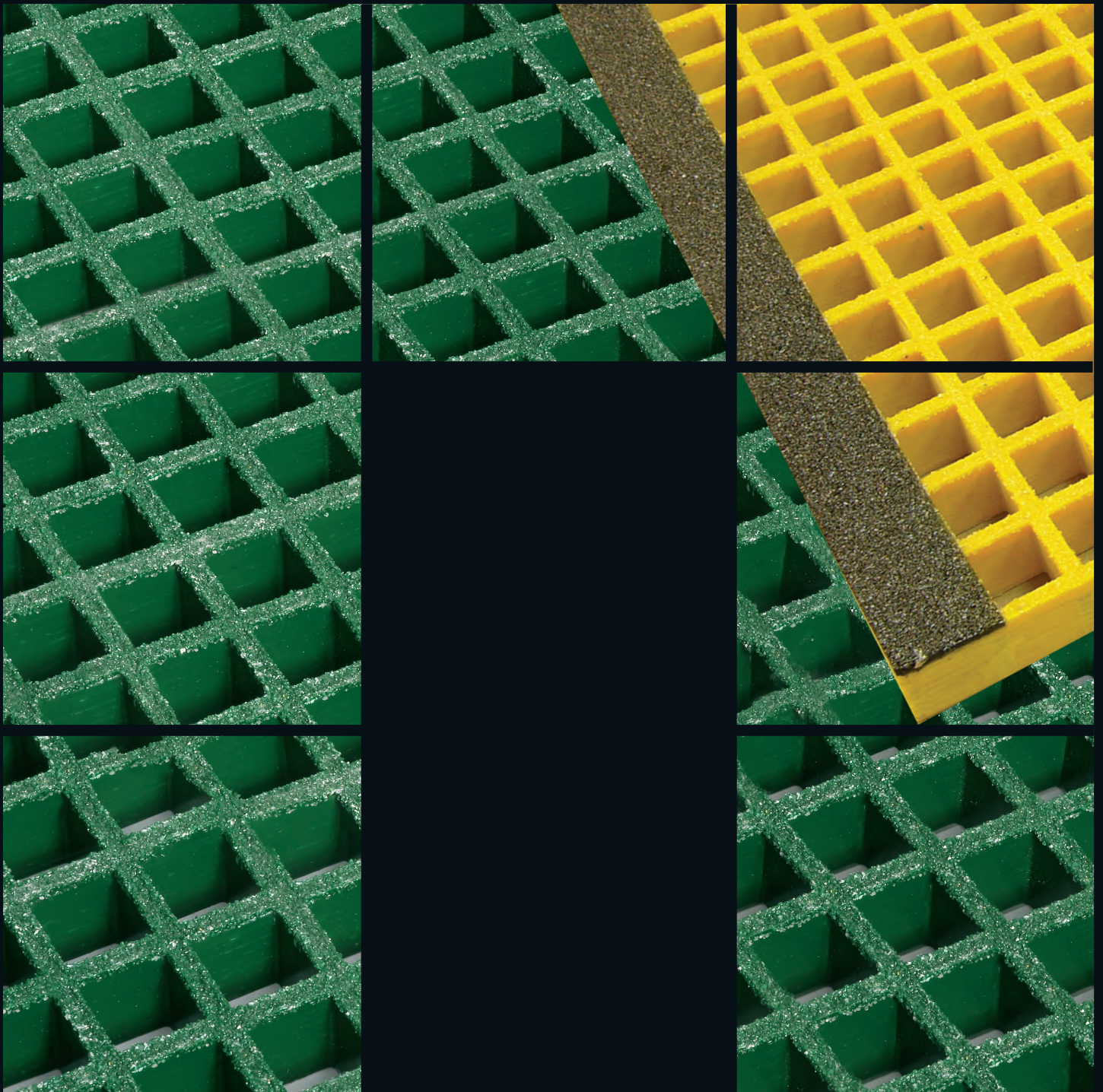


NEPEAN
Building &
Infrastructure

TM

Weldlok® Fibreglass Grating



NEPEAN Building & Infrastructure is a division of NEPEAN, Australia's largest privately owned engineering, mining services and industrial manufacturing organisation.

