



mentis
AFRICA

Andrew Mentis (PTY) Ltd Reg no: 1960/002319/07 T/A Mentis Africa



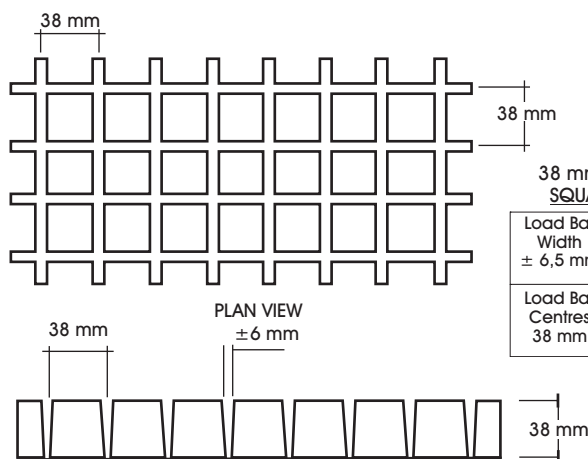
MOULDED FIBREGLASS GRATING



GENERIC SPECIFICATIONS

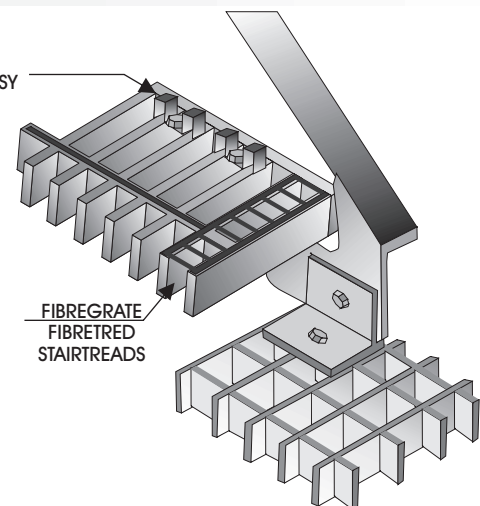
For Grating and Stairtreads

Manufacturer	Fibergate® Composite Structures
Supplier	Mentis Sales
Chemical Duty	Acidic and low concentration Alkali conditions Highly Acidic and Alkali conditions
Resin System	Corvex® (IFR) - The resin formulation is designed for industrial and chemical processing applications where corrosion resistance is important. ViCorr® - High grade chemical resistant Vinyl Ester.
Manufacture Method	Compression molded, with a 65% resin to 35% fibreglass ratio.
Mesh Pattern	Grating - 38mm x 38mm Square mesh pattern, in order to ensure bi-directional load carrying capability Stairtreads - 150mm x 38mm Complete with molded reinforced, silica non-slip bull nose
Fire Retardancy	Complies with ASTM E-84 Flame Spread rating of 25 or less Complies with ASTM E-84 Flame Spread rating of 15 or less.
UV Stable	Yes
Colour	Green or Dark Grey Orange
Surface Finish	Non-slip miniscus
Panel Sizes	Grating - 2,44m x 1,22m - 3,66m x 1,22m Stairtreads - 3,05m x 0,572m PLEASE NOTE - The stair tread panels can be cut into the following end-banded sizes: - 6 No. 900mm x 268mm x 38mm Treads per panel. - 8 No. 750mm x 268mm x 38mm Treads per panel. - 10 No. 600mm x 268mm x 38mm Treads per panel
Panel Depth	Grating - 38mm (Heavy Duty). Stairtreads - 38mm (Heavy Duty)
Weight	± 18kg/m ² for 38mm
Loading	Grating - 38mm (Heavy Duty) Maximum Recommended Load @ 1,22m Span = 865kg/m ² Maximum Recommended Load @ 1,22m Span = 2300kg/m² Ultimate Load @ 1,22m Span = 4 880kg/m ² (Safety Factor 5:1) Stairtreads - 38mm (Heavy Duty) Deflection for a centre point load of 230kg on a 760mm wide stair is 5mm Deflection for a centre point load of 230kg on a 750mm wide stair is 5mm



38 mm x 38 mm SQUARE MESH	
Load Bar Width ± 6,5 mm	Open Area 70%
Load Bar Centres 38 mm	Approx. Mass 18,3kg/m ²

