



80 YEARS OF CORROSION PREVENTION

# ARCHCO-RIGIDON REINFORCED CORROSION PREVENTION SYSTEMS

**STEEL & CONCRETE TANK LININGS**

**FLOOR AND BUND PROTECTION**

**SPECIALITY COATINGS**

**VALVE & PIPE LININGS**



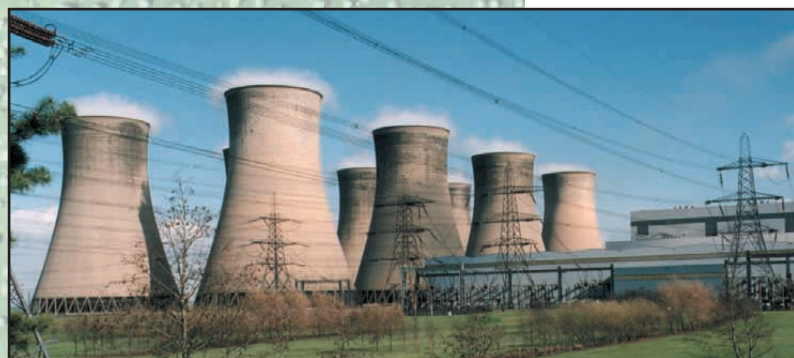
**ARCHCO RIGIDON**  
*Resistant Materials*



Offshore



Chemical/Petrochemical



Power Generation

## ARCHCO-RIGIDON

**The history of Archco-Rigidon dates back to the early 1970's.**

**The Archco and Rigidon ranges of products developed their own extensive track records under the names of, in the case of Archco, Archco Ltd and Archco-Sprayglass Ltd and, in the case of Rigidon, Rigidon (UK) Ltd and Rigidon Resistant Materials Ltd. Both names became market leaders in the corrosion resistant lining field.**

**In 1989 Archco Ltd was acquired by Winn & Coales International Ltd.**

**In 1993 Rigidon Resistant Materials Ltd was also acquired by Winn & Coales International Ltd who, themselves, are not only known as market leaders with their Denso range of anti-corrosion wrapping tapes, but also have a growing involvement in the complementary technology of liquid coatings.**

**The Archco and Rigidon operations were combined to create the Archco-Rigidon Division of Winn & Coales to act as a major lining and coating manufacturer supplying through an established international network of outlets. Extensive track records in industries such as the offshore, power generating and chemical industries, dating back almost 20 years, have made Archco-Rigidon probably the most experienced supplier of its kind in the UK.**

**The combined financial and technical resources of the Winn & Coales Group has enabled Archco-Rigidon to build upon its already predominant position in the field of high performance linings and to develop the range of new and improved materials outlined in this brochure.**



## PRODUCTS & SERVICES

Archco-Rigidon corrosion resistant systems combine thermosetting resins with various types of reinforcements and fillers to produce tank linings, floor toppings and coatings that are able to resist most environments.

The standard range of products includes glass flake reinforced linings and coatings, (which offer maximum protection to steel surfaces), and heavy duty concrete protection systems, (which prevent corrosion to tanks, bunds and floors). Custom design of systems is also considered.

All of the tank linings, coatings and flooring systems can be purchased for self installation or as an applied system direct from an Archco-Rigidon Approved Applicator (please consult Archco-Rigidon for advice).

Archco-Rigidon can provide technical support, applicator training, contract supervision and inspection services if required.

Besides being a major supplier in the UK, Archco-Rigidon has an extensive network of sales outlets worldwide, including Australia.

## ABOUT THE PRODUCTS

### LININGS AND COATINGS

Archco-Rigidon linings and coatings are designed specifically to protect steel and concrete surfaces from aggressive environments.

As well as having excellent corrosion resistance our systems have superior bond and permeation resistance and, where resistance to abrasion, impact and undercutting is important, many of the Archco-Rigidon lining systems greatly exceed the capacity of competitive materials.

The coefficient of expansion is closely matched to that of the substrate, whether steel or concrete, which ensures that the bond is unaffected over a wide range of temperatures.

Most materials are cold curing and can be applied either on site or in works. They are liquid during application, allowing for the quick and easy coating of complex shapes as well as the complete restoration of corroded or pitted surfaces. Most systems will harden rapidly and can be put into light service conditions within a few hours.

