INTERNATIONAL

chemco

PROTECTIVE COATINGS

MARINE

Chemco International

Chemco is a world leader in innovative coating solutions in the Protective & Marine Coatings Industry.

Founded in 1982, Chemco International traces its origin back to the Original Glassflake Company, the inventors of glassflake technology in the 1960s. In 1990, the name was changed to Chemco International under new ownership.

Today, Chemco specialise in the design and manufacture of the most advanced polymers for leading edge anti-corrosion coatings utilised worldwide.

These systems have been successfully utilised across all major industries:

- Marine
- Petrochemical
- Offshore
- Rail
- Industrial
- Power Generation
- Oil & Gas
- Water & Sewage

The delivery of technologically advanced solutions also relies upon quality conscious people. Chemco have invested in a first class team of autonomous, highly motivated and multi-skilled professionals, who together conceive and implement the most advanced solutions to corrosion and abrasion.

Mission

To become the world's leading Protective & Marine Coatings Company whilst retaining our strong ethos towards innovative and environmentally friendly coating solutions.

Quality

Quality is at the heart of Chemco's culture; continuous improvement is the core of our philosophy. In products, processes and technical expertise, we set the standard which others follow.

Design

Significant investment in Research & Development enables the company to create and implement innovative coating systems for the most challenging environments.

Service

We have established a unique all-embracing Holistic Service, extending far beyond traditional levels of technical support.

SURFACE PREPARATION

There are **three main methods** of surface preparation; abrasive blasting, water jetting and mechanical. For decades, grit blasting has been the most commonly used surface preparation method; however, in recent years the high cost and environmental impact of grit blasting has forced the industry to look at alternative surface preparation methods.

GRIT BLASTING

Abrasive blasting to Sa 2½ will always offer the best surface preparation. This is the method traditionally utilised for all conventional paint systems.

Unfortunately abrasive blasting encompasses a lengthy setup, large labour squads and extensive equipment requirements. Abrasive blasting also involves many time consuming operations; containment, collection, removal and disposal of the grit. Today it is considered a hazardous and costly process which is not permissible in many projects (e.g. Offshore).

MECHANICAL PREPARATION

Mechanical preparation can be undertaken by various methods:

- Wire Brush
- Scraper
- Chipping Hammer
- Needlegun
- Grinding Discs
- Sanding Discs

Utilising Chemco's innovative technology allows application on surfaces prepared to standards as low as St 2.

WATER JETTING

High Pressure (HP) and Ultra High Pressure (UHP) water jetting are gaining popularity due to their cost-effective and environmentally friendly nature. Chemco specify HP water jetting (500-800 bar) as the most efficient, safe and convenient surface preparation method, with standards as low as WJ-3.

One consequence of utilising water jetting is the development of flash rust on the surface; which is problematic for conventional paint systems. Chemco have eliminated this problem by developing innovative **wet & rust tolerant** technology where flash rust is acceptable.

Chemco's **wet & rust tolerant** coating systems have exceptional adhesion to rusty or poorly prepared and wet surfaces (> 1200 psi / 8 MPa).

SUBSTANTIAL TIME AND COST SAVINGS

Water jetting and mechanical preparation are now becoming more commonly employed as time and cost saving alternatives to abrasive blasting. It is already a necessary requirement to pressure wash surfaces exposed to saltwater environments to remove salt as part of the grit blasting process. Major savings can therefore be achieved by utilising HP water jetting; preparing the surface and removing salt and other contaminants in a single operation.

Chemco's innovative **wet & rust tolerant** technology also enables huge savings to be made through minimising the overall project duration and downtime. These systems allow the coating process to begin immediately after surface preparation on a wet substrate with no delay and no requirement for dehumidification; unlike other moisture tolerant systems where the substrate needs to be almost dry.

REDUCED EQUIPMENT REQUIREMENTS

Abrasive blasting is a very time consuming and expensive process which requires the following equipment:

- High Volume Air Compressor
- Blast Pot
- Grit Removal
- Extensive Dehumidifaction & Ventilation Equipment
- High Power Supply

In comparison, water jetting only requires a small portable water jetting machine.