M - 2
HOLD DOWN ASSY



Engineering Values Per 300mm of Width
A = 18.38cm² I = 21.23cm⁴ S = 10.65cm³ Avg EI = 1MN-m²



APPLICATIONS

- | | | |
|------------------|----------------------|--------------------|
| * Oil & Gas | * Telecommunications | * Commercial |
| * Pharmaceutical | * Transportation | * Food & Beverage |
| * Power | * Water & Wastewater | * Manufacturing |
| * Pulp & Paper | * Bridge & Highway | * Metals & Mining |
| * Recreation | * Chemical | * Microelectronics |

FEATURES

BENEFIT

FIBREGLASS CONSTRUCTION	Won't rust, resists corrosion, last longer, virtually maintenance free and does not need painting.
NON-SLIP SURFACE FINISH	Either miniscus or grit surface provides excellent slip resistance in both directions, thereby reducing slips and falls.
OPTIMUM GLASS FIBRE CONTENT	Increases load carrying capabilities and corrosion resistance.
ONE PIECE MOULDED CONSTRUCTION	Strength in both directions, no loosening with use, easier to fabricate and install. no end banding required.
NON-CONDUCTIVE	Provides electrical insulation, doesn't conduct heat.
1/3 THE WEIGHT OF STEEL	Allows installation of larger sections, easier to handle and remove for maintenance.
TAPERED BAR CONSTRUCTION	Facilitates cleaning; prevents build up of debris.
EASE OF FABRICATION	Can be fabricated and installed using hand tools; does not require welding or banding.

RESIN SYSTEMS

VICORR : A vinyl ester resin system, which was developed for use in the toughest environments. It offers outstanding resistance to a wide range of highly corrosive situations from, caustics to acids. ASTM-84 flame spread rating of 15 or less. Colour is Orange.

CORVEX : A high grade Isophthalic Polyester resin system, which is designed for medium industrial and chemical processing applications. ASTM-84 flame spread rating of 20 or less. Colour is Green or Grey

PANEL CONFIGURATION

PANEL DEPTH	PANEL SIZE	MASS	RESIN SYSTEM	
			VICORR (Orange)	CORVEX (Grey or Green)
FLOOR GRATING PANELS				
38mm	2,44m x 1,22m	54 kg	+	+
	3,66m x 1,22m	80 kg	+	+

NOTES:

- All floor grating is to have a 38 x 38 square mesh pattern
- All floor grating comes complete with non-slip miniscus surface finish.
- A minimum of 4No. clips per section of grating are required and 8No. clips per full size panel.

GUIDELINES FOR THE ENGINEER AND DESIGNER

Application Notes: Moulded FRP Gratings

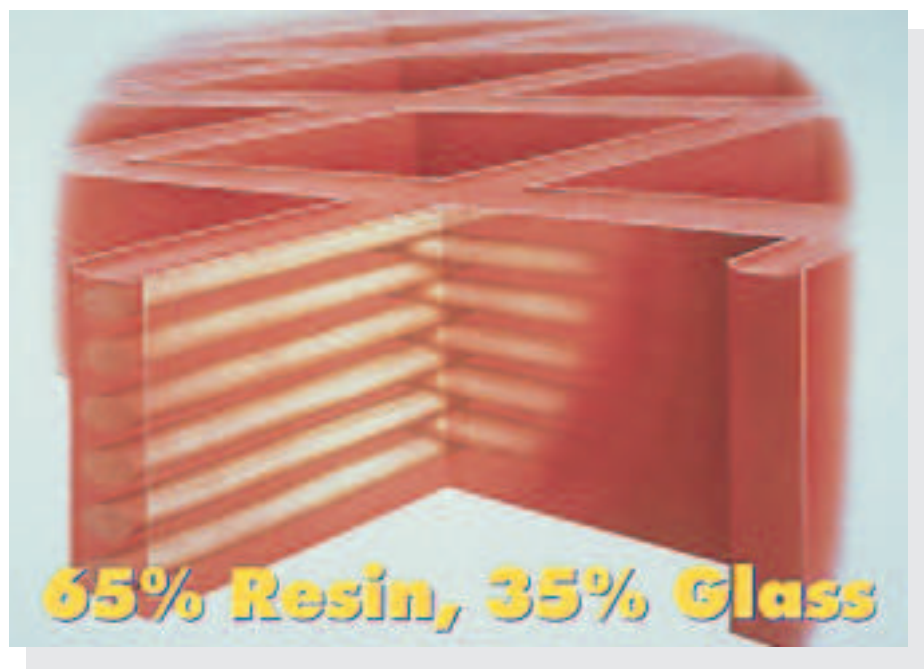
1. Grating panels installed over multiple spans will reduce deflections.

