)  
Complete construction of warehouse and laboratory
- 2015 Type Approval for LNG STS from BV / LR / KR
- 2017 Type Approval for LNG STS from RMRS

# COMPANY ORGANIZATION



# CERTIFICATES / TYPE APPROVALS



## Type approval and standard

Dolphinflex composite hoses are type approved by international society of classification such as ABS, BV, DNV, LR, NK, and KR. And hoses are manufactured and tested under the quality control system of IMO / IBC, IGC regulations and applicable standards are EN 13766:2010, EN1474-2:2008. Also continous quality management, recognised by ISO 9001:2008 and ISO 14001 for environmental management and OHSAS 18001 for occupational health & safety.







Production



Assembly



End Fitting Shop

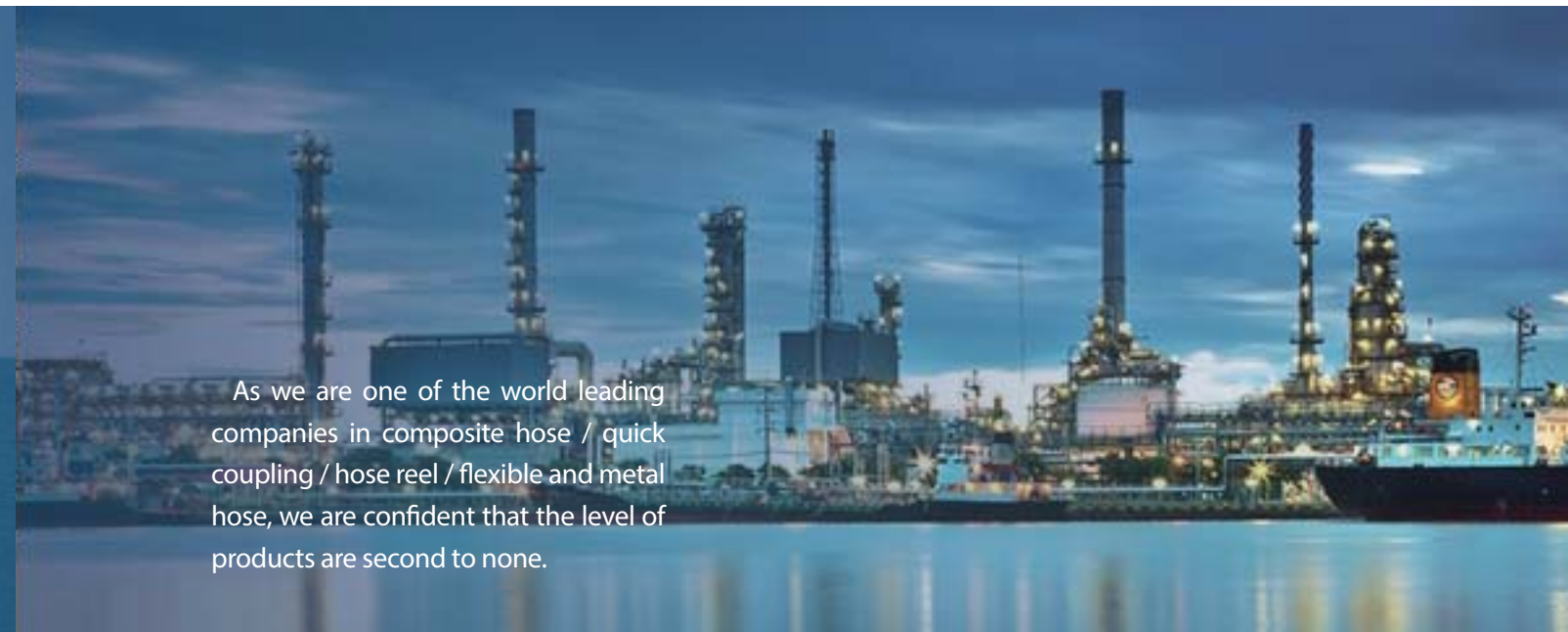


Technical Meeting





Dolphinflex composite hoses apply a variety of fluid transportation in oil, chemical tank terminals, vapour recovery LPG, LNG carriers and so on. The strong, durable and light-weighted construction and flexibility make it easy to operate and handle in every aspect.



As we are one of the world leading companies in composite hose / quick coupling / hose reel / flexible and metal hose, we are confident that the level of products are second to none.



TANK TERMINAL



TANK LORRY



PAINT & ETC



SHIPYARD



# COMPOSITION OF COMPOSITE HOSE

Each part can be customised in accordance with the purpose.

## 1. Inner Wire & 5. Outer Wire

Stainless Steel 316  
Stainless Steel 304  
Galvanised Carbon Steel  
Polypropylene Coated Steel  
Aluminium

## 2. Inside Lining

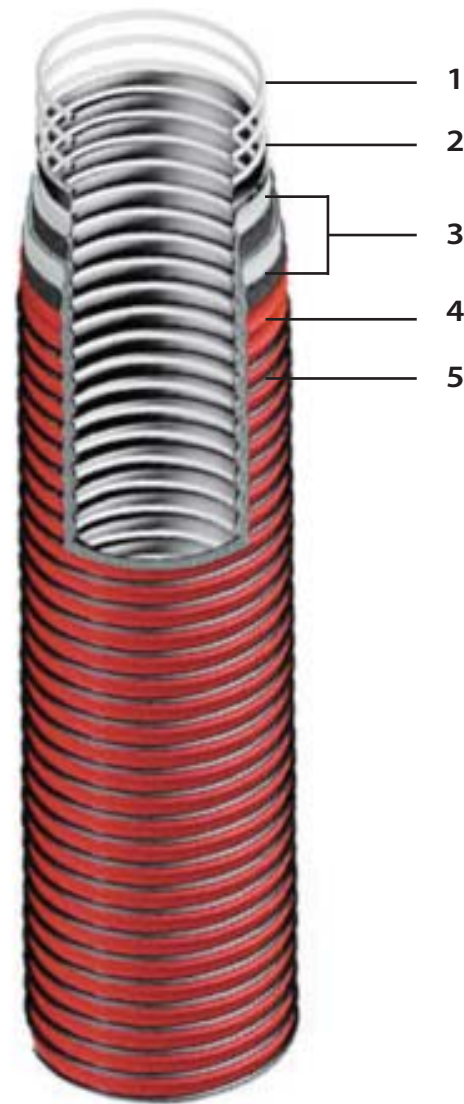
Polypropylene  
P.T.F.E / E.C.T.F.E  
Poly-amide

## 3. Layers

Polypropylene Fabrics  
Polypropylene Films  
Poly-amide Fabrics  
Poly-amide Films  
Polyester Fabrics  
Polyester Films  
BOPP Films

## 4. Outer Cover

PVC Coated Polyester  
Poly-amide  
Polypropylene  
P.T.F.E



## Product range and customise

Sangbong Corporation produce a comprehensive range of composite hoses, specifically engineered to handle all kinds of transfer applications safely and easily.  
And within each you can choose personalised manufacturing according to the needs.

## Safety

All Dolphinflex composite hose assemblies are pressure tested at 1.5 times their rated working pressure before shipment. Test certificates are provided with all hoses assemblies.

## Safety Factor

Safety factor 5:1 (Burst Pressure : Working Pressure)

# DOLPHINFLEX RED COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Red hoses are used for suction and discharge of the aggressive chemicals and acids which do not affect the P.T.F.E or E.C.T.F.E lining and stainless steel 316.

*Ship to shore, Tank truck, Rail-car, Petrochemical plant, Loading and unloading of chemical cargoes*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316                    |
| Outer cover | Polyester PVC coated Red color         |
| Lining      | P.T.F.E. / E.C.T.F.E.                  |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30 °C to +100 °C                                                 |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |

## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350  | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400  | 7.8         | 5.2    | 30          | 98 |
| 5             | 125 | 14                    | 200 | 23.0        | 575  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 14                    | 200 | 23.0        | 575  | 12          | 8      | 30          | 98 |
| 8             | 200 | 14                    | 200 | 31.5        | 800  | 18.5        | 12.3   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 39.5        | 1000 | 23.5        | 15.67  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 47.5        | 1200 | 30          | 20     | 15          | 49 |



Dolphinflex-RED



# DOLPHINFLEX GREEN COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Green hoses are used for suction and discharge of various chemicals which do not affect the polypropylene lining and the stainless steel 316 inner wires.

*Ship to shore, Tank truck, Railcar, Petrochemical plant, Loading & unloading of chemical cargoes*

## CONSTRUCTION

|             |                                  |
|-------------|----------------------------------|
| Inner wire  | Stainless steel 316              |
| Outer cover | Polyester PVC coated Green color |
| Lining      | Polypropylene fabrics            |
| Outer wire  | Stainless steel 316              |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |

## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350  | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400  | 7.8         | 5.2    | 30          | 98 |
| 5             | 125 | 14                    | 200 | 23.0        | 575  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 14                    | 200 | 23.0        | 575  | 12          | 8      | 30          | 98 |
| 8             | 200 | 14                    | 200 | 31.5        | 800  | 18.5        | 12.3   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 39.5        | 1000 | 23.5        | 15.67  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 47.5        | 1200 | 30          | 20     | 15          | 49 |



# DOLPHINFLEX BLUE COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Blue hoses are used for suction and discharge of hydrocarbons, oils, solvents, diesel, lubricating oils, paraffin.

*Ship to shore, Tank truck, Railcar, Petrochemical plant, Loading and unloading for oil products*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / Galvanized steel |
| Outer cover | Polyester PVC coated Blue color        |
| Lining      | Polypropylene fabrics                  |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |

## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350  | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400  | 7.8         | 5.2    | 30          | 98 |
| 5             | 125 | 14                    | 200 | 23.0        | 575  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 14                    | 200 | 23.0        | 575  | 12          | 8      | 30          | 98 |
| 8             | 200 | 14                    | 200 | 31.5        | 800  | 18.5        | 12.3   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 39.5        | 1000 | 23.5        | 15.67  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 47.5        | 1200 | 30          | 20     | 15          | 49 |





# DOLPHINFLEX YELLOW COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® yellow hoses are used for hydrocarbon Vapor recovery transfer on tank truck lorry station, ship, barges and rail tanker operations.

*Ship to shore, Vapor recovery, Inert gas system (I.G. filling, Water ballst tank)*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / Galvanized steel |
| Outer cover | Polyester PVC coated Yellow color      |
| Lining      | Polypropylene fabrics                  |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 7.0                   | 100 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 7.0                   | 100 | 7.9         | 200  | 1.5         | 1      | 21          | 69 |
| 2             | 50  | 7.0                   | 100 | 8.9         | 225  | 2           | 1.33   | 25          | 82 |
| 2.5           | 65  | 7.0                   | 100 | 8.9         | 225  | 3.5         | 2.33   | 25          | 82 |
| 3             | 80  | 7.0                   | 100 | 14.0        | 350  | 4.8         | 3.2    | 30          | 98 |
| 4             | 100 | 7.0                   | 100 | 16.0        | 400  | 5.3         | 3.53   | 30          | 98 |
| 5             | 125 | 7.0                   | 100 | 23.0        | 575  | 8           | 5.33   | 30          | 98 |
| 6             | 150 | 7.0                   | 100 | 23.0        | 575  | 9           | 6      | 30          | 98 |
| 8             | 200 | 7.0                   | 100 | 31.5        | 800  | 12          | 8      | 30          | 98 |
| 10            | 250 | 7.0                   | 100 | 39.5        | 1000 | 12.5        | 8.33   | 25          | 82 |
| 12            | 300 | 7.0                   | 100 | 47.5        | 1200 | 26          | 17.33  | 15          | 49 |

# DOLPHINFLEX SUBMERSIBLE HOSE

## APPLICATION

This high quality Dolphinflex® white submersible hoses are used for submersible pumps and for all other applications where the hose is exposed to the product, both inside and outside.