HEALTH & SAFETY AND ENVIRONMENTAL IMPACT

H&S and Fire Hazard are significantly reduced by utilising water jetting.

The process is environmentally friendly, allowing other work in the vicinity on live offshore platforms and ships to be carried out without disruption.

SOLVENT-FREE, WET & RUST TOLERANT TECHNOLOGY

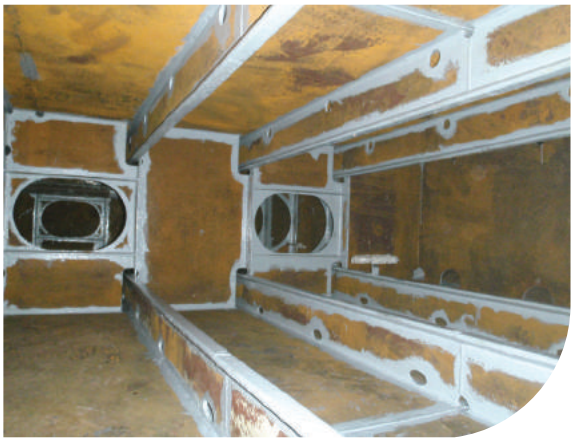
Chemco have developed the world's first **solvent-free, wet & rust tolerant** coating system which has truly revolutionised the Protective & Marine Coatings Industry. This system exhibits exceptional adhesion to rusty or poorly prepared and wet surfaces and has been proven to significantly reduce the overall time and cost of a project.

These **proven** advanced speciality coatings have not only passed independent laboratory tests, they have also been approved and used by almost all major shipping companies worldwide with complete success. They are supported by the most comprehensive and transferable guarantees for complete refurbishment, new build and uniquely for patch repair work.

EPO-CHEM™ RS 500P

RS 500P is an innovative **solvent-free, wet & rust tolerant** epoxy universal primer/finish coating system. The system's long-term performance is based on completely sealing the surface (porous-free film) and arresting the rust totally.

The use of sacrificial fillers enables the system to be applied to surface standards as low as Sa 1, WJ-4 or St 2. RS 500P can be utilised as a one-coat system by brush, roller or airless spray.



EPO-CHEM™ RA 500M

RA 500M is a unique **solvent-free, wet tolerant,** highly chemical resistant, glassflake epoxy single coat/topcoat. Glassflake systems have been utilised for over 30 years in the most aggressive environments as they offer a total barrier against moisture and corrosive ions.

RA 500M can be applied as a topcoat on primers or as a one-coat system with minimum surface preparation standards Sa 2, WJ-2 or St 3.

APPLICATION AREAS

Epo-chem™ RS 500P and RA 500M combine to make a multi-functional, groundbreaking coating system which has been extensively used for almost all vessel areas:

- All Tank Internals
- Pipework (internal/external)
- Decks (internal/external)
- Accommodation Blocks
- Underwater Areas
- Superstructures
- Cofferdams
- Engine Rooms
- Void Spaces
- Plus many more...

Sea Water Ballast Tank

SYSTEM CHARACTERISTICS

Surface Preparation	Any method can be utilised; abrasive blasting, water jetting or mechanical
Solvent Content/VOC Levels	**Solvent-free** system with **zero VOC**. Suitable for application in confined spaces and hazardous areas
Glassflake Technology	Ensures long-term corrosion protection by creating an impermeable barrier
Environmental Conditions	No humidity or dew point restrictions
Recoating Intervals	No limitations
Dehumidification or Ventilation	No extensive requirements
Health & Safety and Fire Hazard	Significantly reduced and non-flammable
Operational Shutdown	No shutdown required. Other work being carried out nearby (including hot work) can continue without disruption
Adhesion Values	Outstanding adhesion to rusty or poorly prepared and wet surfaces (> 1200 psi / 8 MPa)
Back-in-service Times	Quick back-in-service times. Systems can 'continue to cure' underwater
Application Method	Easy to apply by brush, roller or spray
Compatibility	Compatible with almost all protective coatings, including shop primers and coal-tar epoxies

Cargo Hold

Cargo Tank

Deck

Diesel Fuel Tank

Pipework

Void Tank

MULTI-PURPOSE TANK LINING SYSTEM

EPO-CHEM™ RS 500P AND RA 500M

Chemco's multi-purpose tank lining system comprises two products offering an innovative **solvent-free, wet & rust tolerant** solution:

- **Epo-chem™ RS 500P (Primer)**
- **Epo-chem™ RA 500M (Topcoat)**

This revolutionary system can be utilised for the following tank applications:

- Sea Water Ballast
- Potable Water
- Grey/Black Water
- Sewage
- Crude Oil
- Refined Oil (Diesel/Petrol)
- Cargo
- Mud/Brine

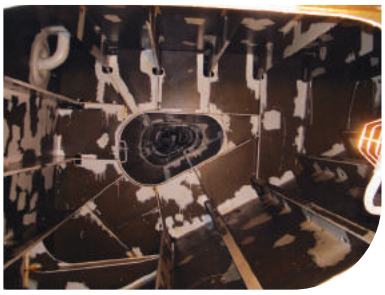
SEA WATER BALLAST TANKS

The application of conventional paint systems in sea water ballast tanks can lead to many problems; shrinkage, porosity, becoming brittle with age, bad edge and weld coverage. Conventional paint systems additionally have extensive equipment requirements necessary for environmental control. Soft coatings are also no longer acceptable due to changes in IMO regulations.

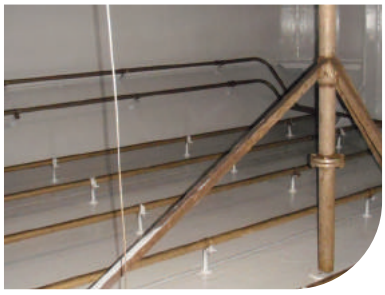
Chemco's innovative coating system eradicates all traditional sea water ballast tank problems. This **solvent-free, wet & rust tolerant** system has passed independent tests for IMO Resolution MSC.215(82) for application in sea water ballast tanks on bare steel, shop primed steel and uniquely on wet & rusty steel.

Millions of square metres of this revolutionary coating system have now been applied in sea water ballast tanks by almost all major shipping companies throughout the world.

Sea Water Ballast Tank
Shop-Primer Steel



Sea Water Ballast Tank
Coal-tar Epoxy Repair



Crude Oil Tank

CRUDE OIL CARGO TANKS

Crude oil cargo tanks are now required to be coated with an IMO approved coating system due to changes in regulations.

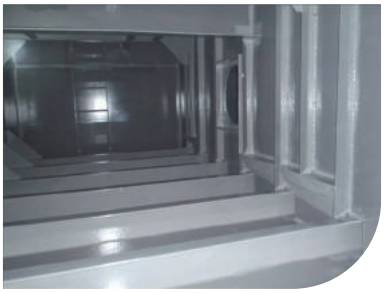
RS 500P and RA 500M have also passed independent tests for IMO Resolution MSC.288(87) for application in crude oil cargo tanks on bare steel, shop primed steel and on wet & rusty steel.

POTABLE, SEWAGE AND FUEL TANKS

RS 500P and RA 500M provide a coating system exhibiting excellent chemical resistance specifically suitable for application in greywater, blackwater and fuel tanks.

This unique tank lining system has also achieved the following approvals for application in potable water tanks:

- NSF certified for potable water applications
- FDA approved for food contact and potable water



Potable Water Tank

Greywater Tank

SWIMMING POOLS

These multi-functional coatings can also be utilised as a swimming pool lining due to their versatile characteristics:

- Quick and easy refurbishment (no disruption to vessel operations)
- No grit blasting requirements
- Smooth, seamless and aesthetically-pleasing finish
- Troublesome tile-based systems can be replaced with ease
- Exceptional chlorine resistance
- Long-term **maintenance-free** performance

Applying Primer to Mechanically Prepared Swimming Pool

WET & RUST TOLERANT STRUCTURAL/EXTERNAL COATING

EPO-CHEM™ RL 500PF

RL 500PF is a high solids, **wet, rust & oil tolerant** primer/finish coating system. It has been specifically designed as a one-coat system or as a high performance coating which can be over-coated with coloured topcoats.

This system has been specified and utilised by almost all major marine, offshore, petrochemical and power generation companies.