1.1 Hold Down Clips: Gratings must be mechanically fastened in place to prevent sliding. Each grating panel should be fastened to each supporting structure using a minimum of four "M" style hold down clips. For larger panels, 6 to 8 hold down clips are recommended. Gratings installed in trenches where they are captive in an embedment angle do not require hold down clips unless bearing surfaces are uneven and the grating panels would tend to rock.

1.2 Abutting edges of moulded grating panels should be supported by structural members or fastened together using "F" style clips at a maximum spacing of 600mm on center. This will prevent differential deflection when one of the abutting gratings is loaded.

1.3 Due to the bi-directional nature of square mesh moulded gratings, unsupported holes of limited size may be cut into the edges or interior of the panels without the use of additional supports. This is very useful for applications which involve pipe penetrations. As a rule of thumb, as long as no more than 1/3 of the individual grating panel width is removed by such a hole, no additional support will be required.

1.4 Edge Banding: Unlike steel and aluminum gratings it is not necessary to edge band moulded gratings for structural reasons. As FRP cannot be welded, edge banding will not transmit load to the grating.



CLIP ASSEMBLIES

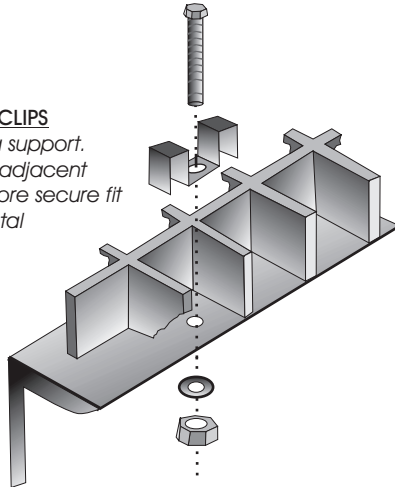
For Moulded Grating and Plate

Mentis Sales offers specially-designed attachments and clips, both to fasten panels together and to secure them to support structures.

All types are made of Type 316 Stainless Steel and are available for 38mm deep grating. Install clips a maximum of every 1200mm and use at least four clips per piece of grating (At least eight clips per 1200mm x 3660mm panel).

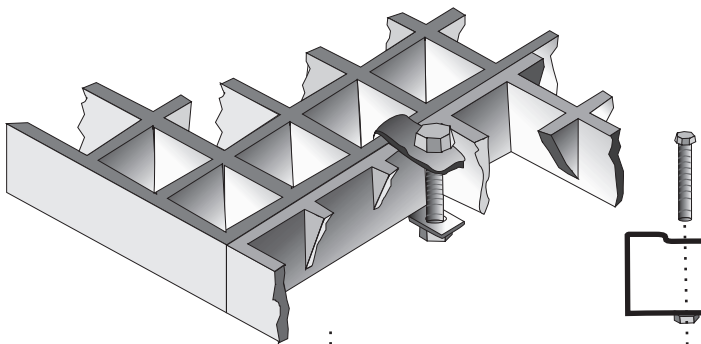
TYPE M HOLD DOWN CLIPS

To secure panels to a support. Designed to use two adjacent grating bars for a more secure fit (Similar design to metal grating saddle clips).