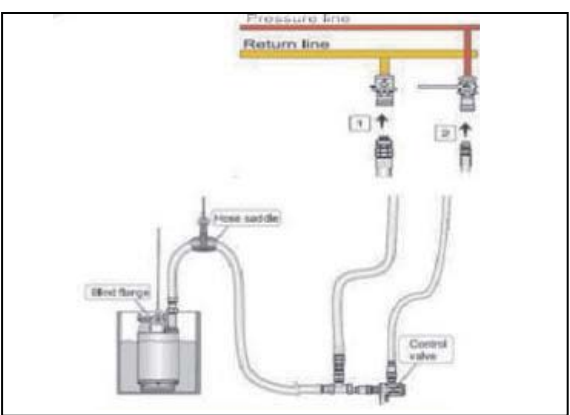
*Ship to shore, Submersible pump and related equipments*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / P.T.F.E.         |
| Outer cover | Polypropylene White color              |
| Lining      | Polypropylene fabrics / P.T.F.E.       |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350  | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400  | 7.8         | 5.2    | 30          | 98 |
| 5             | 125 | 14                    | 200 | 23.0        | 575  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 14                    | 200 | 23.0        | 575  | 12          | 8      | 30          | 98 |
| 8             | 200 | 14                    | 200 | 31.5        | 800  | 18.5        | 12.3   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 39.5        | 1000 | 23.5        | 15.67  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 47.5        | 1200 | 30          | 20     | 15          | 49 |



# DOLPHINFLEX BLACK COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Black hoses are used for suction and discharge of general chemicals, oils, solvents, and diesel.

*Ship to shore, Tank truck, Railcar, Petrochemical plant, Loading and unloading of chemical cargoes*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / P.P coated wire  |
| Outer cover | Polyester PVC coated Black color       |
| Lining      | Polypropylene fabrics                  |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN13765 : 2010 (Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200  | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225  | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350  | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400  | 7.8         | 5.2    | 30          | 98 |
| 5             | 125 | 14                    | 200 | 23.0        | 575  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 14                    | 200 | 23.0        | 575  | 12          | 8      | 30          | 98 |
| 8             | 200 | 14                    | 200 | 31.5        | 800  | 18.5        | 12.3   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 39.5        | 1000 | 23.5        | 15.67  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 47.5        | 1200 | 30          | 20     | 15          | 49 |



# DOLPHINFLEX LPG COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® L.P.G hoses are used for transfer of Ammonia, Acetaldehyde, Butane Butadiene, propane, Butylene, Dimethylamine, Ethylamine, Ethyl Chloride, Methyl Acetylene, Methyl Bromide propane, Propylene Propadiene, Vinyl Chloride, Refrigerant Gases. Liquid Ethane at -88℃, Ethylene at -105℃.

## CONSTRUCTION

|             |                       |
|-------------|-----------------------|
| Inner wire  | Stainless steel 316   |
| Outer cover | Polyamide White color |
| Lining      | Polyamide fabrics     |
| Outer wire  | Stainless steel 316   |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -50℃ to +50℃ / -105℃ to +50℃ (For liquid ethylene)                |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN13766 : 2010 (Thermoplastic multilayer (non-vulcanized) hoses and hose assemblies for the transfer of liquid petroleum gas and liquefied natural gas. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 21                    | 319 | 5.9         | 150  | 0.9         | 0.6    | 21          | 69 |
| 1.5           | 40  | 21                    | 319 | 7.9         | 200  | 1.5         | 1      | 21          | 69 |
| 2             | 50  | 21                    | 319 | 7.9         | 200  | 2.3         | 1.53   | 25          | 82 |
| 2.5           | 65  | 21                    | 319 | 7.9         | 200  | 4           | 2.67   | 25          | 82 |
| 3             | 80  | 21                    | 319 | 10          | 250  | 5.4         | 3.6    | 30          | 98 |
| 4             | 100 | 21                    | 319 | 20          | 500  | 6.7         | 4.47   | 30          | 98 |
| 5             | 125 | 21                    | 319 | 22          | 550  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 21                    | 319 | 26          | 660  | 15          | 10     | 30          | 98 |
| 8             | 200 | 21                    | 319 | 36          | 910  | 20.1        | 13.4   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 59          | 1500 | 30.4        | 20.27  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 100         | 2500 | 35.4        | 23.6   | 15          | 49 |





# DOLPHINFLEX LNG COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® LNG hoses are used for liquid Nitrogen and LNG liquefied natural gases at extremely low temperature to -196℃.

*Ship to shore, LNG bunkering, Storage tank, In plant, Loading and unloading*

## CONSTRUCTION

|             |                       |
|-------------|-----------------------|
| Inner wire  | Stainless steel 316   |
| Outer cover | Polyamide White color |
| Lining      | Polyamide fabrics     |
| Outer wire  | Stainless steel 316   |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -196℃ to +50℃                                                     |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN13766 : 2010 (Thermoplastic multilayer (non-vulcanized) hoses and hose assemblies for the transfer of liquid petroleum gas and liquefied natural gas. Specification)

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 5.9         | 150  | 0.9         | 0.6    | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.5         | 1      | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 7.9         | 200  | 2.3         | 1.53   | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 7.9         | 200  | 4           | 2.67   | 25          | 82 |
| 3             | 80  | 10.5                  | 150 | 10          | 250  | 5.4         | 3.6    | 30          | 98 |
| 4             | 100 | 10.5                  | 150 | 20          | 500  | 6.7         | 4.47   | 30          | 98 |
| 5             | 125 | 10.5                  | 150 | 22          | 550  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 10.5                  | 150 | 26          | 660  | 15          | 10     | 30          | 98 |
| 8             | 200 | 10.5                  | 150 | 36          | 910  | 20.1        | 13.4   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 59          | 1500 | 30.4        | 20.27  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 100         | 2500 | 35.4        | 23.6   | 15          | 49 |

# DOLPHINFLEX LNG STS COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® LNG STS hoses are used for liquid Nitrogen and LNG liquefied natural gases and specially designed for LNG Ship to ship transfer purpose.

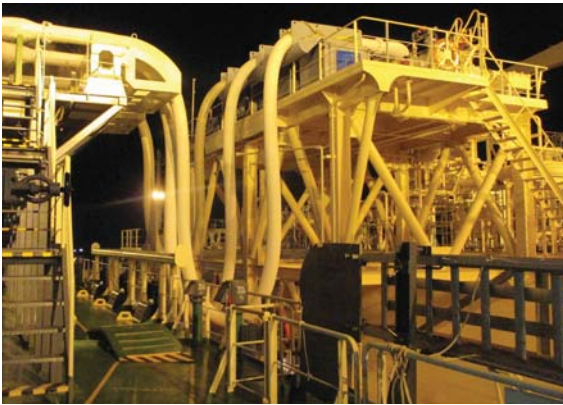
*- LNG ship to ship transfer  
- LNG Bunkering*

## CONSTRUCTION

|             |                       |
|-------------|-----------------------|
| Inner wire  | Stainless steel 316   |
| Outer cover | Polyamide White color |
| Lining      | Polyamide fabrics     |
| Outer wire  | Stainless steel 316   |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -196℃ to +50℃                                                     |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## REGULATION

EN1474-2 : 2008 (Installation and equipment for liquefied natural gas. Design and testing of marine transfer systems. Design and testing of transfer hoses )

## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |      | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|------|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM   | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 5.9         | 150  | 0.9         | 0.6    | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200  | 1.5         | 1      | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 7.9         | 200  | 2.3         | 1.53   | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 7.9         | 200  | 4           | 2.67   | 25          | 82 |
| 3             | 80  | 10.5                  | 150 | 10          | 250  | 5.4         | 3.6    | 30          | 98 |
| 4             | 100 | 10.5                  | 150 | 20          | 500  | 6.7         | 4.47   | 30          | 98 |
| 5             | 125 | 10.5                  | 150 | 22          | 550  | 10          | 6.67   | 30          | 98 |
| 6             | 150 | 10.5                  | 150 | 26          | 660  | 15          | 10     | 30          | 98 |
| 8             | 200 | 10.5                  | 150 | 36          | 910  | 20.1        | 13.4   | 30          | 98 |
| 10            | 250 | 10.5                  | 150 | 59          | 1500 | 30.4        | 20.27  | 25          | 82 |
| 12            | 300 | 10.5                  | 150 | 100         | 2500 | 35.4        | 23.6   | 15          | 49 |



# DOLPHINFLEX DRAIN COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Drain hose are used for immersion inside storage tanks with the external oil and chemical resistance from floating roofs into outside of tanks at oil refinery factories and chemical terminals.

*\* Roof drain joint can be provided on customer's requestion.*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / Galvanized steel |
| Outer cover | Polypropylene White color              |
| Lining      | Polypropylene fabrics                  |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |     | MAX. WEIGHT |        |
|---------------|-----|-----------------------|-----|-------------|-----|-------------|--------|
| INCH          | MM  | BAR                   | PSI | INCH        | MM  | KG/M        | LBS/FT |
| 3             | 80  | 10                    | 150 | 7           | 178 | 2.8         | 1.9    |
| 4             | 100 | 10                    | 150 | 10          | 254 | 3.7         | 2.5    |
| 6             | 150 | 10                    | 150 | 20          | 508 | 10.3        | 6.9    |
| 8             | 200 | 7                     | 102 | 26          | 660 | 17.0        | 11.4   |
| 10            | 250 | 7                     | 102 | 34          | 864 | 19.2        | 12.9   |



# DOLPHINFLEX TANKLORRY COMPOSITE HOSE

## APPLICATION

This high quality Dolphinflex® Tanklorry hoses are used for loading and unloading of tank lorry with the extremely flexible, lightweight and easy to handle and bend.