Introduced in 2001, RL 500PF has been applied over millions of square metres across all industries with complete success.

SYSTEM BENEFITS

- **Wet, rust & oil tolerant**
- Any surface preparation method can be utilised; abrasive blasting, water jetting or mechanical
- Apply and operate at temperatures up to 150°C
- No humidity or dew point restrictions
- No overcoating limitations
- Good UV resistance and colour stability
- Can be applied in any environmental condition
- Significantly reduces downtime for outdoor contracts
- Exceptional adhesion to wet & rusty surfaces

TIME AND COST SAVINGS GUARANTEED

Substantial time and cost savings can be achieved in many projects by reducing the number of coats; RL 500PF can be utilised as a one-coat system.

RL 500PF can also be applied immediately after surface preparation by water jetting with no delays due to flash rust or wet substrate; the system exhibits outstanding adhesion to wet & rusty surfaces. The unique characteristics of RL 500PF additionally allow this system to be applied in adverse weather conditions.

Further savings can be achieved as RL 500PF can be applied on hot surfaces without process shutdown (e.g. live steam pipes).

HIGH TEMPERATURE APPLICATIONS AND C.U.I.

RL 500PF can be applied to almost all areas of a vessel operating at high temperature. This system has also been extensively used and specified for Corrosion Under Insulation (C.U.I.) with an excellent track record.

For areas where the temperature exceeds 150°C, Hot-cote™ RA 900, a high solids, silicon hybrid coating, can be utilised.

APPLICATION AREAS

RL 500PF exhibits exceptional adhesion on difficult substrates; stainless steel, new or old galvanised steel and exotic metals. The coating is also compatible with many aged paint systems.

The system has been extensively used in the following areas:

- Steam Pipes
- Decks
- Superstructures
- Funnels
- Bulkheads
- Shaft Tunnels
- External Fittings
- All Tank Externals

HIGH PERFORMANCE TOPCOATS

Topcoats are designed to provide an aesthetically pleasing finish and a protective barrier against UV attack.
In the marine and offshore industries, topcoats can also be utilised to colour co-ordinate various structures in accordance with H&S standards.

EPO-CHEM™ RC 500GTC

RC 500GTC is a state-of-the-art high performance epoxy acrylic topcoat. This unique system has exceptional chemical and UV resistance for exposed surfaces where colour retention, high gloss and an aesthetically-pleasing finish are required.

The **amine-free** coating was specifically designed for applications where the use of isocyanate-based (polyurethane) products is prohibited (e.g. Offshore).

APPLICATION AREAS

RC 500GTC has been extensively utilised for a wide range of applications:

- Tank & Pipe Externals
- Topsides
- Boottops
- Swimming pools
- Bulkheads
- Decks & Balconies
- Funnels
- Cranes

This multi-purpose topcoat can also be applied to areas immersed, or operating at high temperatures.

CHEMICAL RESISTANCE

Chemco's RC 500GTC uniquely offers excellent chemical resistance; unlike conventional topcoats (e.g. acrylic, PU and acrylic PU).

The exceptional saltwater resistance of RC 500GTC makes this system the ideal topcoat for marine and offshore structures.