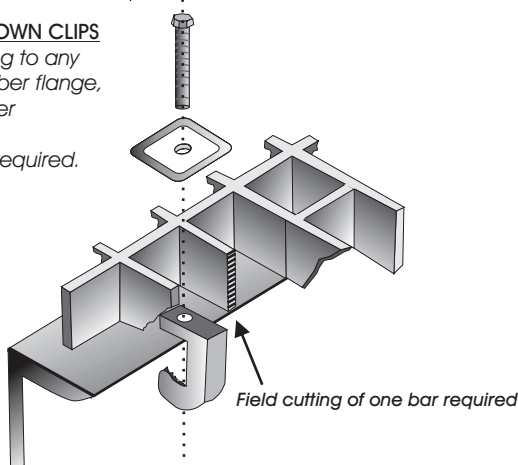
TYPE F END PANEL CLIPS

To provide a simplified method for joining factory edges of adjacent abutting panels. (Not for use with Chemgrate resins)



TYPE G HOLD DOWN CLIPS

To attach grating to any structural member flange, 20mm or smaller in thickness, with no drilling required.



Corrosion Resistant:

Fibregrate® moulded fiberglass products are known for their ability to provide corrosion resistance in the harshest environments and chemical exposures.

Slip Resistant:

The meniscus and integrally applied grit surfaces of Fibregrate® moulded products have unmatched slip resistance for improved worker safety.

Low Maintenance:

The corrosion resistant properties of FRP grating and other products reduce or eliminate the need for sandblasting, scraping and painting. Products are also easily cleaned with a high pressure washer.

Fire Retardant:

Flame spread rating of .25 or less, as tested in accordance with ASTM E-84, and meets the self-extinguishing requirements of ASTM D- 635.

High Strength to Weight Ratio:

Less than one-half the weight of steel grating, allowing easy removal for access below floor level and installation with no heavy equipment and less manpower.

Electrically & Thermally Non Conductive:

Fiberglass is electrically non conductive for safety and has low thermal conductivity which results in a more comfortable product when physical contact occurs.

Impact Resistant:

Fibregrate® moulded products show superior impact resistance when compared to steel gratings.

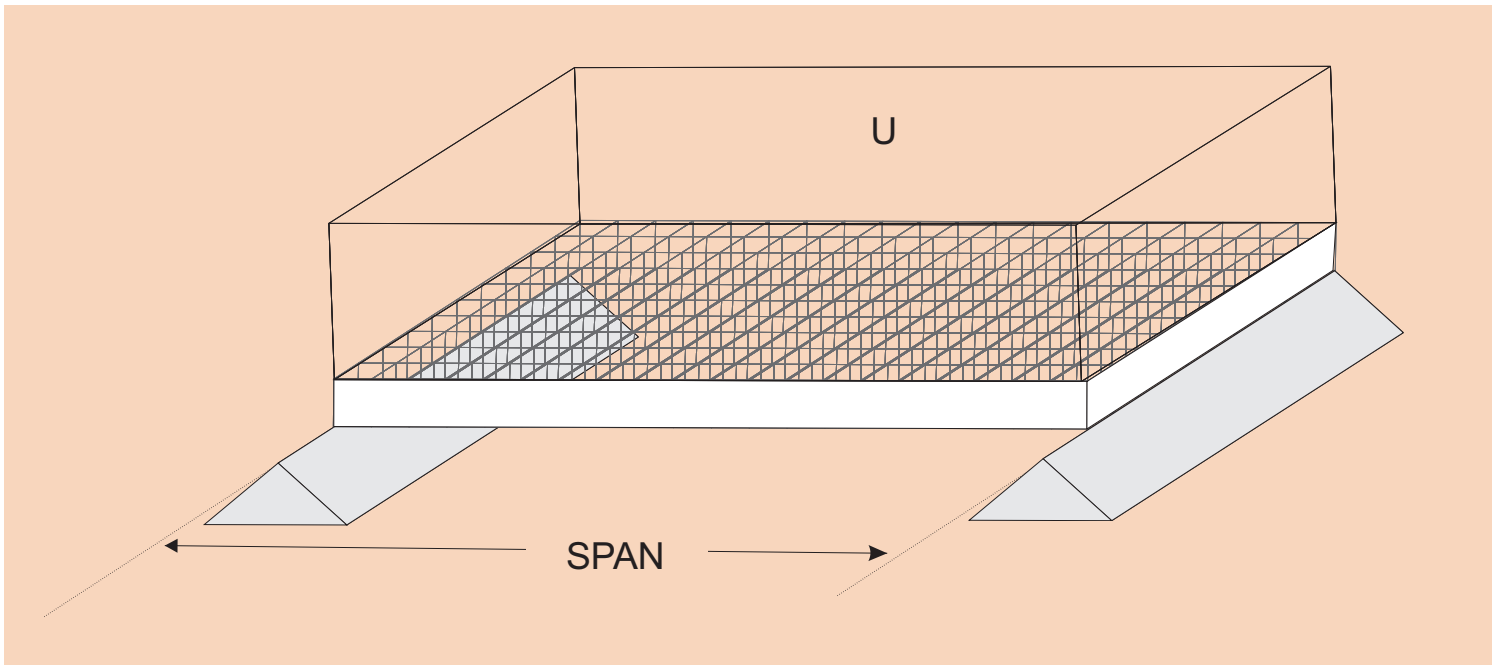
Low Install Cost:

Due to ease of fabrication and light weight, FRP moulded grating eliminates the need for heavy lifting equipment.

Long Service Life:

Fiberglass products provide outstanding durability and corrosion resistance in demanding applications, therefore providing improved product life over traditional materials. .

LOAD TABLES - MENTIS SALES RESINS



Moulded Grating Uniform Load Tables = Deflection in mm

CLEAR SPAN (mm)	STYLE		LOADS = Kg/m ²									MAX RECOMMENDED RESIN SYSTEM		ULTIMATE CAPACITY
	DEPTH (mm)	MESH (mm x mm)	250	350	500	750	1000	1500	2500	5000	10000	CORVEX	VICORR XFR	
300	38	38 x 38	0.25	0.25	0.25	0.25	0.25	0.26	0.52	1.03	1.82	13832	37594	50875
450	38	38 x 38	0.25	0.25	0.26	0.52	0.76	1.03	1.79	3.59	7.17	6147	16708	33918
600	38	38 x 38	0.52	0.80	1.02	1.50	1.57	3.08	5.37	10.75	-	3457	9399	19530
750	38	38 x 38	1.27	1.64	2.31	3.57	4.61	6.92	11.77	23.30	-	2212	6015	12499
900	38	38 x 38	2.56	3.59	5.12	7.68	10.23	15.12	25.36	-	-	1538	4179	8681
1050	38	38 x 38	4.35	6.07	8.71	13.30	17.66	26.37	44.03	-	-	1128	3071	6376
1200	38	38 x 38	7.18	10.15	14.34	21.74	28.92	43.49	-	-	-	864	2348	4882
1350	38	38 x 38	10.76	15.13	21.51	32.48	43.01	64.75	-	-	-	684	1855	3857

NOTES:

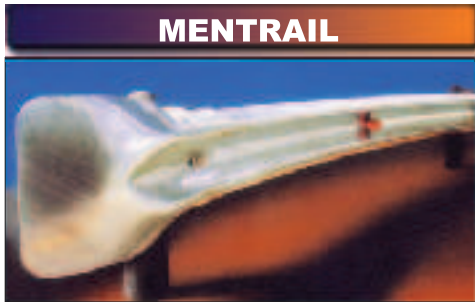
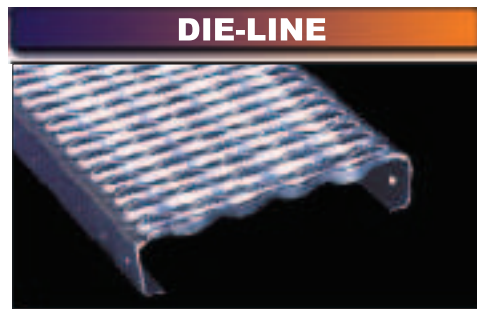
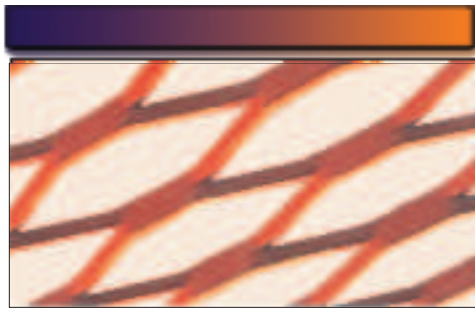
1. In some cases where 0.25mm deflection is recorded, the recorded actual value may be less.
2. Spans not listed have not been tested.
3. Ultimate loads have not been determined.