### FLOORING AND BUND PROTECTION

Archco-Rigidon chemical resistant flooring and bund linings are formulated from high performance resins and are reinforced, for maximum strength, with membranes such as woven glass fabrics.

Their resistance to liquid penetration is so good that they can also be used for lining concrete tanks for the total containment of aggressive chemicals.

### SPECIALITY PRODUCTS

The Archco-Rigidon policy of research and development has led to many new resin based products being brought onto the market, these include:

- |                    |  |
|--------------------|--|
| Heatshield Special | A lining resistant to both sea water and oil at temperatures up to 180°C under immersion conditions and 220°C under fume and gaseous conditions. |
| Heatshield 350     | An external steel coating effective in temperatures up to 350°C.   |

### OUR PHILOSOPHY

To produce the best quality products, at reasonable prices, backed by prompt and efficient service.



## REINFORCED CORROSION CONTROL LININGS

### GLASS FLAKE LININGS

Archco-Rigidon glass flake linings are designed primarily for the protection of steel and are formulated from high performance resins combined with glass flakes.

The combination of high performance resins and glass flakes produces linings with outstanding performance characteristics. They can be applied by spray, brush or trowel.

In each system there will be approximately 125 layers of glass flakes in each 1mm thickness of lining.

### PRINCIPAL ADVANTAGES

- \* Outstanding chemical and temperature resistance
- \* Improved resistance to permeation
- \* Excellent resistance to: Undercutting • Abrasion • Erosion • Impact
- \* Profile restoration - can be used as a filler
- \* Ability to follow contours
- \* Flexible up to the deformation point of steel
- \* Easy to repair
- \* Can be used with cathodic protection
- \* Machinable
- \* Long life, low cost
- \* Rapid cure

### LAMINATED SYSTEMS

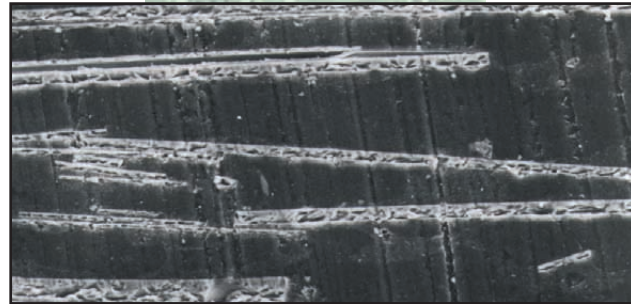
These linings are intended for the protection of either concrete or steel and are reinforced with membranes such as woven glass cloth, chopped strand mat, or synthetic cloth.

The use of the reinforcement helps to modify the expansion and contraction characteristics of the lining to more closely match that of the substrate. This allows the lining to operate at elevated temperatures and under fluctuating temperature conditions. It also reinforces the lining so that it can withstand physical abuse and impact damage as well as minor substrate integrity failures. eg. 'hairline' cracks in concrete.

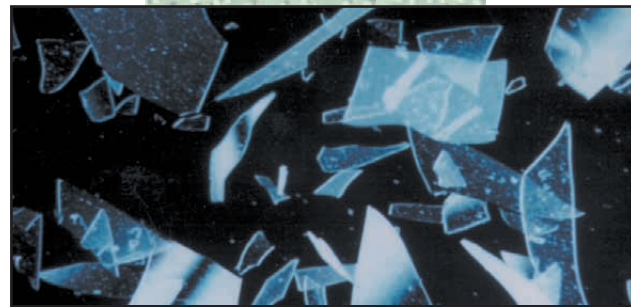
Carbon fillers are used when the lining is to be exposed to Hydrofluoric Acid, caustic etc.