Through our renowned Weldlok® brand, we manufacture and supply grating, handrails and drainage products, as well as perforated and expanded metals in a variety of materials, including galvanised mild steel, stainless steel and aluminium.

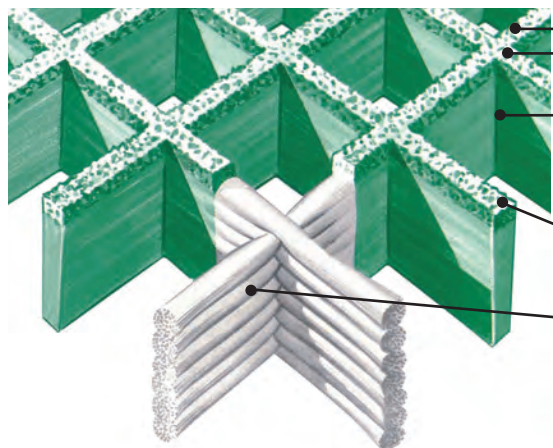
This brochure is designed to assist the draftsman, engineer, fabricator and specifier in the correct selection of our fibre-reinforced plastic (FRP) grating.

Ask our sales team for a copy of these and other Weldlok® product brochures.

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Special features of Weldlok® FRP grating



- One piece construction distributes load to bearing bars in both directions.
- The physical properties rely on the tensile strength of the glass fibres and the depth of the load bars.
- Coarse quartz grit built into the top surface provides a long lasting anti-slip finish.
- Continuous E-glass fibres laid in alternating layers in both horizontal directions is thoroughly wetted with thermosetting resin to provide excellent chemical resistance.

FRP Grating Applications

- > Maintenance walkways
- > Industrial access platforms
- > Disabled access ramps
- > Marinas, jetties, pontoons
- > Oil and gas platforms
- > Pedestrian bridges
- > Transmission tower platforms
- > Tourist site walkways
- > Petroleum refining access platforms
- > Water and sewage treatment plants
- > Food processing plants

Weldlok FRP grating is available in the following resin types

RESIN TYPE	AVAILABILITY	PROPERTIES see table of chemical resistance on page 7	Flame spread rating ASTM E84	APPLICATIONS Refer page 7
Isophthalic polyester	Standard in all grating patterns	Very good chemical resistance, good flame resistance, best general purpose resin	Class 1, 25 or less	Most applications including food and beverage processing, salt environments, waste water, certain chemical industries
Vinyl ester	Box pattern, standard Minimesh, Solid cover and Rectangular patterns, on request	Improved chemical resistance, good flame resistance	Class 1, 25 or less	Especially suitable for highly aggressive environments and high temperatures
Phenolic	All grating patterns, on request	Specially formulated for very high flame resistance and low smoke development	Class 1, 5 or less	Wherever a high flame resistance is required, e.g. offshore oil rigs

WELDLOK® FIBREGLASS WALKWAY GRATING

Properties of fibre reinforced plastic (FRP) grating

CHEMICAL RESISTANCE

High resin content provides resistance to a wide range of chemicals. See table on page 7.

ANTI-SLIP SURFACE

The coarse quartz grit finish where applied to the walking surface, provides excellent anti-slip performance.

FIRE RESISTANCE

Flame retardants are added to the resins to improve the fire resistance.

RESISTANT TO ULTRA VIOLET RADIATION

UV inhibitors are incorporated into the resin to reduce the effects of ultraviolet radiation. However, some loss of colour will occur on long exposure.

HIGH IMPACT RESISTANCE

FRP grating resists the effects of high impact loading which may superficially damage the surface but does not allow penetration.

HIGH STIFFNESS TO WEIGHT RATIO

High strength, with E-glass rovings moulded into a square grid grating pattern, provides a stiff and light flooring panel suitable for foot traffic

over a wide range of spans. See span/load/deflection tables for each grating pattern.

STIFFNESS IN BOTH DIRECTIONS

Due to the box pattern arrangement, FRP grating has load bar strength in both directions.

LIGHTWEIGHT PANELS

The lightweight nature of FRP grating allows for ease of handling compared with other materials.

NON ELECTRICALLY CONDUCTIVE

The non-metallic properties of FRP grating makes it ideal for electrically hazardous locations.

TRANSPARENT TO RADIO FREQUENCY

FRP grating does not cause any interference and is transparent to radio frequency transmissions.