CHEMICAL RESISTANCE GUIDE

Chemical Environment	% Concentration	Temp °F	Moulded Fibergate®				
			ViCORR	Super ViCORR	Corvex	FGI - AM	XFR
ACETIC ACID	50	MAX	C	C	C	C	I
ACETONE	100	75	S	S	I	I	I
ALCOHOLS	100	120	C	C	I	I	S
ALUM	ALL	MAX	C	C	C	C	C
ALUMINIUM CHLORIDE	ALL	MAX	C	C	C	C	C
ALUMINIUM FLUORIDE	20	75	C	C	I	I	I
AMMONIUM HYDROXIDE	30	75	C	C	N	N	N
AMMONIUM SALTS-NEUTRAL	ALL	120	C	C	C	C	S
AMMONIUM SALTS-AGRESSIVE	ALL	75	S	C	I	I	I
AROMATIC SOLVENTS	ALL	75	T	T	N	N	N
BARIUM SALTS	ALL	MAX	C	C	C	C	C
BENZENE	100	140	I	S	I	I	I
BLACK LIQUOR (Pulp Mill)	ALL	MAX	C	C	I	I	I
BLEACH LIQUOR (Pulp Mill)	ALL	MAX	C	C	I	I	N
CALCIUM HYDROXIDE	25	MAX	C	C	S	S	I
CALCIUM HYPOCHLORITE	ALL	MAX	C	C	I	I	I
CALCIUM SALTS	ALL	MAX	C	C	C	C	C
CARBON TETRACHLORIDE	100	75	C	C	I	I	S
CHLORINATED HYDROCARBONS	100	75	T	T	T	T	N
CHLORINE DIOXIDE	SAT	140	C	C	N	N	N
CHLORINE WATER	SAT	120	C	C	I	I	I
CHLORINE, WET	SAT	MAX	C	C	N	N	N
CHLOROENZENE	100	75	S	S	N	N	N
CHLOROENZENE	ALL	Up to 100	C	C	N	N	N
CHLOROFORM	100	75	N	N	N	N	N
CHROMIC ACID	50	140	S	S	S	S	N
CITRIC ACID	ALL	MAX	C	C	C	C	C
COPPER CYANIDE PLATING	ALL	125	C	C	S	S	N
COPPER SALTS	ALL	MAX	C	C	C	C	C
CRUDE OIL (Sweet or Sour)	ALL	MAX	C	C	C	C	C
DICHLOROENZENE	100	75	T	S	N	N	N
ETHERS	75	75	T	T	N	N	N
FERRIC CHLORIDE	100	MAX	C	C	C	C	C
FERRIC SALTS	ALL	MAX	C	C	C	C	C
FLUORIDE SALTS+HCl	ALL	75	C	C	S	S	I
FLUOSILICIC ACID	10	75	C	C	S	S	S
FORMALDEHYDE	37	150	C	C	I	I	I
FORMIC ACID	25	100	C	C	S	S	I
FUEL (Diesel, Jet, Gasoline)	ALL	100	C	C	C	C	C
GLYCERINE	100	MAX	C	C	C	C	C
GREEN LIQUOR (Pulp Mill)	ALL	MAX	C	C	N	N	N
HYDROBROMIC ACID	48	MAX	S	S	S	S	I
HYDROCHLORIC ACID	10	MAX	C	C	S	S	C
HYDROCHLORIC ACID	30	MAX	C	C	S	S	I
HYDROCHLORIC ACID (Concentrated)	ALL	Up to 180	I	C	N	N	N
HYDROCYANIC ACID	ALL	MAX	C	C	I	I	I
HYDROFLUORIC ACID	20	75	S	C	N	N	N
HYDROGEN PEROXIDE	30	75	C	C	N	N	I
LACTIC ACID	100	MAX	C	C	C	C	C
LIME SLURRY	SAT	MAX	C	C	C	C	C
LITHIUM CHLORIDE	SAT	MAX	N	C	N	N	N
LITHIUM SALTS	ALL	MAX	C	C	C	C	C
MAGNESIUM SALTS	ALL	MAX	C	C	C	C	C
MALEIC ACID	100	MAX	C	C	S	S	C
MERCURY CHLORIDE	100	MAX	C	C	C	C	C
NICKEL SALTS	ALL	MAX	C	C	C	C	C
NITRIC ACID	20	120	C	C	S	S	I
NITRIC ACID	35	100	C	C	N	N	I
NITRIC ACID	40	Ambient	I	C	N	N	N
NITRIC, HYDROFLUORIC	20.2	75	I	C	N	N	N
NITROUS ACID	10	75	C	C	C	C	C
OZONE (For Sewerage Treatment)		100	C	C	C	C	C
PERCHLOROETHYLENE	100	75	S	C	N	N	I
PHENOL	10	75	C	C	N	N	N
PHENOL	88	Ambient	S	C	N	N	N
PHOSPHORIC ACID	85	MAX	C	C	C	C	C
PHOSPHORIC ACID (Super)	115	MAX	C	C	I	I	S
POTASSIUM HYDROXIDE	10	120	C	C	I	I	N
POTASSIUM SALTS	ALL	MAX	C	C	C	C	C
SILVER NITRATE	100	MAX	C	C	C	C	C
SODIUM CYANIDE	ALL	75	C	C	I	I	I
SODIUM HYDROXIDE	50	MAX	C	C	I	I	N
SODIUM HYDROXIDE	10	MAX	C	C	N	N	N
SODIUM HYPOCHLORITE (Stable)	10	100	C	C	S	S	S
SODIUM SALTS - (Neutral)	ALL	MAX	C	C	C	C	C
SODIUM SALTS - (Aggressive)	ALL	75	S	C	I	I	I
SULFUR DIOXIDE	SAT	MAX	C	C	S	S	S
SULFURIC ACID	25	MAX	C	C	S	S	S
SULFURIC ACID	50	MAX	C	C	S	S	S
SULFURIC ACID	75	100	C	C	I	I	I
TOLUENE	100	120	S	C	I	I	N
TRICHLOROETHANE 1,1,1	ALL	75	S	C	I	I	I
TRISODIUM PHOSPHATE	50	MAX	C	C	I	I	I
WATER (Fresh, Salt, Moderate D.I.)	100	MAX	C	C	C	C	C
WET CHLORINE (Hydrochloric Acid)	10-20	Up to 350	S	C	N	N	N
WHITE LIQUOR (Pulp Mill)	ALL	MAX	C	C	I	I	I
ZINC CHLORIDE PLATING	ALL	75	C	C	S	S	S
ZINC SALTS	100	MAX	C	C	C	C	C