### PRINCIPAL ADVANTAGES

- Outstanding chemical resistance
- Complete protection for the substrate if exposed to physical or mechanical abuse
- A monolithic system (unlike, for example, rubber or tiles)
- Easy to repair
- Will bridge live cracks
- Long life, low cost
- Rapid cure



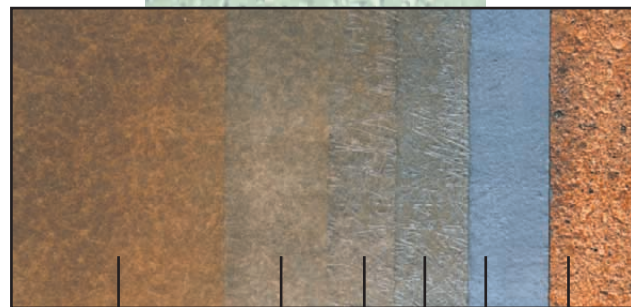
Section through a glass flake lining showing even distribution throughout the resin and their alignment to the substrate



Magnified view of glass flakes



600 Series showing stages of coating



Top coat      Reinforcement      Filled base coat      Prepared & primed concrete



700 Series showing stages of coating



## SYSTEM

## DESCRIPTION

### GLASS FLAKE LININGS

<b>400 Series</b>	Medium duty linings which are reinforced with glass flakes. These systems are suitable in immersion conditions for duties which include severe chemical environments.
<b>500 Series</b>	Heavy duty linings which are reinforced with glass flakes. These linings offer the ultimate in chemical resistance within the glass flake range of materials and can operate at temperatures up to 100° C under immersion conditions. These linings may also be used where abrasion and erosion resistance is more critical.

### FILLED REINFORCED LININGS

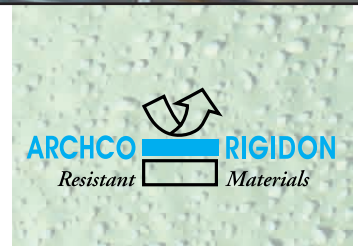
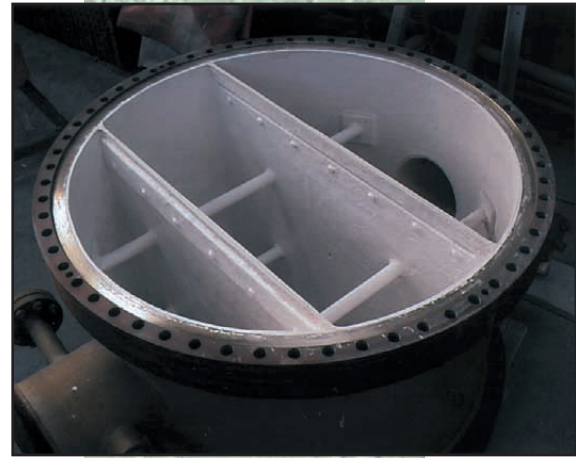
<b>600 Series</b>	Linings which are formulated from resin and glass fibre reinforcement together with a filled base coat. These linings are specifically recommended when a lining with a resin rich top coat is required for maximum chemical resistance.
<b>700 Series</b>	A silica filled, glass cloth reinforced series of linings designed for heavy duty concrete and flooring protection, but can also be used on steel.

### SPECIALITY COATINGS

<b>Heatshield Special</b>	A specially developed lining for the offshore industry which is resistant to sea water and oil at operating temperatures up to 180°C under immersion conditions and 220°C under fume and gaseous conditions depending upon the chemical type and concentration.
<b>Heatshield 350</b>	A 2-pack siliconised epoxy coating with very good heat and corrosion resistance at temperatures below 350°C
<b>Rigspray</b>	A system, applied in a single coat, which provides long term protection of steel structures subjected to marine environments.

The chemical resistance of each of the 200 to 700 series is governed by the resin used. The resins have been given a reference letter and the chemical resistance of each of these can be found in the Archco-Rigidon Corrosion Resistance Guide.

	Method of Application	Applied Thickness (approx.)	Designation	Substrate	Temperature Limits	
					Immersion	Fumes/Spillage
	Spray or brush	1 mm	Lining	Steel	60°C (140°F)	90°C (200°F)
		2mm	Lining	Steel	100°C (212°F)	170°C (338°F)
	Brush or trowel	2 mm	Lining	Steel	100°C (212°F)	170°C (338°F)
	Trowel and hand lay-up	3 mm–4 mm	Lining	Steel or concrete	75°C (170°F) 60°C (140°F)	75°C (170°F) 60°C (140°F)
	Trowel and hand lay-up	3 mm–4 mm	Lining or	Concrete flooring	75°C (170°F)	150°C (300°F)
	Hot spray	750 microns	Lining	Steel	180°C(356°F)	220°C(428°F)
	Spray or brush	50-100 microns	Coating	Steel		350°C(662°F)
	Spray or brush	0.8 mm	Coating	Steel	60°C (140°F)	90°C (200°F)



## 400 SERIES

These products will resist a wide range of chemicals with certain grades being suitable under immersion temperatures up to 100 deg C. They are particularly suitable for offshore applications where the Archco-Rigidon 403D, in particular, has an extensive track record in lining process vessels and equipment.