NON SPARKING

FRP grating with plain and concave upper surfaces will not cause sparking when impacted by metallic objects.

COST PERFORMANCE

Compared to other materials, the use of FRP grating results in a long life product with low installation costs.

Ordering Information

1. Find the grating pattern and colour which suits your application, pages 4 & 5
2. Find the depth of load bars to suit the clear span and load of your application, pages 4 & 5
3. Decide which type of surface your application requires; plain, concave or anti-slip grit
4. Decide which type of resin is suitable for your application from table of properties on page 2 and the table of chemical resistance on page 7.
5. Calculate the panel sizes required from the data for each pattern on pages 4 & 5, bearing in mind the installation tolerances diagrams on page 6. It is advisable to allow for a cut next to a load bar if open ends are to be avoided. (refer to cutting FRP on page 6).

Product Codes

1st character	grate material	F =Fibreglass
2nd & 3rd characters	depth in mm	14, 22, 25, 30, 38, 41, 50, 55 and 60
4th character	physical form	S =square mesh, R =rectangular mesh, M =minimesh, P =solid top plate, T =stair tread
5th character	surface type	C =concave, P =plain, A =antislip grit
6th character	resin type	I =Isophthalic, V =vinyl ester, P =phenolic

EXAMPLE: F30MAI = Fibreglass grating, 30mm depth, Minimesh profile, Antislip grit surface, Isophthalic resin

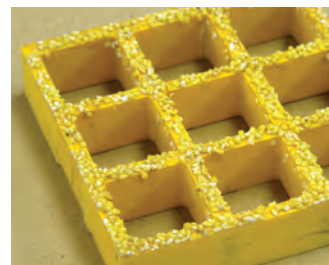
WELDLOK® FIBREGLASS WALKWAY GRATING

FRP Square Grating

LOAD DEFLECTION DATA								
LOADS GIVING DEFLECTIONS OF 5mm (recommended maximum deflection for pedestrian comfort)								
Product	Span (mm)	450	600	750	900	1050	1200	1500
F25S	Uniformly Distributed Load (kPa)	20.0	8.1	3.5	1.1			
	Line Load (kg/m)	483	203	109	63			
F38S	Uniformly Distributed Load (kPa)		19.0	8.0	4.4	3.0	1.6	
	Line Load (kg/m)		710	356	230	150	106	
F50S	Uniformly Distributed Load (kPa)			15.3	7.9	4.5	2.5	
	Line Load (kg/m)			742	456	306	210	
F60S	Uniformly Distributed Load (kPa)				23.6	13.9	7.8	3.5
	Line Load (kg/m)				1349	949	636	330

Availability:	Patterns marked thus * generally available ex stock			
Product code:	F25S *	F38S *	F50S	F60S
Load bar depth:	25mm	38mm	50mm	60mm
Area weight:	14.4 kg/m ²	21 kg/m ²	33.3 kg/m ²	48 kg/m ²
Web spacing centres:	38 x 38mm	38 x 38mm	50 x 50mm	38 x 38mm

Weldlok fibreglass grating complies with AS1657 load ratings, for further information consult your Weldlok Representative.



Applications:
Maintenance platforms and general purpose industrial walkways (complies with AS1657-1992)

Resin types:
Isophthalic and vinyl ester standard, phenolic on request

Colours:
Green, yellow standard; other colours on request

Panel Sizes:
915 x 3050mm,
1220 x 3660mm

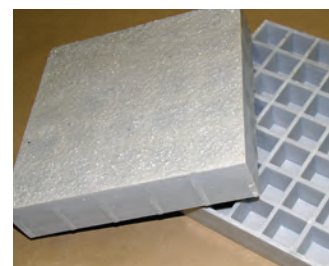
Openings:
32 x 32mm

Open area:
68% approximately

FRP Solid Top Cover Grating

LOAD DEFLECTION DATA						
LOADS GIVING DEFLECTIONS OF 5mm (recommended maximum deflection for pedestrian comfort)						
Product	Span (mm)	600	750	900	1050	1200
F41P	Uniformly Distributed Load (kPa)	33.8	20.0	6.8	4.0	2.4
	Line Load (kg/m)	1095	750	399	290	190
F55P	Uniformly Distributed Load (kPa)	57.7	33.0	13.3	8.5	4.6
	Line Load (kg/m)	2351	1460	856	575	380

Availability:	On request	
Product code:	F41P	F55P
Load bar depth :	41mm	55mm
Area weight:	28 kg/m ²	33 kg/m ²
Web spacing centres:	38mm x 38mm	50 x 50mm centres



Applications:
Maintenance platforms, industrial walkways and food processing plants where covered grating is required to prevent contamination of work surfaces below, for example, walkways over tanks and vats. Covered grating offers a strong, level surface for foot or wheeled traffic. Complies with AS1428.

