

Selection & Specification Data

Generic Type	*Formerly Altra-Build 540 – Carboguard® 540 is a high performance, two-component, chemically cured, immersion grade epoxy barrier coating.
Description	Carboguard® 540 is an ideal high build coating for any service or structure, marine or industrial, where water or corrosion resistance is required. Carboguard® 540 has excellent proven long-term service case histories for marine hull externals, above & below water, and as a lining for hydro penstocks and gates and similar permanently immersed structures. Carboguard® 540 is the barrier coating of choice under Altex Sea-Barrier™ 1000, 3000 and 4000 antifoulings
Features	<ul style="list-style-type: none"> Premium performance Industrial & Marine quality barrier coating Recommended for permanent fresh & salt water immersion Exceeds performance of Coal Tar Epoxy coatings Good abrasion resistance High volume solids Suitable for use on concrete surfaces Can be self priming Easy application - thick films may be applied in one application by airless spray Non-bleeding APAS approved (refer to Performance Data)
Gloss	Semi-gloss
Colour	White & Haze Grey
Primers	Carboguard® 635 or Altex Altra-Prime® 504. May be self-priming on correctly prepared steel or concrete
Topcoats	<u>Immersion:</u> None required, or Sea-Barrier™ antifoulings <u>Weathering:</u> Carbothane® series, Carboguard® 2929.
Dry Film Thickness	100-200 microns per coat, depending upon service
Solids Content	71% by volume (ASTM D2697 - 7 Days)
Theoretical Coverage Rate	4.73 square metres per litre at 150 microns DFT 3.55 square metres per litre at 200 microns DFT
Mix Ratio	4 : 1 by volume (Part A : Part B)
VOC Values	247 grams per litre (as supplied)
Dry Temp. Resistance	121°C
Limitations	May change colour and chalk when exposed to direct sunlight. This does not affect the protective properties of the coating.

Substrates & Surface Preparation

General	Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2, or toluene.
Steel	For maximum performance: AS1627.4 Class 2½ (SSPC-SP10) with a 30-60 micron jagged blast profile. For rapid turn-around dockings or general maintenance power-tool clean to AS 1627.2 or abrasive blast to AS 1627.4 Class 2.
Galvanized Steel	Sweep abrasive blast to remove all passivation treatment, white rust etc and render a profiled surface.
Concrete	Remove all laitance by sweep abrasive blasting, HP Water-Jetting or acid etching. For maximum performance and to reduce the risk of pin-holing seal the prepared concrete with Carboguard® 1340.

Performance Data - Approvals

Test	Method	Result
Permeability	ASTM E96-53	Excellent – 0.7 Perms
Water Immersion	ASTM D1308	24 months; excellent, no effect
Adhesion	ASTM D4541	> 1500 psi; Class 2½ blast mild steel, 50 micron profile
Salt Spray Resistance	ASTM B117	Excellent
Humidity Resistance	ASTM D2247 1000 hours	No effect on film integrity or adhesion. Less than 0.8mm (1/32") undercutting at scribe. Less than 2% rusting at edges.
Abrasion Resistance	ASTM D4060 CS-17 Wheel 1000 gm load	Very Good - 130 mg loss
Impact Resistance	ASTM D2794	0.69 kg metres (60 inch-pounds)
Chemical Resistance	ASTM D1308 24 hr @ 25°C	Excellent, no effect on film integrity:- 50% Sodium Hydroxide 28% Ammonia 10% Ammonium Hydroxide 5% Trisodium Phosphate 25% Citric Acid 25% Lactic Acid 10% Sulphuric Acid 10% Hydrochloric Acid 20% Tannic Acid Crude Oil 5% Sodium Chloride Raw Sewage
Approvals*		
APAS 2972F: Haze Grey - ID3360; White - ID3359 APAS 2972S: Haze Grey - ID3362; White - ID3361 APAS 2973S: Haze Grey - ID3366; White - ID3365 *Currently registered with Australasian Paint Approvals Scheme (APAS) under Altex brand name "Altra-Build 540"		

Carboguard® 540

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results. **General Guidelines:**

Conventional Spray Pressure pot equipped with dual regulators, 9.5 mm (3/8") I.D. minimum material hose, 1.8 mm (.070") I.D. fluid tip and appropriate air cap. Hold gun 300-350 mm from the surface and at a right angle to the surface.

Airless Spray Pump Ratio: 45:1
Volume Output: 11.5 l/minute min.
Material Hose: 12.5mm min. (½" I.D.) recommended
Tip Size: 0.53-0.78mm (.021-.031")
Output Press.: 140-175kg/cm² (2000-2500 psi)

The following spray equipment has been found suitable; or equivalent.

Mfr. & Gun: Graco 207-300

Pump*: Bulldog 45:1

*Teflon packings are recommended and available from pump manufacturer.

Brush & Roller (General)

Manual application is not recommended for tank lining applications except when striping welds. For non-immersion applications over damp surfaces, brush and roller is the preferred method. Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or re-rolling. For best results, tie-in within 10 minutes at 24°C. Thin up to 12.5% by volume with Altex Thinner 1/2. Use a short-nap synthetic roller cover with phenolic core.

Mixing & Thinning

Mixing Mix separately, then combine and mix in the following proportions (4:1 ratio):

Ratio	Kit Size	5 litre	10 litre	20 litre
	Part A	4 litre	8 litre	16 litre
	Part B	1 litre	2 litre	4 litre

Thinning For spray application thin up to 12.5% by volume with Altex Thinner 1/2. For brush application thin as required with Altex Thinner No.5 or Carboline #25.

Pot Life 5 hours at 25°C.

Cleanup & Safety

Cleanup Use Thinner #2, Altex 1/2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapour concentration from reaching the lower explosion limit for the solvents used.

Caution This product contains flammable solvents. Keep away from sparks and open flames.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Optimum	16° - 24°C	16° - 24°C	16° - 24°C	30 - 70%
Minimum	10°C	0°C	5°C	0%
Maximum	32°C	50°C	35°C	85%

Industry standards are for substrate temperatures to be above the dew point. For immersion conditions it is recommended to follow this procedure. For non-immersion conditions This product can tolerate damp substrates. See Brush or Roller above. Special thinning and application techniques may be required above or below normal conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Recoat	Dry to Topcoat w/ Other Finishes**	Final Cure
10°C	12 hours	16 hours	15 days
16°C	10 hours	14 hours	12 days
24°C	4 hours	8 hours	5 days
32°C	3 hours	4 hours	3 days

The above data is indicative for finished DFT's of 150-200 microns. Drying and curing rates are influenced by ventilation, film thickness, humidity, thinning and other factors.

**Antifouling Topcoat – optimum time to topcoat Carboguard® 540 with antifouling coatings is when the film is just tack-free, firm to thumb pressure but 'thumbnail soft'. Do not overcure.

Packaging, Handling & Storage

Pack Sizes	NZ	5 litre	10 litre	20 litre
	AU	5 litre		
	Part A:	4 litre	8 litre	16 litre
	Part B:	1 litre	2 litre	4 litre

Flash Point (Setaflash) 38°C (Setaflash)

Storage Temperature & Humidity Store indoors. KEEP DRY
4° to 38°C
0 to 95%

Shelf Life Part A: 24 months
Part B: 24 months

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**

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