*Tank terminal, Loading and unloading of chemicals and oil products*

## CONSTRUCTION

|             |                                        |
|-------------|----------------------------------------|
| Inner wire  | Stainless steel 316 / Galvanized steel |
| Outer cover | Polyester PVC coated                   |
| Lining      | Polypropylene / E.C.T.F.E / P.T.F.E.   |
| Outer wire  | Stainless steel 316 / Galvanized steel |

## CHARACTERISTIC

|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Max. elongation       | 10% on proof pressure                                             |
| Min. burst pressure   | 5x working pressure (Safety factor 5:1)                           |
| Temperature range     | -30℃ to +80℃                                                      |
| Electrical resistance | ≤ 2.5 Ohm/m for under 50mm (2")<br>≤ 1.0 Ohm/m for over 50mm (2") |



## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |     | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|-----|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM  | KG/M        | LBS/FT | M           | FT |
| 1             | 25  | 10.5                  | 150 | 7.9         | 200 | 1.4         | 0.93   | 21          | 69 |
| 1.5           | 40  | 10.5                  | 150 | 7.9         | 200 | 1.6         | 1.07   | 21          | 69 |
| 2             | 50  | 10.5                  | 150 | 8.9         | 225 | 3           | 2      | 25          | 82 |
| 2.5           | 65  | 10.5                  | 150 | 8.9         | 225 | 3           | 2      | 25          | 82 |
| 3             | 80  | 14                    | 200 | 14.0        | 350 | 5.2         | 3.47   | 30          | 98 |
| 4             | 100 | 14                    | 200 | 16.0        | 400 | 7.8         | 5.2    | 30          | 98 |





# DOLPHINFLEX I.G. FILLING HOSE

## APPLICATION

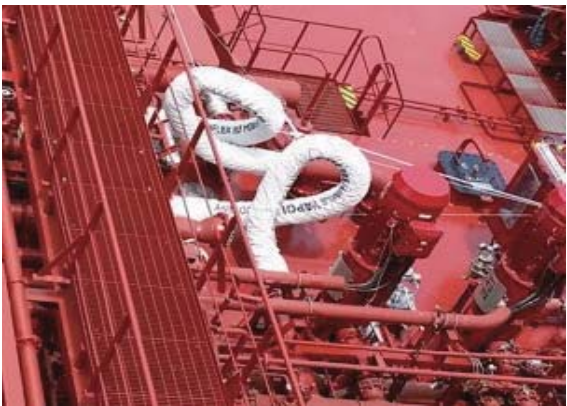
Dolphinflex® - I.G. Filling hoses are manufactured for universal application such as Inert gas filling and Cargo dome spool station line and Warm and hot supply, Vacuum cleaners, Deck fan system and Cargo eductor system, IGG(Inert gas generator).

## CONSTRUCTION

Wall made of abrasion, microbes and hydrolysis resistant Premium Polyurethane(wall thickness between the spirals ca.1.5mm), Shore A ~85, PVC coated spring steel spiral-embedded into wall.

## CHARACTERISTIC

|                   |              |
|-------------------|--------------|
| Temperature range | -40℃ to +90℃ |
|-------------------|--------------|



## SPECIFICATION

| BORE DIAMETER |     | MAX. WORKING PRESSURE |     | BEND RADIUS |     | MAX. WEIGHT |        | MAX. LENGTH |    |
|---------------|-----|-----------------------|-----|-------------|-----|-------------|--------|-------------|----|
| INCH          | MM  | BAR                   | PSI | INCH        | MM  | KG/M        | LBS/FT | M           | FT |
| 8             | 200 | 0.4                   | 5.8 | 9.9         | 252 | 3.0         | 6.6    | 12          | 39 |
| 10            | 250 | 0.4                   | 5.8 | 12.2        | 312 | 3.8         | 8.3    | 12          | 39 |
| 12            | 300 | 0.4                   | 5.8 | 14.6        | 372 | 4.5         | 9.9    | 12          | 39 |



# DOLPHINFLEX HOSE REEL

## APPLICATION

Dolphinflex® - Hose reel is designed to transfer fluid and hose storage (Air/Water/Oil, Gas etc.) for special ship, drilling-rig, drill ship, land plant, and so on.  
We can manufacture and supply it to match your situation : marine, offshore, onshore.

## TYPE

- 1) Manual type
- 2) Auto type
- 3) Motor driven type

## SPECIFICATION

- 1) Air motor type
- 2) Hydraulic motor type
- 3) Electric motor type





# DOLPHINFLEX HYDRAULIC HOSE

## APPLICATION

Dolphinflex® - Flexible hose(Hose and Hose assembly) is manufactured according to end user's request.  
We assemble the parts and produce the complete products.

## MATERIAL

- Hose : NR + NBR, EPDM etc.
- Fitting : Stainless steel, steel etc.

## SPECIFICATION

MADE TO ORDER TYPE  
\*\* Please contact us by e-mail.



# DOLPHINFLEX QUICK CONNECTOR

## APPLICATION

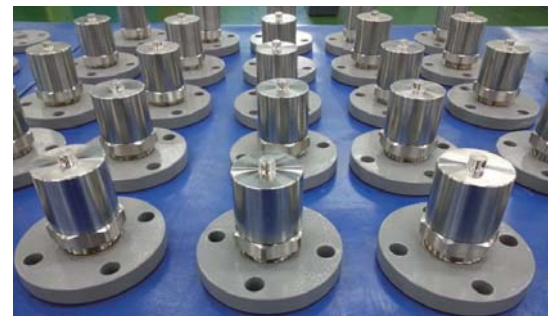
Dolphinflex® - Quick connector is manufactured according to end user's request. We assemble the parts and produce the complete products.

## TYPE

- Self-sealing type (ISO 7241-1 A series, ISO 7241-1 B series, VVS series, ST series and etc.)
- Camlock type (Male end type, Female end type etc.)
- Air king type (Universal air king type, Minsup type etc.)
- Other type is available.

## SPECIFICATION

MADE TO ORDER TYPE  
\*\* Please contact us by e-mail.



# DOLPHINFLEX METALLIC HOSE

## APPLICATION

Dolphinflex® - Metallic hose is manufactured according to end user's request.

## MATERIAL

- Hose : Stainless steel 304 / 316 / 316L
- Fitting : Stainless steel 304 / 316 / 316L

## TYPE

- Interlock type
- Spiral type
- Teflon inner expansion joint



## SPECIFICATION (For only one braid metallic hose)

| BORE DIAMETER (mm) | SIZE  |       |           | BEND RADIUS (mm) | WEIGHT (kg) |       | BURST PRESSURE (kgf/cm2g) |
|--------------------|-------|-------|-----------|------------------|-------------|-------|---------------------------|
|                    | O.D   | I.D   | Thickness |                  | TUBE        | BRAID |                           |
| 25                 | 38.5  | 27.0  | 0.3       | 170              | 0.5         | 0.5   | 170                       |
| 32                 | 46.5  | 32.5  | 0.3       | 180              | 0.6         | 0.6   | 160                       |
| 40                 | 54.5  | 41.0  | 0.3       | 200              | 0.7         | 0.7   | 120                       |
| 50                 | 70.5  | 53.5  | 0.3       | 225              | 1.3         | 0.8   | 120                       |
| 65                 | 86.0  | 67.0  | 0.4       | 250              | 1.7         | 0.8   | 90                        |
| 80                 | 100.5 | 78.5  | 0.4       | 275              | 2.0         | 1.1   | 65                        |
| 100                | 126.5 | 103.5 | 0.4       | 350              | 2.9         | 1.3   | 55                        |
| 125                | 153.5 | 128.5 | 0.4       | 425              | 3.6         | 1.6   | 45                        |
| 150                | 180.5 | 152.0 | 0.4       | 500              | 4.6         | 1.9   | 38                        |
| 200                | 233.0 | 203.0 | 0.5       | 750              | 8.0         | 3.2   | 35                        |
| 250                | 285.0 | 251.0 | 0.6       | 900              | 12.0        | 4.0   | 27                        |
| 300                | 336.5 | 300.5 | 0.8       | 1,200            | 13.0        | 7.0   | 22                        |

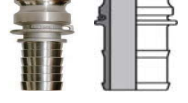


# DOLPHINFLEX COUPLING

## FLANGE TYPE

| COUPLINGS       | IMAGE                                                                             | TYPE             | SIZE        | MATERIAL                        |
|-----------------|-----------------------------------------------------------------------------------|------------------|-------------|---------------------------------|
| FLOATING FLANGE |  | ANSI / JIS / DIN | 1/2" TO 12" | STAINLESS STEEL<br>CARBON STEEL |
| FIXED FLANGE    |  | ANSI / JIS / DIN | 1/2" TO 12" | STAINLESS STEEL<br>CARBON STEEL |

## QUICK TYPE

| COUPLINGS | IMAGE                                                                               | TYPE                               | SIZE       | MATERIAL                                                  |
|-----------|-------------------------------------------------------------------------------------|------------------------------------|------------|-----------------------------------------------------------|
| PART A    |    | MALE COUPLING<br>(FEMALE NPT/PT)   | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART B    |  | FEMALE COUPLING<br>(MALE NPT/PT)   | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART C    |  | FEMALE COUPLING<br>(HOSE SHANK)    | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART D    |  | FEMALE COUPLING<br>(FEMALE NPT/PT) | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART E    |  | MALE COUPLING<br>(HOSE SHANK)      | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART F    |  | MALE COUPLING<br>(MALE NPT/PT)     | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART DC   |  | DUST CAP                           | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |
| PART DP   |  | DUST PLUG                          | 1/2" TO 8" | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>POLYPROPYLENE |



# DOLPHINFLEX CONNECTOR

## OTHER TYPE I

| COUPLINGS  | IMAGE                                                                               | TYPE | SIZE           | MATERIAL                                                   |
|------------|-------------------------------------------------------------------------------------|------|----------------|------------------------------------------------------------|
| ERC / DDC  |  | -    | 1" TO 10"      | STAINLESS STEEL                                            |
| AIR KING   |  | -    | 3/8" TO 1"     | STAINLESS STEEL<br>CARBON STEEL<br>BRASS<br>MALLEABLE IRON |
| JIS F 7335 |  | -    | 1/2" TO 2-1/2" | STAINLESS STEEL<br>BRASS                                   |
| 633 CPP    |  | -    | 4"             | ALUMINIUM                                                  |

## OTHER TYPE II

| COUPLINGS   | IMAGE                                                                                 | TYPE             | SIZE      | MATERIAL                                     |
|-------------|---------------------------------------------------------------------------------------|------------------|-----------|----------------------------------------------|
| Y-PIECE     |  | ANSI / JIS / DIN | 1" TO 16" | STAINLESS STEEL<br>CARBON STEEL<br>ALUMINIUM |
| REDUCER     |  | ANSI / JIS / DIN | 1" TO 16" | STAINLESS STEEL<br>CARBON STEEL<br>ALUMINIUM |
| ELBOW       |  | ANSI / JIS / DIN | 1" TO 16" | STAINLESS STEEL<br>CARBON STEEL<br>ALUMINIUM |
| TEE         |  | ANSI / JIS / DIN | 1" TO 16" | STAINLESS STEEL<br>CARBON STEEL<br>ALUMINIUM |
| SPOOL PIECE |  | ANSI / JIS / DIN | 1" TO 16" | STAINLESS STEEL<br>CARBON STEEL<br>ALUMINIUM |





# DOLPHINFLEX OTHER ITEM

## HOSE SUPPOTER

All the Dolphinflex hoses are required to be handled with proper support to protect hose from kinking and prolong its life.

Hose supporter is a polyurethane saddle, designed to suspend hoses. It is designed to accommodate the manufacturer's minimum bending radius.

|               |              |
|---------------|--------------|
| MATERIAL      | POLYURETHANE |
| HOSE DIAMETER | 3" - 12"     |



## HOSE SLING

Dolphinflex hose slings are designed for the cargo hose and should be used in the rated hitch only. A sling must be equipped in every 4 metre on the hose.

The hose slings support the hose properly, eliminating kinking and other damage. The hose slings are consist of 100% nylon.