EXCELLENT PRODUCTIVITY

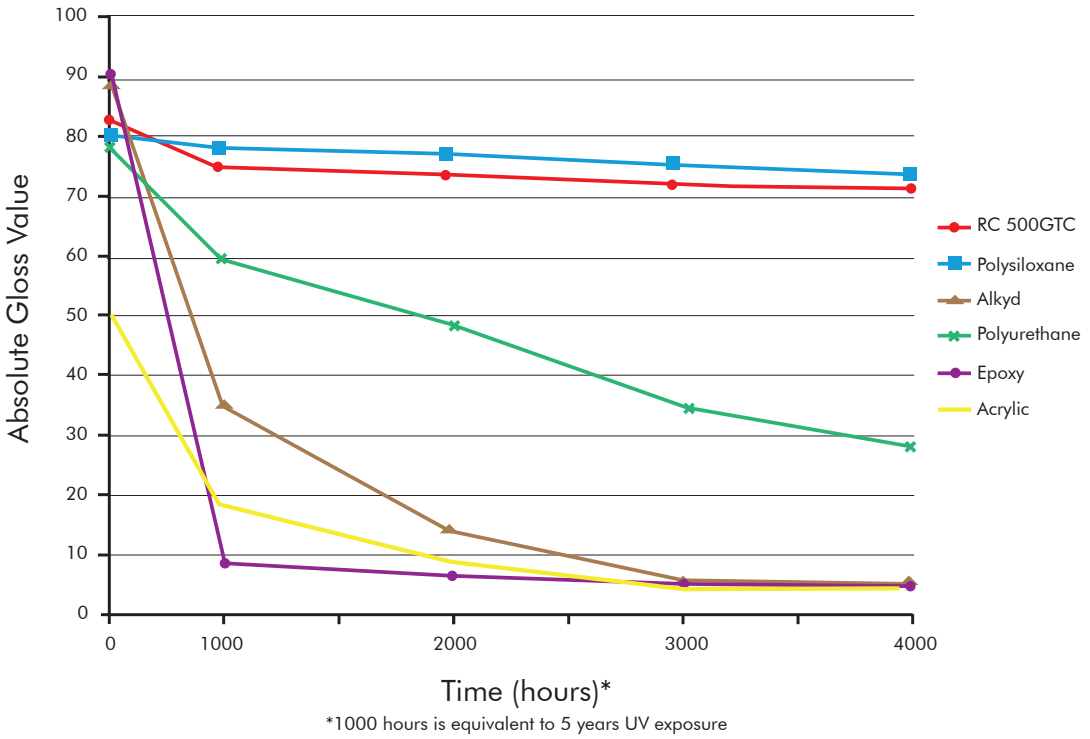
RC 500GTC exhibits outstanding opacity; substantial time and cost savings can be achieved as only a single coat is required to cover dark surfaces with light colours.

A long pot life and short drying time also provide excellent productivity and reduced downtime.

UV RESISTANCE

RC 500GTC has been specifically formulated to offer outstanding UV protection in the harsh environments existing in the marine and offshore industries.

Independent tests have proven that RC 500GTC outperforms other market leading topcoats. This system also directly competes with, but does not encounter any of the problems faced by, polysiloxane coatings.



*1000 hours is equivalent to 5 years UV exposure

OTHER TOPCOATS

Chemco also offer a wide range of innovative **water-based** epoxy, acrylic and silicon topcoats for a variety of applications.

Product	Primary Characteristics
Easi-guard™ RM 500LR	**Water-based,** fire retardant, light reflective epoxy topcoat
Fast-guard™ RN 500TC	**Water-based** acrylic topcoat
Easi-gloss™ RX 500GS	**Water-based** epoxy gloss topcoat
Easi-cote™ RX 500MT	**Water-based** epoxy matt topcoat
Hot-cote™ RG 900TC	**Water-based** silicon topcoat (< 350°C)

CHEM-GLIDE™ RA 500CG

RA 500CG is a unique **solvent-free, biocide-free, non-toxic, non-stick** and **scrubbable** hull coating utilised as an environmentally friendly and cost-effective alternative to conventional anti-fouling paints.

RA 500CG provides a highly chemical and abrasion resistant barrier with high flexibility and exceptional impact resistance.

The smooth, glossy and non-stick properties make it perfectly suitable as a hull coating.

Rudder after application of **Chem-glide™ RA 500CG**

FUEL SAVINGS

Fuel consumption is significantly reduced by utilising this state-of-the-art, innovative, non-stick hull coating which does not provide support for marine growth. Independent trials have shown that Chem-glide™ RA 500CG has exceptional fouling, abrasion and impact resistance.

Chemco uniquely offer specialised hull coating specifications for all vessel types and trading patterns. Contact Chemco's Marine Technical Department for further details.

Rudder and Kort Nozzle in perfect condition after 18 months in-service

LOW COST MAINTENANCE

The hull can be effortlessly cleaned by water jetting and/or soft scrubbing to remove any marine fouling; returning the coating to its original condition.

Areas affected by mechanical damage can be easily and effectively repaired.

ENVIRONMENTAL IMPACT

Conventional paint systems utilised in the marine industry are responsible for over 200 million litres of solvent emissions per year being unnecessarily released into the atmosphere. The harmful biocides and chemicals typically found in these systems are also poisoning our oceans. Strict changes in environmental legislation have already begun to ban hazardous anti-fouling paints.