Resin types:
Isophthalic standard, vinyl ester and phenolic on request

Colours:
Light grey standard; other colours on request

Panel Sizes:
Made to order to nearest web dimensions



Sydney Harbour Bridge rail walkway



Concrete batching plant, Busselton, WA

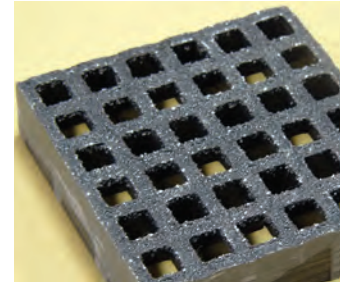
WELDLOK® FIBREGLASS WALKWAY GRATING

FRP Minimesh Grating

LOAD DEFLECTION DATA							
LOADS GIVING DEFLECTIONS OF 5mm (recommended maximum deflection for pedestrian comfort)							
Product	Span (mm)	300	450	600	750	900	1050
F14M	Uniformly Distributed Load (kPa)	22.5	4.1	1.3			
	Line Load (kg/m)	233	72	33			
F22M	Uniformly Distributed Load (kPa)	118	23	7.4	3.1		
	Line Load (kg/m)	1442	435	187	95		
F30M	Uniformly Distributed Load (kPa)			15.3	5.7	2.6	
	Line Load (kg/m)			423	233	133	
F38M	Uniformly Distributed Load (kPa)			31.6	12.9	5.7	3.6
	Line Load (kg/m)			891	427	268	165

Availability:	Patterns marked thus * generally available ex stock			
Product code:	F14M	F22M	F30M *	F38M
Load bar depth:	14mm	22mm	30mm	38mm
Area weight:	9 kg/m ²	15kg/m ²	19 kg/m ²	23 kg/m ²
Web spacing:	20 x 20mm centres on top, 40 x 40mm centres load bars underneath			

Weldlok fibreglass grating complies with AS1657 load ratings, for further information consult your Weldlok Representative.



Applications:
Pedestrian walkways/boardwalks, safe access for disabled, sufficient light penetration for vegetation growth underneath.

Resin types:
Isophthalic standard, vinyl ester and phenolic on request

Colours:
Dark grey standard; other colours on request

Panel Sizes:
1247 x 1527, 1807, 2407, 3007mm

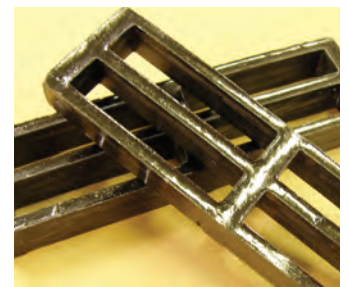
Openings:
13 x 13mm

Open area:
42% approximately

FRP Rectangular Grating

LOAD DEFLECTION DATA						
LOADS GIVING DEFLECTIONS OF 5mm (recommended maximum deflection for pedestrian comfort)						
Product	Span (mm)	450	600	750	900	1000
F25R	Uniformly Distributed Load (kPa)	27	8.5	3.5	1.7	1.1
	Line Load (kg/m)	460	205	105	40	29

Availability:	On request
Openings:	88 x 19mm
Web spacing:	100 x 25mm
Open area:	85%
Load bar depth:	25mm



Application:
Walkways & boardwalks. The rectangular pattern has a higher open area than Minimesh to allow more light penetration for vegetation growth underneath

Resin types:
Isophthalic standard, vinyl ester and phenolic on request

Colours:
Dark grey standard; other colours on request

Panel Sizes:
1000 x 2000mm
1000 x 3000mm



Coogee Beach Jetty, WA



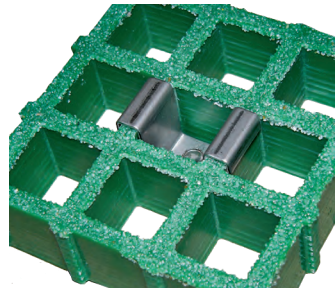
De Bortoli Wines, NSW

WELDLOK® FIBREGLASS WALKWAY GRATING

Fastening Methods

FRP moulded grating should be securely fastened using one of the clip types shown. A minimum of 4 clips per panel is recommended, with extra clips at mid-span on larger panels.