## SKID

Dolphinflex skid prevents the damage when moving and storage. It is required to be place in every 1.5 metre

|                        |              |
|------------------------|--------------|
| MATERIAL               | CARBON STEEL |
| COLOUR                 | GREY         |
| WITH 4 x CASTER WHEELS |              |

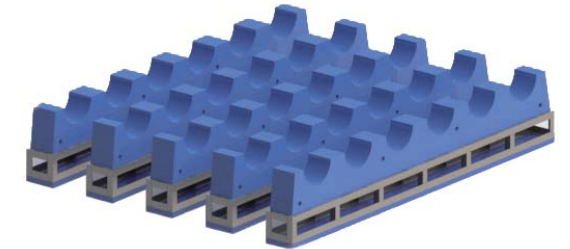


# DOLPHINFLEX OTHER ITEM

## STORAGE RACK

Dolphinflex storage rack is to shore the composite hose on the deck. It is required to be placed in every 1.5 meter.

|          |                        |
|----------|------------------------|
| MATERIAL | MC NYLON, CARBON STEEL |
| SIZE     | 3000*300*600 (APPROX.) |



## INSULATING FLANGE

A different principle of an insulating joint is to use a spool of insulating material bolted between two flanges.

|                    |                      |
|--------------------|----------------------|
| MATERIAL           | CAST NYLON, MACHINED |
| MELTING POINT      | 220 °C / 428 °F      |
| ELECT. RESISTIVITY | 10 Ohm/cm            |
| DIAMETER           | 3" - 12"             |



## INSULATION KIT

A different principle of an insulating joint is to use a spool of insulating material bolted between two flanges.

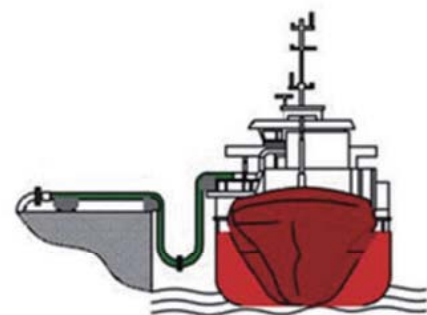
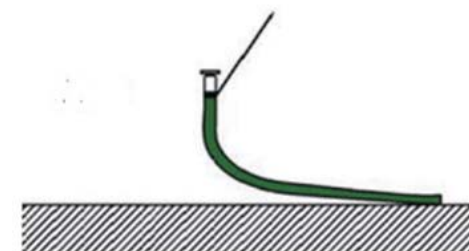
|                   |                     |
|-------------------|---------------------|
| INSULATION GASKET | TEFLON              |
| BOLT & NUT        | STAINLESS STEEL 316 |
| SLEEVE            | TEFLON              |
| WASHER            | TEFLON              |



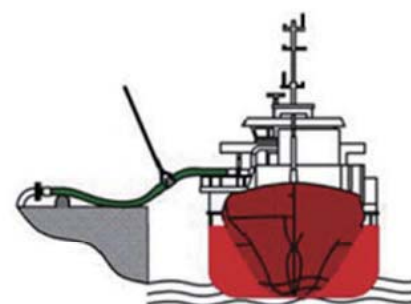
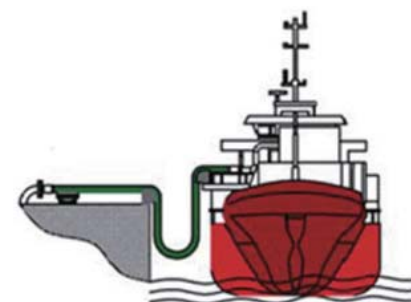


# DOLPHINFLEX HOSE HANDLING GUIDE

## INCORRECT



## CORRECT



# DOLPHINFLEX HOSE HANDLING GUIDE

## CONNECTING HOSE

- Butt first hose to pipe
- Line up bolt holes, insert a new gasket, torque bolts until snug and then a quarter turn or about 50 torque / pounds
- Support flange area if angle is severe
- Attach additional hoses the same way
- Final working hose goes to ship. Use crane, hook up hose with a sling behind the flange
- Support hose with a sling or hose bun
- Do not exceed minimum bend radius
- Route ground traffic away from hoses
- Keep hoses on Dock at all time. Should only be hung over the dock during fueling
- Do not use hoses as tow or mooring line

## HANDLING

Hose bun or hose sling are recommended for handling composite hoses. Never support composite hoses with a rope or wire.

## STORAGE

Hose should be stored straight, not coiled. Indoors if possible, away from ozone generating sources.

## REPAIRS

According to its general condition, the hose may or may not be repaired. Reparation of composite hose can be done by trained personnel with specialist knowledge.

## CLEANING

Hose should be cleaned after use and always before testing or prolonged storage.

- Thoroughly drain acid conveyants, or other reactive conveyants before cleaning to avoid exothermic reactions
- Electrically ground hose during cleaning to avoid static build up especially in the presence of flammable liquids or vapors
- Flush with fluids like fresh or sea water, hot water, detergents, common solvents at ambient temperatures
- Drain thoroughly after flushing, especially if sea water is used, to minimize inner wire and fittings corrosion or any chemical cleaning fluids / solvents to avoid any chemical reactions when hose is put back into service

- Steam or compressed air maybe used to clean hoses

- Hose must be open ended (no restrictions)
- Lay hose flat and straight.

## ELECTRICAL CONTINUITY TEST

To prevent the build-up of static electricity during use, all metal parts should remain connected during manufacture.

At a minimum, every six months the hoses should be examined.

- Stretch out the hose on the ground
- Test the electrical conductivity from end to end. Any hose which does not have electrical continuity should be placed out of service.

## HYDROSTATIC TEST

At least annually, hoses should be hydro tested as follows :

- Drain and thoroughly clean hose
- Lay the hose in a straight, horizontal and supported. Measure hose length
- Check external wear and damage to spiral outer wire and outer cover. Hoses failing visual inspection should not be tested
- Test the hose for electrical continuity
- Blank off ends and fill the hose completely with water
- Pressurize the 1.5 times the maximum rated working pressure and hold for 10 minutes during examining for leaks
- Release pressure and drain hose. Measure hose length and test the hose for electrical continuity

## INSPECTION

Damaged hoses could be dangerous. Hose should be visually examined before each operation. Displacement of reinforcing wires and impact damage to the hose carcass.

Abrasion or corrosion of the outer wire and abrasion of the outer cover. Displacement of damage to the end fittings.

*\*\* All information in this brochure was correct at time of publication.*

*We reserve the right to make alterations from time to time without notice. \*\**



# DOLPHINFLEX COMPOSITE HOSE CHEMICAL RESISTANCE CHART

## - Explanation of the codes :

A : Suitable for temperatures up to 60°C (=140°F)

B : Suitable for ambient temperatures (all over the world)

C : Recommended for intermittent service only

D : Not suitable, or no sufficient data available

For information if it is not mentioned in this chemical resistant list, Please do not hesitate to contact us.

This chemical resistant list indicates the resistant of "Dolphinflex Composite Hoses".

The requirements in practice are mostly of exchange nature, therefore the mentioned information is only proposed as indication.

# DOLPHINFLEX CHEMICAL RESISTANCE CHART

## ■ HOSE CODES

(a) : BLUE GG, (b) : BLACK PP, (c) : GREEN SS / SUB. SS(PP), (d) : RED SS / SUB. SS(PTFE)

| CHEMICAL NAME                     | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|-----------------------------------|----------------------------|-----|-----|-----|
|                                   | (a)                        | (b) | (c) | (d) |
| ACETALDEHYDE 100%                 | D                          | C   | C   | A   |
| ACETALDEHYDE 40%                  | D                          | A   | A   | A   |
| ACETIC ACID GLACIAL               | D                          | B   | B   | A   |
| ACETIC ACID 60%                   | D                          | A   | A   | A   |
| ACETIC ANHYDRIDE 100%             | D                          | B   | B   | A   |
| ACETO ACETIC ESTER 100%           | D                          | B   | B   | A   |
| ACETONE 100%                      | A                          | A   | A   | A   |
| ACETONE CYANOHYDRIN               | D                          | B   | B   | A   |
| ACETONITRILE                      | B                          | B   | B   | A   |
| ACETOPHENONE                      | B                          | B   | B   | A   |
| ACETYLACETONE                     | B                          | B   | B   | A   |
| ACETYL CHLORIDE                   | D                          | D   | D   | A   |
| ACETYLENE DICHLORIDE              | B                          | B   | B   | A   |
| ACROLEIN                          | B                          | B   | B   | A   |
| ACRYLIC ACID                      | D                          | B   | B   | B   |
| ACRYLONITRILE                     | A                          | A   | A   | A   |
| ADIPIC ACID AQUEOUS               | A                          | A   | A   | A   |
| ADIPONITRIL                       | B                          | B   | B   | A   |
| ALKYL BENZENE SULPHONIC A CID SOL | D                          | C   | B   | B   |
| ALLYL ALCOHOL                     | A                          | A   | A   | A   |
| ALLYL BROMIDE                     | C                          | C   | C   | A   |
| ALLYL CHLORIDE                    | C                          | C   | C   | B   |
| ALUMINIUM CHLORIDE SOL            | D                          | D   | A   | A   |
| ALUMINIUM SALTS SOL               | D                          | A   | B   | A   |
| ALUMINIUM SULPHATE SOL            | A                          | A   | A   | A   |
| ALUMS                             | A                          | A   | A   | A   |
| AMINOETHYL ETHANOLAMINE           | D                          | B   | B   | A   |
| AMMONIA SOL                       | D                          | A   | A   | A   |
| AMMONIUM CHLORIDE SOL             | D                          | A   | C   | C   |
| AMMONIUM HYDROXIDE                | B                          | B   | B   | A   |
| AMMONIUM NITRATE SOL              | D                          | C   | B   | A   |
| AMMONIUM SALTS                    | D                          | A   | B   | B   |
| AMMONIUM SULPHATE SOL             | A                          | A   | A   | A   |
| AMMONIUM SULPHIDE                 | A                          | A   | A   | A   |
| AMMONIUM THIOSULPHATE             | A                          | A   | A   | A   |
| AMYL ACETATE                      | C                          | C   | C   | A   |
| AMYL ALCOHOL                      | B                          | B   | B   | A   |
| AMYL CHLORIDE                     | C                          | C   | C   | B   |
| ANILINE                           | A                          | A   | A   | A   |
| ANIMAL OILS                       | A                          | A   | A   | A   |