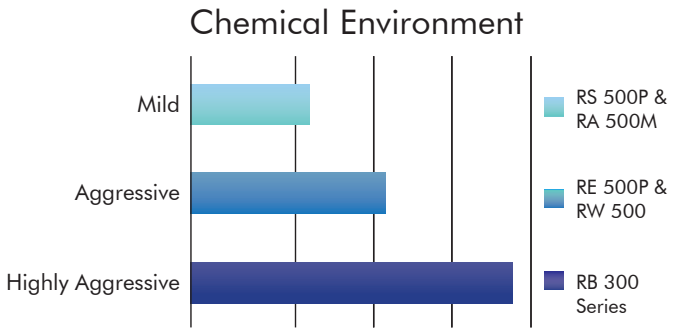
RA 500CG is an environmentally friendly coating system which does **not** contain any harmful biocides, chemicals or solvents.

CHEMCO V CONVENTIONAL ANTI-FOULING PAINT

	Chem-glide™ RA 500CG	Conventional Anti-fouling Paints
Environmental Impact	**Solvent-free** with no biocides, harmful chemicals or leaching compounds	Variable high solvent content; typically contains harmful biocides and chemicals
Glassflake Technology	Glassflake reinforced, offering extremely good abrasion and chemical resistance properties	No physical and mechanical strength
Weather Conditions	No restrictions	Application in adverse weather conditions is prohibited
Number of Coats	**Two-coat system**	**Three to five-coat systems**
H&S and Fire Hazard	Significantly reduced	Flammable products carrying major risks
Low Cost Maintenance & Cleaning	Marine growth can be easily removed by water jetting and scrubbing; touch-up repairs can be undertaken where required	Conventional anti-fouling paints have a definitive lifespan; the hull normally requires to be re-blasted and repainted every 5 years

Chemco offer three cargo tank lining systems specifically designed for application within chemical tankers, covering the full pH range from 1 to 14:

- SYSTEM 1: RS 500P & RA 500M
- SYSTEM 2: RE 500P & RW 500
- SYSTEM 3: RB 300 Series

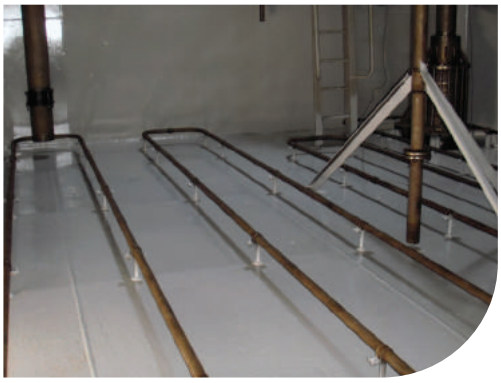


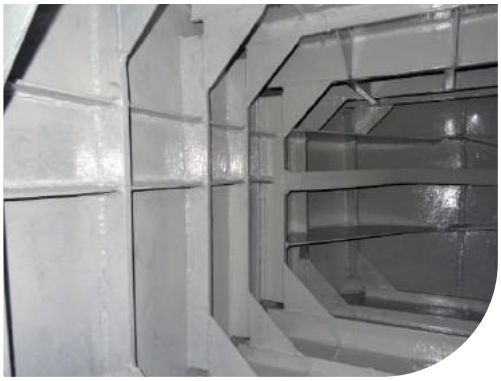
RE 500P & RW 500:
The world's first chemical tank lining system which can be applied to water-jet prepared surfaces.

SYSTEM 1: Epo-chem™ RS 500P & RA 500M

Solvent-free, wet & rust tolerant, glassflake epoxy coating system providing good resistance to general chemicals; crude oil, refined oil, saltwater and greywater.

This system has been IMO approved for application in sea water ballast tanks and crude oil cargo tanks. It has also been certified by NSF for potable water applications and FDA approved for carrying food and potable water.