The Archco-Rigidon 423D has been extensively used as a tank lining and for the lining of equipment such as valves and pump casings in both the power generating and the chemical industries.

## 500 SERIES

This range of products offers the best performance of all the glass flake reinforced linings as well as being unaffected by immersion temperatures up to 100 deg C.

The percentage and size of glass flakes used in these linings reduces their permeability by a factor of 20. These systems can be used in some similar situations to the 400 Series. They offer superior abrasion and erosion resistance where the design and shape of the substrate allows the 500 series materials to be used.

## 600 SERIES

This is a series of linings which is designed to give the optimum chemical performance.

The 600 series linings are typically used to line or coat concrete but are equally effective in lining steel. The Archco-Rigidon 603D and 623D are examples of products that have been extensively used to line bunded areas and storage tanks, particularly in the power generating and chemical industries.



**700 SERIES**

These systems are intended primarily to protect concrete in areas which are subject to severe chemical attack and physical loading. Areas where they are specifically recommended are chemical storage and effluent treatment tanks, bunds etc. They can also be used to protect floors, drainage channels and sumps.

These linings will withstand vehicle and pedestrian traffic.



**HEATSHIELD SPECIAL**

Heatshield Special has been designed for the offshore industry to extend the temperature range over which conventional Archco-Rigidon linings can operate. It is resistant to sea water and oil and can be used for coating and lining process vessels and pipelines operating at temperatures up to 180°C under immersion conditions and up to 220°C under fume and gaseous conditions, depending on chemical type and concentration. The lining has a hard high gloss finish.

**HEATSHIELD 350**

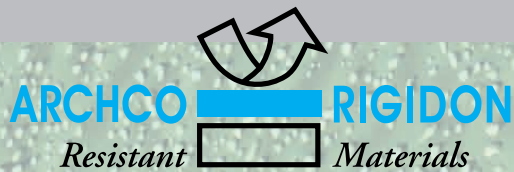
Heatshield 350 is a 2-pack silicone epoxy coating with very good heat and corrosion resistance. The spray or brush applied product has been developed for use on the externals of hot flue gas lines, hot steel pipework, hot vessels, boilers and chimney stacks etc.

**RIGSPRAY**

Primarily designed as a one coat, long lasting, anticorrosion system to be applied to the likes of splash zones and underdeck areas on offshore platforms, Rigspray can be used on all structures and pipework where protection against severe marine environments, or mild chemical environments, is required.



# WHERE ARCHCO-RIGIDON MATERIALS ARE USED



The high performance characteristics of Archco-Rigidon materials give a wide and varied range of applications, particularly in the following areas:

## CHEMICAL PROCESS INDUSTRY

tanks • columns and towers • pumps and blowers • vessels  
sumps • floors • steelwork

## OIL INDUSTRY

separators • free water knockout drums • desalters  
depurators • reflux vessels • deaerators • christmas trees  
choke spoils • storage tanks • gas scrubbers • filtration equipment  
splash zones • legs • pipework • potable water tanks

## TRANSPORT INDUSTRY

road/rail tankers • ships hulls • balast tanks  
cargo lines • railroad hopper cars

## POWER GENERATION INDUSTRY

cooling water systems (including pumps, valves, pipework,  
concrete culverts, sumps and outfalls)  
water treatment plant (including sumps, cation vessels, trenches and floors)  
cooling ponds • flask washdown bays • active sludge tanks  
laboratory floors • chimney stacks • fans  
scrubbers • ductwork

## FOOD INDUSTRY

food storage tanks • effluent tanks • drains  
floors • valves

## WATER AND SEWAGE INDUSTRY

basins • chemical tanks • potable water tanks  
trenches • pipelines • valves

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