| CHEMICAL NAME          | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|------------------------|----------------------------|-----|-----|-----|
|                        | (a)                        | (b) | (c) | (d) |
| ANISOLE                | C                          | C   | C   | B   |
| ANTIMONY CHLORIDE      | D                          | B   | B   | B   |
| AQUA REGIA             | D                          | C   | D   | D   |
| AROMATIC SPIRITS       | B                          | B   | B   | B   |
| ARSENIC ACID           | D                          | B   | C   | B   |
| ARSENIC CHLORIDE       | D                          | B   | D   | D   |
| AVIATION FUEL          | C                          | C   | C   | B   |
| BARIUM CARBONATE       | A                          | A   | A   | A   |
| BARIUM CHLORIDE SOL    | D                          | A   | D   | D   |
| BARIUM HYDROXIDE       | D                          | A   | A   | A   |
| BARIUM SULPHATE        | D                          | A   | A   | A   |
| BARIUM SULPHIDE        | D                          | A   | A   | A   |
| BARIUM SALTS           | D                          | A   | B   | A   |
| BEER                   | D                          | A   | A   | A   |
| BENZALDEHYDE           | D                          | C   | C   | A   |
| BENZENE (BENZOL)       | D                          | C   | C   | A   |
| BENZOIC ACID           | D                          | A   | A   | A   |
| BENZOYL CHLORIDE       | C                          | C   | C   | C   |
| BENZYL ACETATE         | D                          | B   | B   | A   |
| BENZYL ALCOHOL         | A                          | A   | A   | A   |
| BENZYL BUTYL PHTHALATE | B                          | B   | B   | B   |
| BEZYL CHLORIDE         | D                          | D   | D   | D   |
| BLEACH 12.5%           | D                          | B   | C   | B   |
| BORAX                  | A                          | A   | A   | A   |
| BORIC ACID             | D                          | A   | A   | A   |
| BRINE                  | D                          | A   | D   | D   |
| BUNKER OIL             | B                          | B   | B   | A   |
| BUTADIENE              | B                          | B   | B   | B   |
| BUTANOL                | B                          | B   | B   | B   |
| BUTYL ACETATE          | C                          | C   | C   | A   |
| BUTYL ACRYLATE         | B                          | B   | B   | B   |
| BUTYL ALCOHOL          | A                          | A   | A   | A   |
| BUTYL AMINE            | D                          | B   | B   | B   |
| BUTYL BENZENE          | B                          | B   | B   | B   |
| BUTYL BENZYL PHTHALATE | B                          | B   | B   | B   |
| BUTYL BROMIDE          | D                          | D   | D   | B   |
| BUTYL BUTYRATE         | B                          | B   | B   | B   |
| BUTYL CARBITOL         | A                          | A   | A   | A   |
| BUTYL CARBITOL ACETATE | C                          | C   | C   | A   |
| BUTYL CELLOSOLVE       | A                          | A   | A   | A   |



# DOLPHINFLEX CHEMICAL RESISTANCE CHART

■ HOSE CODES

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| CHEMICAL NAME |                                                      | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|------------------------------------------------------|----------------------------|-----|-----|-----|
|               |                                                      | (a)                        | (b) | (c) | (d) |
| B             | BUTYL CELLOSOLVE ACETATE                             | C                          | C   | C   | B   |
|               | BUTYL CHLORIDE                                       | D                          | D   | D   | B   |
|               | BUTYL / DECYL / CETYL – EICOSYL ETHACRYL ATE MIXTURE | D                          | D   | D   | B   |
|               | BUTYL DIETHOXOL                                      | D                          | B   | B   | B   |
|               | BUTYLENE GLYCOL                                      | A                          | A   | A   | A   |
|               | BUTYL ETHER                                          | B                          | B   | B   | A   |
|               | BUTYL ETHYL ETHER                                    | B                          | B   | B   | A   |
|               | BUTYL METHACRYLATE                                   | C                          | C   | C   | A   |
|               | BUTYL METHOXYETHYL ETHER                             | C                          | C   | C   | A   |
|               | BUTYL PHTHALATE                                      | A                          | A   | A   | A   |
|               | BUTYL STEARATE                                       | B                          | B   | B   | A   |
|               | BUTYRALDEHYDE                                        | C                          | C   | C   | A   |
|               | BUTYRIC ACID                                         | B                          | B   | B   | A   |
|               | BUTYRIC ANHYDRIDE                                    | B                          | B   | B   | B   |
|               | BUTYROLACETON                                        | C                          | C   | C   | A   |
| C             | CALCIUM ACETATE                                      | B                          | B   | B   | B   |
|               | CALCIUMALKYL PHENATE                                 | B                          | B   | B   | B   |
|               | CALCIUM ALKYL SALICYLATE SOL.                        | D                          | A   | A   | A   |
|               | CALCIUM ALUMINATE                                    | D                          | A   | A   | A   |
|               | CALCIUM BISULPHATE                                   | D                          | A   | A   | A   |
|               | CALCIUM CHLORIDE                                     | D                          | A   | C   | C   |
|               | CALCIUM HYDROXIDE                                    | D                          | A   | A   | A   |
|               | CALCIUM HYPOCHLORITE                                 | D                          | B   | C   | B   |
|               | CALCIUM NITRATE                                      | D                          | A   | A   | A   |
|               | CALCIUM SILICATE                                     | A                          | A   | A   | A   |
|               | CALCIUM SULPHATE                                     | D                          | A   | A   | A   |
|               | CALCIUM SULPHIDE                                     | D                          | A   | A   | A   |
|               | CALCIUM SULPHITE                                     | D                          | A   | A   | A   |
|               | CALCIUM SULPHYDRATE                                  | D                          | A   | A   | A   |
|               | CAMPHOR OIL                                          | C                          | C   | C   | A   |
|               | CAPRYLIC ACID                                        | A                          | A   | A   | A   |
|               | CARBINOLS                                            | B                          | B   | B   | A   |
|               | CARBITOLS                                            | B                          | B   | B   | A   |
|               | CARBITOLS ACETATE                                    | C                          | C   | C   | A   |
|               | CARBOLIC ACID                                        | D                          | A   | A   | A   |
|               | CARBOLIC OIL                                         | C                          | C   | C   | A   |
|               | CARBON BISULPHIDE                                    | D                          | B   | B   | B   |
|               | CARBON DISULPHIDE                                    | C                          | C   | C   | A   |
|               | CARBON MONOXIDE                                      | D                          | A   | A   | A   |
|               | CARBON TETRACHLORIDE                                 | C                          | C   | C   | A   |
| C             | CARBON ACID                                          | D                          | A   | A   | A   |
|               | CASHEW NUTSHELL OIL                                  | B                          | B   | B   | B   |
|               | CASTOR OIL                                           | D                          | B   | B   | B   |
|               | CAUSTIC POTASH                                       | D                          | A   | B   | A   |
|               | CAUSTIC SODA                                         | C                          | A   | B   | A   |
|               | CELLOSOLVE                                           | B                          | B   | B   | B   |
|               | CETYL ALCOHOL                                        | D                          | B   | B   | B   |
|               | CHLORINATED SOLVENTS                                 | D                          | B   | B   | B   |
|               | CHLORO ACETIC ACID                                   | D                          | B   | D   | D   |
|               | CHLORINE                                             | D                          | D   | D   | D   |
|               | CHLOROBENZENE                                        | C                          | C   | C   | A   |
|               | CHLOROBUTANE                                         | C                          | C   | C   | A   |
|               | CHLOROFORM                                           | C                          | C   | C   | A   |
|               | CHLOROHYDRINS                                        | C                          | C   | C   | A   |
|               | CHLOROPRENE                                          | C                          | C   | C   | A   |
|               | CHLOROPROPIONIC ACID                                 | D                          | C   | C   | -   |
|               | CHLOROSULPHONIC ACID                                 | D                          | D   | D   | -   |
| D             | CHLOROTHENE                                          | B                          | B   | B   | B   |
|               | CHLOROTOLUENE                                        | C                          | C   | C   | A   |
|               | CHROME ALUM                                          | D                          | A   | A   | A   |
|               | CHROMIC ACID AQUEOUS                                 | D                          | C   | C   | B   |
|               | CITIRIC ACID                                         | D                          | A   | A   | A   |
|               | COAL TAR NAPHTHA                                     | B                          | B   | B   | A   |
|               | DECALIN                                              | D                          | D   | D   | A   |
|               | DECANOL                                              | B                          | B   | B   | B   |
|               | DECYL ALCOHOL                                        | B                          | B   | B   | A   |
|               | DECYL ACRYLATE                                       | B                          | B   | B   | A   |
|               | DECYL BUTYL PHTHALATE                                | B                          | B   | B   | B   |
|               | DETERGENTS 2%                                        | A                          | A   | A   | A   |
|               | DEXTRIN                                              | A                          | A   | A   | A   |
|               | DIACETONE ALCOHOL                                    | B                          | B   | B   | A   |
|               | DIAMINOETHYLAMINE                                    | C                          | B   | B   | A   |
|               | DIAMYLAMINE                                          | C                          | B   | B   | A   |
|               | DIBROMOETHANE                                        | D                          | B   | B   | A   |
|               | DIBUTYLAMINE                                         | C                          | B   | B   | A   |
|               | DIBUTYL ETHER                                        | C                          | C   | C   | A   |
|               | DIBUTYL PHTHALATE                                    | B                          | B   | B   | A   |
|               | DIBUTYL SEBACATE                                     | B                          | B   | B   | A   |
|               | DICHLOROACETIC ACID                                  | D                          | C   | D   | D   |
|               | DICHLOROBENZENE                                      | C                          | C   | C   | A   |