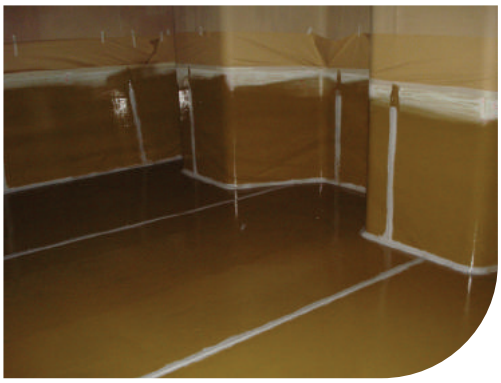


System Benefits:

- **Solvent-free**
- **Wet & rust tolerant**
- Reduced H&S and Fire Hazard
- Excellent resistance to general chemicals
- Major cost savings (reduced labour, surface preparation and equipment cost)
- No humidity or dew point restrictions
- Compatible with all epoxy shop primers and existing tank linings

SYSTEM 2: Epo-chem™ RE 500P & RW 500

Solvent-free, rust tolerant, high temperature, glassflake epoxy Novolac system offering excellent resistance to highly aggressive chemicals; ethanol, methanol and caustic soda.



System Benefits:

- **Solvent-free**
- Any surface preparation method can be utilised; abrasive blasting, water jetting or mechanical
- Excellent chemical and high temperature resistance
- Reduced H&S and Fire Hazard
- Reduced overall project cost and downtime
- Environmentally friendly system

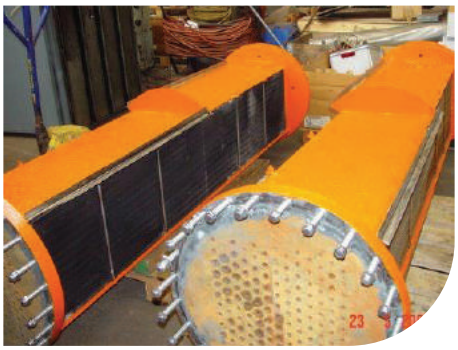
SYSTEM 3: Chem-tect™ RB 300 Series

100% solid, high quality, glassflake vinylester system offering exceptional resistance to aggressive chemicals at high temperatures; acids and solvents.

System Benefits:

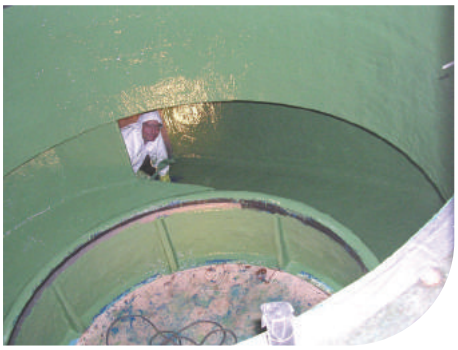
- Excellent resistance to aggressive chemicals and high temperatures
- Ideal tank lining system for multi-purpose chemical storage vessels
- Excellent resistance to thermal ageing, severe corrosive and abrasive environments
- Full pH protection (1 – 14)
- **Maintenance-free** and easy to repair
- Fast curing allowing quick overcoating, fast application and quick back-in-service times

Thrusters Tunnel

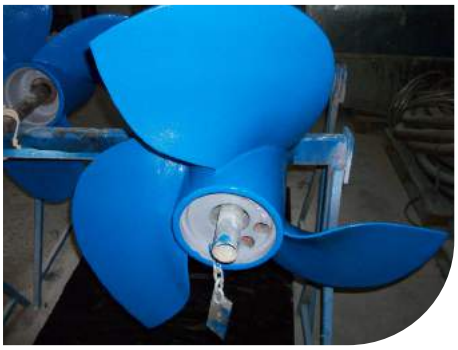


Heat Exchanger

Duplex Strainer



Concrete Volute Pump



Propeller / Fan Blade

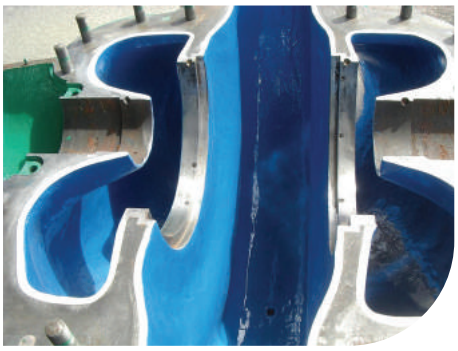
CERAMIC SYSTEMS

Chemco's ceramic systems have been specifically designed using a blend of ceramics and specialised epoxy technologies suitable for the repair and protection of process equipment used in highly abrasive and fluid-flow environments.