A fixing clip consists of cliptop, bolt, washer and nut; all in 316 stainless steel. Tek screws are also available on request.



M clip
Restrains movement in all directions

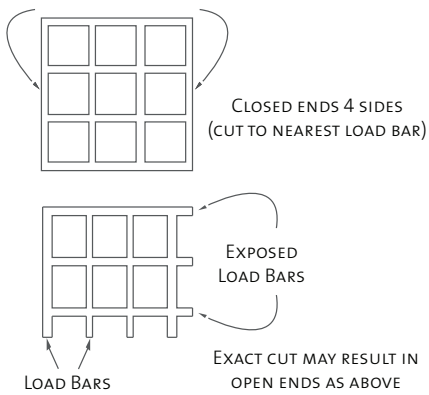


L clip
For moderate loads



C clip
Joining of two unsupported ends of adjacent panels

Cutting FRP Grating Panels to Size



Use a power saw with a masonry carbide or diamond coated blade with the panel upside-down. All cut edges should be ground smooth and should be given a light coating of UV stable, 2 part resin or a UV stable urethane spray coating.

When cutting FRP grating, always wear personal protective equipment such as eye protection, dust protection mask and gloves, as required by State OH&S legislation.

Installation Tolerances

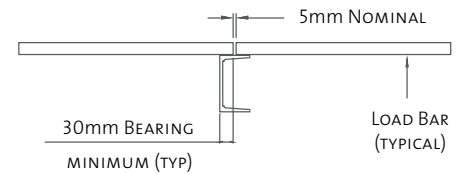


DIAGRAM 1

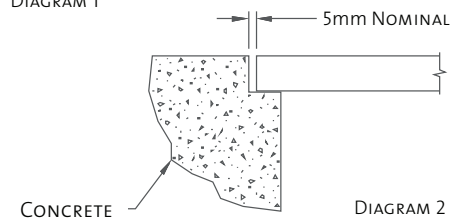
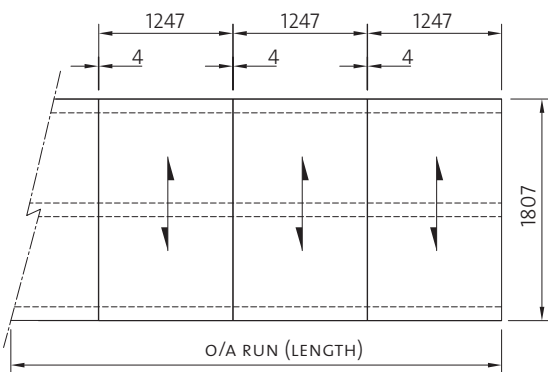
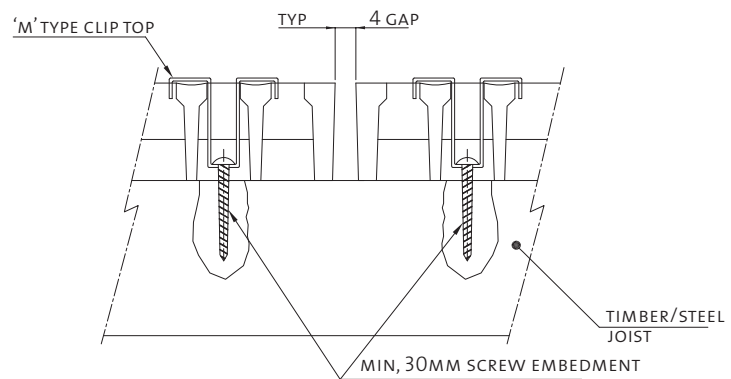