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| CHEMICAL NAME |                                         | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|-----------------------------------------|----------------------------|-----|-----|-----|
|               |                                         | (a)                        | (b) | (c) | (d) |
| D             | DICHLOROBUTANE                          | C                          | C   | C   | A   |
|               | DICHLOROETHANE                          | C                          | C   | C   | A   |
|               | DICHLOROETHYLENE                        | C                          | C   | C   | B   |
|               | DICHLOROETHYL ETHER                     | C                          | C   | C   | A   |
|               | DICHLOROISOPROPYL ETHER                 | C                          | C   | C   | B   |
|               | DICHLROMETHANE                          | C                          | C   | C   | A   |
|               | DICHLOROPHENOL                          | C                          | C   | C   | B   |
|               | DICHLOROPROPANE                         | C                          | C   | C   | A   |
|               | DICHLOROPROPENE                         | C                          | C   | C   | B   |
|               | DICHLOROPROPYLENE                       | C                          | C   | C   | A   |
|               | DICHLOROPROPIONIC ACID                  | D                          | C   | D   | C   |
|               | DICYCLOPENTADIENE                       | D                          | D   | D   | D   |
|               | DIESEL OIL                              | B                          | B   | B   | A   |
|               | DIETHANOLAMINE                          | D                          | A   | A   | A   |
|               | DIETHYLAMINE                            | D                          | B   | B   | A   |
|               | DIETHYLAMINOETHANOL                     | C                          | B   | B   | A   |
|               | DIETHYLBENZENE                          | B                          | B   | B   | A   |
|               | DIETHYLENE DIOXIDE                      | D                          | B   | B   | A   |
| E             | DIETHYLENE GLYCOL                       | A                          | A   | A   | A   |
|               | DIETHYLENE GLYCOL DIETHYL ETHER         | B                          | B   | B   | A   |
|               | DIETHYLENE GLYCOL MONOBUTYL ETH.        | C                          | C   | C   | A   |
|               | DIETHYLENE TRIAMINE                     | D                          | B   | B   | A   |
|               | DIETHYL ETHANOLAMINE                    | D                          | B   | B   | A   |
|               | DIETHYL ETHER                           | B                          | B   | B   | A   |
|               | DIETHYL KETONE                          | B                          | B   | B   | A   |
|               | DIETHYL OXALATE                         | B                          | B   | B   | A   |
|               | DIETHYL PHTHALATE                       | A                          | A   | A   | A   |
|               | DIETHYL SEBACATE                        | A                          | A   | A   | A   |
|               | DIETHYL SUPHATE                         | D                          | B   | B   | A   |
|               | DIISOBUTYLAMINE                         | B                          | B   | B   | B   |
|               | DIISOBUTYLENE                           | C                          | C   | C   | A   |
|               | EPICHLOROHYDRIN                         | B                          | B   | B   | A   |
|               | ETHANOL                                 | A                          | A   | A   | A   |
|               | ETHANOLAMINE                            | B                          | A   | A   | A   |
|               | ETHOXY ETHANOL                          | C                          | C   | C   | A   |
| F             | ETHOXY ETHYL ACETATE                    | C                          | C   | C   | B   |
|               | ETHOXY PROPANOL                         | C                          | C   | C   | A   |
|               | ETHYL ACETATE                           | C                          | C   | C   | A   |
|               | ETHYL ACRYLATE                          | B                          | B   | B   | A   |
|               | ETHYL ALCOHOL                           | A                          | A   | A   | A   |
|               | ETHYL ALUMINIUM DICHLORIDE              | D                          | D   | D   | A   |
| E             | ETHYLAMINE                              | C                          | B   | B   | A   |
|               | ETHYLBENZENE                            | B                          | B   | B   | A   |
|               | ETHYL BUTANOL                           | B                          | B   | B   | A   |
|               | ETHYL BUTYLAMINE                        | C                          | B   | B   | B   |
|               | ETHYL CHLORIDE                          | C                          | C   | C   | A   |
|               | ETHYL CYCLOHEXANE                       | C                          | C   | C   | A   |
|               | ETHYL CYCLOHEXYLAMINE                   | C                          | C   | C   | B   |
|               | ETHYL ETHER                             | D                          | C   | C   | A   |
|               | ETHYL FORMATE                           | D                          | B   | B   | A   |
|               | ETHYL HEXANOIC ACID                     | D                          | B   | B   | B   |
|               | ETHYL HEXYL ACRYLATE                    | D                          | B   | B   | A   |
|               | ETHYL HEXYL ALCOHOL                     | A                          | A   | A   | A   |
|               | 2-ETHYLHEXYLAMINE                       | C                          | B   | B   | A   |
|               | ETHYL IODIDE                            | C                          | C   | C   | A   |
|               | ETHYL ISOBUTYL ETHER                    | D                          | B   | B   | A   |
|               | ETHYL METHYLACRYLATE                    | C                          | C   | C   | A   |
|               | ETHYL METHYL KETONE                     | B                          | B   | B   | B   |
| F             | ETHYL PHTHALATE                         | A                          | A   | A   | A   |
|               | 2-ETHYL 3-PROPYLACROLEIN                | C                          | C   | C   | A   |
|               | ETHYL PROPYL ETHER                      | B                          | B   | B   | A   |
|               | ETHYL PROPYL KETONE                     | C                          | C   | C   | A   |
|               | ETHYL SILICATE                          | A                          | A   | A   | A   |
|               | ETHYL SULPHATE                          | B                          | B   | B   | A   |
|               | ETHYL VINYL ETHER                       | B                          | B   | B   | A   |
|               | ETHYLENE CARBONATE                      | C                          | B   | B   | A   |
|               | ETHYLENE CHLORIDE                       | C                          | C   | C   | A   |
|               | ETHYLENE CHLOROHYDRIN                   | B                          | B   | B   | A   |
|               | ETHYLENE CYANOHYDRIN                    | D                          | C   | C   | A   |
|               | ETHYLENE DIAMINE                        | B                          | B   | B   | A   |
|               | ETHYLENE DIBROMIDE                      | C                          | B   | B   | A   |
|               | ETHYLENE DICHLORIDE                     | D                          | C   | C   | A   |
|               | ETHYLENE GLYCOL                         | A                          | A   | A   | A   |
|               | ETHYLENE GLYCOL METHYL BUTYL ETHER      | B                          | B   | B   | A   |
|               | ETHYLENE GLYCOL MONOBUTYL ETHER         | A                          | A   | A   | A   |
|               | ETHYLENE GLYCOL MONOBUTYL ETHER ACETATE | B                          | B   | B   | A   |
| F             | ETHYLENE OXIDE                          | D                          | B   | B   | A   |
|               | FATTY ACIDS                             | D                          | A   | A   | A   |
|               | FATTY ALCOHOLS                          | A                          | A   | A   | A   |
| E             | FERRIC SALTS                            | D                          | A   | B   | B   |





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| CHEMICAL NAME |                               | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|-------------------------------|----------------------------|-----|-----|-----|
|               |                               | (a)                        | (b) | (c) | (d) |
| F             | FLUOSILICIC ACID              | D                          | A   | A   | A   |
|               | FORMALDEHYDE SOL              | D                          | A   | A   | A   |
|               | FORMAMIDE                     | D                          | A   | B   | A   |
|               | FORMIC ACID                   | D                          | A   | B   | A   |
|               | FRUIT JUICE                   | D                          | A   | A   | A   |
|               | FRUCTOSE                      | A                          | A   | A   | A   |
|               | FUEL OIL                      | B                          | B   | B   | A   |
|               | FURFURAL                      | C                          | C   | C   | A   |
|               | FURFURYL ALCOHOLS             | C                          | C   | C   | A   |
|               | GALLIC ACID SOL               | C                          | A   | A   | A   |
| G             | GASOLINE                      | B                          | B   | B   | A   |
|               | GELATINE AQUEOUS              | A                          | A   | A   | A   |
|               | GLUCONIC ACID                 | C                          | A   | A   | A   |
|               | GLUCOSE AQUEOUS               | A                          | A   | A   | A   |
|               | GLYCERINE                     | A                          | A   | A   | A   |
|               | GLYCOLS AQUEOUS               | A                          | A   | A   | A   |
|               | GLYCOLIC ACID AQUEOUS         | D                          | A   | A   | A   |
|               | GREASE                        | B                          | B   | B   | B   |
|               | GREEN SULPHATE LIQUOR         | D                          | B   | B   | B   |
|               | HEPTANE                       | B                          | B   | B   | A   |
| H             | HEPTANOIC ACID                | D                          | B   | B   | A   |
|               | HEPTANOL                      | A                          | A   | A   | A   |
|               | HEPTANONE                     | B                          | B   | B   | A   |
|               | HEPTENE                       | B                          | B   | B   | A   |
|               | HEXAMETHYLENE DIAMINE         | D                          | B   | B   | A   |
|               | HEXAMETHYLENE IMINE           | D                          | C   | C   | B   |
|               | HEXAMETHYLENE TETRAMINE       | D                          | B   | B   | A   |
|               | HEXANE                        | B                          | B   | B   | A   |
|               | HEXANOL                       | A                          | A   | A   | A   |
|               | HEXENE                        | B                          | B   | B   | B   |
| I             | HEXYLAMINE                    | D                          | B   | B   | A   |
|               | HEXYLENE                      | B                          | B   | B   | A   |
|               | HEXYLENE GLYCOL               | A                          | A   | A   | A   |
|               | HYDRAZINE HYDRATE             | D                          | B   | B   | A   |
|               | HYDROBROMIC ACID              | D                          | A   | D   | D   |
|               | HYDROCHLORIC ACID             | D                          | C   | D   | D   |
|               | HYDROFLUORIC ACID             | D                          | B   | D   | D   |
|               | HYDROFLUOSILIC ACID           | D                          | A   | A   | A   |
|               | HYDROGEN PEROXIDE SOL         | D                          | B   | B   | B   |
|               | HYDROGEN SULPHIDE AQUEOUS     | D                          | A   | D   | D   |
| J             | 2-HYDROXYETHYL ACRYLATE       | C                          | C   | C   | A   |
|               | HYDROXYETHYL ETHYLENE DIAMINE | C                          | C   | C   | A   |
|               | IODINE SOL                    | D                          | B   | D   | D   |
|               | IRON SALTS                    | D                          | A   | D   | A   |
|               | IRON HALIDES                  | D                          | A   | D   | D   |
|               | ISOAMYL ACETATE               | C                          | C   | C   | A   |
|               | ISOAMYL ALCOHOL               | B                          | B   | B   | A   |
|               | ISOAMYL BROMIDE               | D                          | B   | D   | D   |
|               | ISOAMYL BUTYRATE              | D                          | B   | B   | A   |
|               | ISOAMYL CHLORIDE              | D                          | C   | D   | A   |
| K             | ISOAMYL ETHER                 | B                          | B   | B   | A   |
|               | ISOBUTYL ACETATE              | C                          | C   | C   | A   |
|               | ISOBUTYL ACRYLATE             | B                          | B   | B   | A   |
|               | ISOBUTYL ALCOHOL              | A                          | A   | A   | A   |
|               | ISOBUTYLAMINE                 | D                          | B   | B   | A   |
|               | ISOBUTYL BROMIDE              | D                          | B   | D   | D   |
|               | ISOBUTYL CHLORIDE             | D                          | B   | D   | D   |
|               | ISOBUTYL ETHER                | C                          | C   | C   | A   |
|               | ISOBUTYL FORMATE              | C                          | C   | C   | C   |
|               | ISOBUTYL METHYL KETONE        | B                          | B   | B   | A   |
| L             | ISOBUTYRALDEHYDE              | D                          | D   | D   | A   |
|               | ISODECYL ALCOHOL              | A                          | A   | A   | A   |
|               | ISOOCCTANE                    | C                          | C   | C   | A   |
|               | ISOPENTANE                    | C                          | C   | C   | A   |
|               | ISOPENTENE                    | C                          | C   | C   | A   |
|               | ISOPHORONE                    | B                          | B   | B   | B   |
|               | ISOPHORONE DIAMINE            | C                          | C   | C   | B   |
|               | ISOPHORONE DIISOCYANATE       | C                          | C   | C   | B   |
|               | ISOPRENE                      | B                          | B   | B   | A   |
|               | ISOPROPANOLAMINE              | D                          | B   | B   | A   |
| M             | ISOPROPYL ACETATE             | C                          | C   | C   | A   |
|               | ISOPROPYL ALCOHOL             | A                          | A   | A   | A   |
|               | ISOPROPYLAMINE                | D                          | B   | B   | A   |
|               | ISOPROPYL BENZENE             | B                          | B   | B   | B   |
|               | ISOPROPYL CHLORIDE            | D                          | B   | D   | B   |
|               | ISOPROPYL ETHER               | D                          | B   | D   | B   |
|               | ISOPROPYL TOLUENE             | B                          | B   | B   | B   |
|               | ISOVALERALDEHYDE              | D                          | D   | D   | A   |
|               | JAMS                          | B                          | A   | A   | A   |
|               | JET FUEL                      | C                          | C   | C   | A   |
| N             | METHYL CHLORIDE               | C                          | C   | C   | A   |
|               | METHYL CYANIDE                | B                          | B   | B   | A   |
|               | METHYL CYCLOHEXANE            | B                          | B   | B   | A   |
|               | METHYLENE BROMIDE             | C                          | C   | C   | A   |
|               | METHYLENE CHLORIDE            | C                          | C   | C   | B   |
|               | METHYL ETHYL KETONE           | C                          | C   | C   | A   |
|               | METHYL ETHYLPYDRINE           | C                          | C   | C   | B   |
|               | METHYL FORMATE                | C                          | C   | C   | A   |
|               | METHYL HEPTYL KETONE          | D                          | B   | B   | B   |
|               | METHYL ISOBUTYL KETONE        | C                          | C   | C   | A   |
| O             | METHYL METHACRYLATE           | C                          | C   | C   | A   |
|               | METHYL NITROBENZENE           | B                          | B   | B   | B   |
|               | METHYL PENTENE                | B                          | B   | B   | A   |
|               | 2-METHYL PENTENE              | C                          | C   | C   | A   |
|               | METHYL PYRIDRINE              | D                          | B   | B   | B   |
|               | METHYL STYRENE                | B                          | B   | B   | A   |
|               | MINERAL OIL                   | B                          | B   | B   | A   |
|               | MINERAL SPIRITS               | B                          | B   | B   | A   |
|               | MOLASSES                      | A                          | A   | A   | A   |
|               | MONOCHLORO BENZENE            | B                          | B   | B   | B   |
| P             | MONOETHANOLAMINE              | B                          | A   | A   | A   |
|               | MONOETHYLAMINE                | C                          | B   | B   | A   |
|               | MONOSIOPROPANOLAMINE          | D                          | B   | B   | B   |
|               | MONONITROBENZENE              | B                          | B   | B   | A   |
|               | MORPHOLINE                    | B                          | B   | B   | A   |
|               | NAPHTA                        | B                          | B   | B   | A   |
|               | NAPHTA SOLVENT                | C                          | C   | C   | A   |
|               | NAPHTALENE IN SOL.            | A                          | A   | A   | A   |
|               | NEOHEXANE                     | B                          | B   | B   | B   |
|               | NICKEL CHLORIDE               | D                          | A   | D   | D   |
| Q             | NICKEL SALTS                  | D                          | A   | D   | B   |
|               | NITRIC ACID 10%               | D                          | A   | A   | A   |
|               | NITRIC ACID 60%               | D                          | C   | C   | C   |
|               | NITRIC ACID 70%               | D                          | D   | D   | C   |
|               | NITROBENZENE                  | B                          | B   | B   | A   |
|               | 9-NITROPHENOL                 | D                          | A   | A   | A   |
|               | NITROPROPANE                  | C                          | C   | C   | A   |
|               | NITROPOLUENE                  | B                          | B   | B   | A   |
|               | NONANE                        | B                          | B   | B   | A   |
|               | NONYL ALCOHOL                 | B                          | B   | B   | A   |