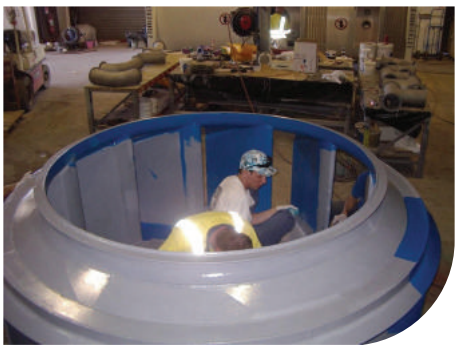
These systems are categorised based on their chemical and temperature resistance; ranging from ambient temperature and mild chemical resistance, to high temperature and aggressive chemical resistance

System benefits:

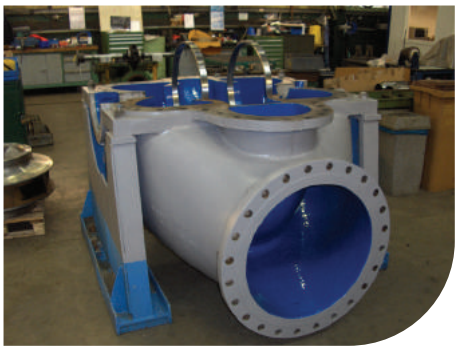
- **Solvent-free**
- Extremely hardwearing
- Improved efficiency
- Excellent abrasion and erosion resistance
- Machinable finish
- Exceptional chemical resistance



Pump Casing

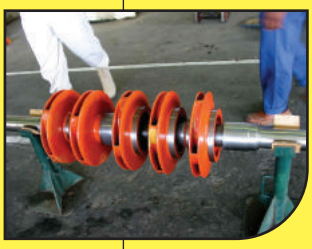


Impeller



Pump

GUIDE TO CHEMCO CERAMIC SYSTEMS

	Application	Coating	Product	
System 1 	Ambient temperature and mild chemicals	Primer*	Epo-chem™ RS 500P	**Solvent-free, wet & rust tolerant** epoxy primer
		Filler/Putty	Ceram-chem™ RH 500	High density machinable epoxy putty
		Topcoat/Sealer	Ceram-chem™ RP 500	High efficiency, **solvent-free**, abrasion resistant ceramic topcoat
System 2 	Medium temperature and aggressive chemicals	Primer*	Epo-chem™ RE 500P	**Solvent-free, surface (rust) tolerant** epoxy Novolac primer
		Filler/Putty	Ceram-chem™ RT 500	High density, high temperature machinable epoxy putty
		Topcoat/Sealer	Ceram-chem™ RU 500	**Solvent-free**, epoxy Novolac ceramic topcoat
System 3 	High temperature and aggressive chemicals	Primer*	N/A	N/A
		Filler/Putty	Hot-cote™ RE 900	High density, high temperature machinable epoxy putty
		Topcoat/Sealer	Hot-cote™ RF 900	High temperature, **solvent-free**, ceramic epoxy topcoat
System 4 	Abrasion resistant lining	Primer*	Epo-chem™ RE 500P	**Solvent-free, surface (rust) tolerant** Novolac primer
		Filler/Putty	InD-cote™	High density, high temperature, abrasion resistant, epoxy Novolac lining
		Topcoat/Sealer	Ceram-chem™ RU 500	**Solvent-free**, epoxy Novolac ceramic topcoat

* The use of primer is optional and depends on the surface preparation standard. Products can be applied direct to metal if minimum surface preparation standard of Sa 2½ and surface profile of 75µm is achieved.

OUR LOCATIONS

Head Office
Chemco International Ltd
East Shawhead Industrial Estate
Coatbridge
North Lanarkshire
ML5 4XD
Scotland, UK
Phone: +44 (0)1236 606060 | Fax: +44 (0)1236 606070 | Email: sales@chemcoint.com | Website: www.chemcoint.com

Rev: May 2019