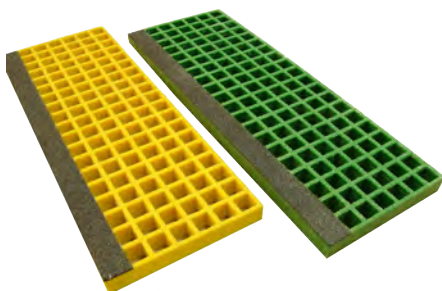
DIAGRAM 2



Setout of FRP grating panels and joists

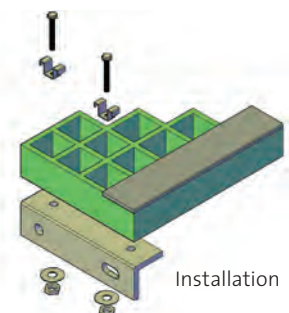


Fixing grating with M clips



Weldlok® Fibreglass Grating Stair Treads

- Pattern:** 38 x 38mm mesh pattern x 38mm deep
- Resin type:** Isophthalic or vinyl ester resins
- Top surface:** Anti-slip quartz grit
- Colours:** Yellow or green with black nosing
- Lengths:** 880mm, 768mm, 730mm
- Widths:** 235mm, 273mm, 311mm



Installation

CHEMICAL RESISTANCE TABLE

CHEMICAL ENVIRONMENT	Concentration	Isophthalic Resin			Vinylester Resin		
		25°C	52°C	53°C – 93°C	25°C	52°C	53°C – 93°C
MINERAL ACID & ORGANIC ACID							
Sulphuric Acid	10%	R	R	R	R	R	R
	25%	R	R	R	R	R	R
	50%	R	R	R	R	R	R
Hydrochloric Acid	10%	R	RSD	N	R	R	R
Nitric Acid	5%	R	R	N	R	R	R
	50%	R	N	N	R	RSD	N
	HIGH	N	N	N	N	N	N
Chromic Acid	30%	N	N	N	R	R	RSD
Phosphoric Acid	25%	R	R	R	R	R	R
	50%	R	R	R	R	R	R
Acetic Acid	50%	R	R	N	R	R	N
Oxalic Acid	15%	R	/	/	R	R	R
Lactic Acid		R	R	R	R	R	R
Tartaric Acid		R	R	R	R	R	R
ALKALI							
Sodium Hydroxide	5%	R	N	N	R	R	R
Barium Hydroxide	10%	RSD	RSD	N	R	R	R
Ammonia	28%	N	N	N	—	—	—
Calcium Hydroxide		R	R	N	R	R	R
Sodium Carbonate	10%	N	N	N	R	R	R
ACID SALT							
Ammonium Chloride		R	R	R	R	R	R
Ammonium Nitrate		R	R	R	R	R	R
Ammonium Sulphate		R	R	R	R	R	R
Ferric Chloride		R	R	R	R	R	R
Nickel Nitrate		R	R	R	R	R	R
Zinc Sulphate	10%	R	R	R	R	R	R
Sodium Sulphite		R	R	R	R	R	R
ALKALI SALT							
Sodium Hypochlorite	10%	R	R	R	R	R	R
Calcium Hypochlorite		R	R	N	R	R	R
NEUTRAL SALT							
Magnesium Chloride		R	R	R	R	R	R
Mercury Chloride		R	R	R	R	R	R
Potassium Dichromate		—	—	—	R	R	R
Potassium Permanganate		R	R	R	R	R	R
Sodium Nitrate		R	R	R	R	R	R
ORGANIC COMPOUND							
Petroleum		R	N	N	R	N	N
Kerosene		R	R	R	R	R	R
Methanol		RSD	N	N	R	R	N
Ethanol		R	/	/	R	R	/
Ethylene Glycol	25 – 75%	R	R	RSD	R	R	RSD
Toluene		RSD	N	N	RSD	N	N
Acetone	25%	N	N	N	RSD	N	N
OTHER							
Water		R	R	R	R	R	R
Hydrogen Peroxide	5 – 10%	R	R	R	R	/	/
Chlorine Dioxide Bleach		R	R	R	R	R	R

Key to Table: R = good resistance, N = non-resistant, RSD = intermediate resistance, / = use with care, depends on conditions, - = not tested

This table is for general guidance only. Users must determine the suitability of resins for particular applications. No guarantee of specific performance is given or implied..

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