# DOLPHINFLEX CHEMICAL RESISTANCE CHART

■ HOSE CODES

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| CHEMICAL NAME |                           | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|---------------------------|----------------------------|-----|-----|-----|
|               |                           | (a)                        | (b) | (c) | (d) |
| K             | KEROSENE                  | B                          | B   | B   | A   |
|               | KETONES                   | B                          | B   | B   | A   |
|               | LACTIC ACID               | D                          | A   | B   | A   |
|               | LANOLIN                   | A                          | A   | A   | A   |
|               | LARD                      | A                          | A   | A   | A   |
|               | LATEX                     | A                          | A   | A   | A   |
|               | LAURYL ALCOHOL            | B                          | B   | B   | A   |
|               | LEAD ACETATE              | D                          | A   | A   | A   |
|               | LEAD SALTS                | D                          | A   | B   | B   |
|               | LIGROIN                   | C                          | C   | C   | A   |
| L             | LIMONENE                  | B                          | B   | B   | A   |
|               | LINSEED OIL               | A                          | A   | A   | A   |
|               | LUBRICATION OIL           | B                          | B   | B   | A   |
|               | MAGNESIUM SALTS           | D                          | A   | B   | B   |
|               | MALEIC ACID IN SOL        | D                          | A   | B   | B   |
|               | MALEIC ANHYDRIDE IN SOL   | D                          | B   | B   | B   |
|               | MALIC ACID IN SOL         | D                          | B   | B   | B   |
|               | MANGANESE SALTS           | D                          | A   | B   | B   |
|               | MEAT JUICES               | D                          | A   | A   | A   |
|               | MERCURIC CHLORIDE         | D                          | A   | D   | D   |
| M             | MESITYL OXIDE             | B                          | B   | B   | A   |
|               | METHACRYLIC ACID          | D                          | B   | B   | A   |
|               | METHANOL                  | A                          | A   | A   | A   |
|               | METHAXYLENE               | D                          | B   | B   | B   |
|               | METHYL ACETATE            | C                          | C   | C   | A   |
|               | METHYL ACETO ACETATE      | D                          | C   | C   | B   |
|               | METHYL ACETONE            | B                          | B   | B   | A   |
|               | METHYL ACRYLATE           | B                          | B   | B   | A   |
|               | METHYL ALCOHOL            | A                          | A   | A   | A   |
|               | METHYLAMINE               | C                          | B   | B   | B   |
| N             | METHYLAMYL ACETATE        | C                          | C   | C   | A   |
|               | METHYLAMYL ALCOHOL        | B                          | B   | B   | A   |
|               | METHYLAMYL KETONE         | B                          | B   | B   | A   |
|               | METHYL BUTYL ALCOHOL      | A                          | A   | A   | A   |
|               | METHYL TERT-BUTYL ETHER   | C                          | C   | C   | A   |
|               | METHYL BUTYL KETONE       | B                          | B   | B   | A   |
|               | METHYL BUTYRALDEHYDE      | D                          | D   | D   | A   |
|               | METHYL CARBITOL           | A                          | A   | A   | A   |
|               | METHYL CELLOSOLVE         | B                          | B   | B   | B   |
|               | METHYL CELLOSOLVE ACETATE | C                          | C   | C   | B   |
| O             | METHYL CHLORIDE           | C                          | C   | C   | A   |
|               | METHYL CYANIDE            | B                          | B   | B   | A   |
|               | METHYL CYCLOHEXANE        | B                          | B   | B   | A   |
|               | METHYLENE BROMIDE         | C                          | C   | C   | A   |
|               | METHYLENE CHLORIDE        | C                          | C   | C   | B   |
|               | METHYL ETHYL KETONE       | C                          | C   | C   | A   |
|               | METHYL ETHYLPYDRINE       | C                          | C   | C   | B   |
|               | METHYL FORMATE            | C                          | C   | C   | A   |
|               | METHYL HEPTYL KETONE      | D                          | B   | B   | B   |
|               | METHYL ISOBUTYL KETONE    | C                          | C   | C   | A   |
| P             | METHYL METHACRYLATE       | C                          | C   | C   | A   |
|               | METHYL NITROBENZENE       | B                          | B   | B   | B   |
|               | METHYL PENTENE            | B                          | B   | B   | A   |
|               | 2-METHYL PENTENE          | C                          | C   | C   | A   |
|               | METHYL PYRIDRINE          | D                          | B   | B   | B   |
|               | METHYL STYRENE            | B                          | B   | B   | A   |
|               | MINERAL OIL               | B                          | B   | B   | A   |
|               | MINERAL SPIRITS           | B                          | B   | B   | A   |
|               | MOLASSES                  | A                          | A   | A   | A   |
|               | MONOCHLORO BENZENE        | B                          | B   | B   | B   |
| Q             | MONOETHANOLAMINE          | B                          | A   | A   | A   |
|               | MONOETHYLAMINE            | C                          | B   | B   | A   |
|               | MONOSIOPROPANOLAMINE      | D                          | B   | B   | B   |
|               | MONONITROBENZENE          | B                          | B   | B   | A   |
|               | MORPHOLINE                | B                          | B   | B   | A   |
|               | NAPHTA                    | B                          | B   | B   | A   |
|               | NAPHTA SOLVENT            | C                          | C   | C   | A   |
|               | NAPHTALENE IN SOL.        | A                          | A   | A   | A   |
|               | NEOHEXANE                 | B                          | B   | B   | B   |
|               | NICKEL CHLORIDE           | D                          | A   | D   | D   |
| R             | NICKEL SALTS              | D                          | A   | D   | B   |
|               | NITRIC ACID 10%           | D                          | A   | A   | A   |
|               | NITRIC ACID 60%           | D                          | C   | C   | C   |
|               | NITRIC ACID 70%           | D                          | D   | D   | C   |
|               | NITROBENZENE              | B                          | B   | B   | A   |
|               | 9-NITROPHENOL             | D                          | A   | A   | A   |
|               | NITROPROPANE              | C                          | C   | C   | A   |
|               | NITROPOLUENE              | B                          | B   | B   | A   |
|               | NONANE                    | B                          | B   | B   | A   |
|               | NONYL ALCOHOL             | B                          | B   | B   | A   |