C - Continuous exposure of the grating to the Chemical Environment listed.
 S - Frequent exposure of the grating to splashes and spills from the Chemical Environment listed with that environment at the temperature listed.
 I - Infrequent exposure of the grating to splashes and spills from the Chemical Environment listed with that environment at the temperature listed and the spill immediately cleaned up or washed from the grating.
 N - Not recommended for the concentrations and temperatures listed.
 T - Test.
 MAX TEMP is 400°F for Super ViCORR, 180°C for ViCORR, 150°C for CORVEX, FGI-AM, XFR.
 The information in this Corrosion Guide is correct to the best of Fibregate's knowledge. It is based on extensive experience with fibreglass grating in corrosive applications. Because actual use conditions differ and mixtures of corrosives will occur in service, the end user must test for the use under actual conditions.



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SABS
509001

PRODUCT RANGE

- * Rectagrid Grating
- * Gripweld Grating * Fibreglass Grating
- * Mentex & Flatex Expanded Metal
- * Industrial Handrail Systems

- * Die-Line Safety Walkways
- * Grating Trench Covers
- * Stormwater Gratings and Frames
- * Steel Scaffold Planks

- * Mentrail Guardrails for Roads
- * Hexmesh Refractory Reinforcements
- * Armourment Steel Floor Tiles
- * Building Products

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