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| CHEMICAL NAME |                                     | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|-------------------------------------|----------------------------|-----|-----|-----|
|               |                                     | (a)                        | (b) | (c) | (d) |
| N             | NONYL PHENOL                        | C                          | C   | C   | A   |
|               | OCTANE                              | B                          | B   | B   | A   |
|               | OCTANOL                             | B                          | B   | B   | A   |
|               | OCTYL ACETATE                       | C                          | C   | C   | A   |
|               | OCTYL ACRYLATE                      | B                          | B   | B   | A   |
|               | OCTYL CARBINOL                      | B                          | B   | B   | B   |
|               | OLEIC ACID                          | D                          | B   | B   | A   |
|               | OLEUM                               | D                          | D   | D   | B   |
|               | OXALIC ACID                         | D                          | B   | B   | A   |
| O             | PALM OIL                            | B                          | B   | B   | A   |
|               | PARAFINE WAX                        | A                          | A   | A   | A   |
|               | 1.3-PENTADIENE                      | C                          | C   | C   | A   |
|               | PENTANE                             | B                          | B   | B   | A   |
|               | PENTANOL                            | A                          | A   | A   | A   |
|               | PENTANONE                           | B                          | B   | B   | A   |
|               | PERCHLORIC ACID                     | D                          | B   | D   | D   |
|               | PERCHLOROETHYLENE                   | C                          | C   | C   | A   |
|               | PETROLATUM                          | A                          | A   | A   | A   |
| P             | PETROLEUM                           | A                          | A   | A   | A   |
|               | PETROLEUM ETHER                     | C                          | C   | C   | A   |
|               | PETROLEUM NAPHTA                    | C                          | C   | C   | A   |
|               | PHENOL                              | B                          | A   | A   | A   |
|               | PHENOXYETHANOLC                     | C                          | C   | C   | B   |
|               | PHENYLHYDRAZINE                     | D                          | C   | C   | B   |
|               | PHOSPHORUS                          | D                          | D   | D   | D   |
|               | PHOSPHORIC ACID 96%                 | D                          | A   | A   | A   |
|               | PHOSPHORUS OXYCHLORIDE              | D                          | C   | D   | D   |
| S             | PHOSPHORUS PENTOXIDE                | D                          | A   | B   | B   |
|               | PHOSPHORUS TRICHLORIDE              | D                          | B   | D   | D   |
|               | PHTHALIC ACID                       | D                          | B   | B   | B   |
|               | PHTHALIC ANHYDRIDE                  | D                          | D   | D   | D   |
|               | PICRIC ACID AQUEOUS                 | D                          | B   | B   | B   |
|               | PINENE                              | B                          | B   | B   | A   |
|               | PINE OIL                            | B                          | B   | B   | A   |
|               | PLASTICISERS                        | B                          | B   | B   | A   |
|               | POLYETHYLENE                        | B                          | B   | B   | A   |
| T             | POLYETHYLENE POLYAMINES             | D                          | C   | C   | A   |
|               | POLYPROPYLENE GLYCOL                | B                          | B   | B   | A   |
|               | POTASSIUM SALTS                     | D                          | A   | B   | A   |
|               | PROPANOIC ACID                      | D                          | B   | B   | A   |
|               | PROPIOLACTONE                       | C                          | C   | C   | A   |
|               | PROPIONALDEHYDE                     | D                          | C   | C   | A   |
|               | PROPIONIC ACID                      | D                          | B   | B   | A   |
|               | PROPIONIC ANHYDRIDE                 | D                          | C   | C   | B   |
|               | PROPIONITRILE                       | C                          | C   | C   | C   |
| U             | PROPYL ACETATE                      | C                          | C   | C   | A   |
|               | PROPYL ALCOHOL                      | A                          | A   | A   | A   |
|               | PROPYLAMINE                         | D                          | B   | B   | A   |
|               | PROPYLENE GLYCOL                    | A                          | A   | A   | A   |
|               | PROPYLENE GLYCOL MONOE THYL ETHER   | B                          | B   | B   | A   |
|               | PROPYLENE GLYCOL MONOE METHYL ETHER | B                          | B   | B   | A   |
|               | PROPYLENE (TETRAMER - TRIMMER)      | C                          | C   | C   | B   |
|               | PROPYLENE OXIDE                     | D                          | B   | B   | B   |
|               | PRUSSIC ACID                        | D                          | A   | A   | A   |
| V             | PYRIDENE                            | D                          | B   | B   | A   |
|               | PYROSULPHURIC ACID                  | D                          | D   | D   | B   |
|               | SALT SOL                            | D                          | A   | B   | A   |
|               | SEA WATER                           | D                          | A   | B   | B   |
|               | SEWAGE                              | D                          | B   | B   | B   |
|               | SILICON OIL                         | A                          | A   | A   | A   |
|               | SILVER HALIDES                      | D                          | A   | D   | D   |
|               | SILVER SALTS                        | D                          | A   | B   | B   |
|               | SOAP SOL.                           | B                          | A   | A   | A   |
| W             | SODIUM CHLORIDE                     | D                          | A   | D   | D   |
|               | SODIUM DICHROMATE                   | D                          | B   | D   | D   |
|               | SODIUM HYDROSULPHIDE                | D                          | A   | B   | B   |
|               | SODIUM HYDROXIDE                    | D                          | A   | B   | B   |
|               | SODIUM HYPOCHLORITE                 | D                          | C   | D   | D   |
|               | SODIUM SALTS                        | D                          | A   | B   | B   |
|               | SODIUM THIOSULPHATE                 | D                          | A   | B   | B   |
|               | STARCH AQUEOUS                      | B                          | A   | A   | A   |
|               | STYRENE MONOMER                     | B                          | B   | B   | A   |
| X             | SUGAR SYROP                         | A                          | A   | A   | A   |
|               | SULPHAMIC ACID                      | D                          | A   | A   | A   |
|               | SULPHUR DIOXIDE                     | D                          | C   | C   | C   |
|               | SULPHUR LIQUID                      | D                          | D   | D   | D   |
|               | SULPHURIC ACID <20%                 | D                          | B   | B   | B   |
|               | SULPHURIC ACID 20% - 85%            | D                          | B   | D   | D   |
|               | SULPHURIC ACID >85%                 | D                          | C   | C   | B   |
|               | SULPHUROUS ACID                     | D                          | B   | B   | B   |
|               | TALL OIL                            | A                          | A   | A   | A   |
| Y             | TALLOW                              | A                          | A   | A   | A   |
|               | TANNIC ACID                         | D                          | A   | A   | A   |
|               | TARTARIC ACID                       | D                          | A   | B   | A   |
|               | TETRACHLOROETHANE                   | C                          | C   | C   | A   |
|               | TETRACHLOROETHYLENE                 | C                          | C   | C   | A   |
|               | TETRAETHYLENE GLYCOL                | B                          | B   | B   | A   |
|               | TETRAETHYLENE PENTAMINE             | D                          | B   | B   | B   |
|               | TETRAHYDROFURAN                     | D                          | D   | D   | A   |
|               | TETRAHYDRONAPHTALENE                | C                          | C   | C   | A   |
| Z             | TIN HALIDES                         | D                          | A   | D   | D   |
|               | TIN SALTS                           | D                          | A   | D   | D   |
|               | TITANIUM TETRACHLORIDE              | D                          | C   | D   | D   |
|               | TOLUENE DIISOCYANATE                | B                          | B   | B   | A   |
|               | TRANSFORMER OIL                     | B                          | B   | B   | A   |
|               | TRANSMISSION OIL                    | B                          | B   | B   | A   |
|               | TRIBUTYLAMINE                       | B                          | B   | B   | A   |
|               | TRIBUTYL PHOSPHATE                  | B                          | B   | B   | A   |
|               | TRICHLOROACETIC ACID                | D                          | A   | B   | B   |
| AA            | TRICHLORO BENZENE                   | D                          | C   | C   | A   |
|               | TRICHLOROETHANE                     | C                          | C   | C   | A   |
|               | TRICHLOROETHYLENE                   | C                          | C   | C   | A   |
|               | TRICHLOROPROPANE                    | C                          | C   | C   | A   |
|               | TRICRESYL PHOSPHATE                 | B                          | B   | B   | A   |
|               | TRIDECANOL                          | B                          | B   | B   | A   |
|               | TRIETHANOLAMINE                     | D                          | B   | B   | B   |
|               | TRIETHYLAMINE                       | D                          | B   | B   | B   |
|               | TRIETHYLBENZENE                     | B                          | B   | B   | A   |
| BB            | TRITHYLENE GLYCOL                   | A                          | A   | A   | A   |
|               | TRIETHYLENE TETRAMINE               | D                          | B   | B   | A   |
|               | TRIMETHYL ACETIC ACID               | D                          | A   | A   | A   |
|               | TRIMETHYLBENZENE                    | B                          | B   | B   | A   |
|               | TRIMETHYL HEXAMETHYLEN E DIAMINE    | C                          | C   | C   | B   |
|               | TRIOCTYL PHOSPHATE                  | B                          | B   | B   | A   |
|               | TRIPROPYLENE GLYCOL                 | A                          | A   | A   | A   |
|               | TRIXYLENYL PHOSPHATE                | B                          | B   | B   | A   |
|               | TURPENTINE                          | C                          | C   | C   | A   |
| CC            | UREA AQUEOUS                        | B                          | A   | B   | A   |
|               | UREA AMMONIA SOL.                   | B                          | A   | B   | A   |

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| CHEMICAL NAME |                                  | DOLPHINFLEX COMPOSITE HOSE |     |     |     |
|---------------|----------------------------------|----------------------------|-----|-----|-----|
|               |                                  | (a)                        | (b) | (c) | (d) |
| S             | SULPHURYL CHLORIDE               | D                          | D   | D   | D   |
|               | TALL OIL                         | A                          | A   | A   | A   |
|               | TALLOW                           | A                          | A   | A   | A   |
|               | TANNIC ACID                      | D                          | A   | A   | A   |
|               | TARTARIC ACID                    | D                          | A   | B   | A   |
|               | TETRACHLOROETHANE                | C                          | C   | C   | A   |
|               | TETRACHLOROETHYLENE              | C                          | C   | C   | A   |
|               | TETRAETHYLENE GLYCOL             | B                          | B   | B   | A   |
|               | TETRAETHYLENE PENTAMINE          | D                          | B   | B   | B   |
| T             | TETRAHYDROFURAN                  | D                          | D   | D   | A   |
|               | TETRAHYDRONAPHTALENE             | C                          | C   | C   | A   |
|               | TIN HALIDES                      | D                          | A   | D   | D   |
|               | TIN SALTS                        | D                          | A   | D   | D   |
|               | TITANIUM TETRACHLORIDE           | D                          | C   | D   | D   |
|               | TOLUENE DIISOCYANATE             | B                          | B   | B   | A   |
|               | TRANSFORMER OIL                  | B                          | B   | B   | A   |
|               | TRANSMISSION OIL                 | B                          | B   | B   | A   |
|               | TRIBUTYLAMINE                    | B                          | B   | B   | A   |
| U             | TRIBUTYL PHOSPHATE               | B                          | B   | B   | A   |
|               | TRICHLOROACETIC ACID             | D                          | A   | B   | B   |
|               | TRICHLORO BENZENE                | D                          | C   | C   | A   |
|               | TRICHLOROETHANE                  | C                          | C   | C   | A   |
|               | TRICHLOROETHYLENE                | C                          | C   | C   | A   |
|               | TRICHLOROPROPANE                 | C                          | C   | C   | A   |
|               | TRICRESYL PHOSPHATE              | B                          | B   | B   | A   |
|               | TRIDECANOL                       | B                          | B   | B   | A   |
|               | TRIETHANOLAMINE                  | D                          | B   | B   | B   |
| V             | TRIETHYLAMINE                    | D                          | B   | B   | B   |
|               | TRIETHYLBENZENE                  | B                          | B   | B   | A   |
|               | TRITHYLENE GLYCOL                | A                          | A   | A   | A   |
|               | TRIETHYLENE TETRAMINE            | D                          | B   | B   | A   |
|               | TRIMETHYL ACETIC ACID            | D                          | A   | A   | A   |
|               | TRIMETHYLBENZENE                 | B                          | B   | B   | A   |
|               | TRIMETHYL HEXAMETHYLEN E DIAMINE | C                          | C   | C   | B   |
|               | TRIOCTYL PHOSPHATE               | B                          | B   | B   | A   |
|               | TRIPROPYLENE GLYCOL              | A                          | A   | A   | A   |
| W             | TRIXYLENYL PHOSPHATE             | B                          | B   | B   | A   |
|               | TURPENTINE                       | C                          | C   | C   | A   |
|               | UREA AQUEOUS                     | B                          | A   | B   | A   |
|               | UREA AMMONIA SOL.                | B                          | A   | B   | A   |
| X             | VALERALDEHYDE                    | C                          | C   | C   | A   |
|               | VASELINE                         | A                          | A   | A   | A   |
|               | VEGETABLE OIL                    | A                          | A   | A   | A   |
|               | VINEGAR                          | D                          | A   | A   | A   |
|               | VINYL ACETATE                    | D                          | B   | B   | A   |
|               | VINYL ETHYL ETHER                | C                          | C   | C   | A   |
|               | VINYL ACETATE                    |                            |     |     |     |
|               | VINYLDENE CHLORIDE               | C                          | C   | C   | A   |
|               | VINYL NEODECANONATE              | C                          | C   | C   | A   |
| Y             | VINYL TOLUENE                    | B                          | B   | B   | A   |
|               | WATER                            | A                          | A   | A   | A   |
|               | WHITE SPIRIT                     | B                          | B   | B   | B   |
|               | WINE                             | D                          | B   | B   | A   |
|               | XYLENE                           | B                          | B   | B   | A   |
|               | XYLENOL                          | B                          | B   | B   | A   |
|               | YEAST AQUEOUS                    | D                          | A   | A   | A   |
|               | ZINC HALIDES                     | D                          | A   | D   | D   |
|               | ZINE SALTS AQUEOUS               | D                          | A   | B   | B   |

