



## FLOWCHEM

- ▶ Protect aggressive environments subject to chemical, thermal or mechanical attack with Flowcrete's range of low shrink vinyl ester resin lining and coating systems.

# Superior Protection against Chemical Attack

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Exposure to concentrated acids, alkalis and aggressive solvents can lead to severe degradation of the floor and wall coverings in any chemical processing environment, as well as metal walkways and structures and tank linings.

Flowcrete's unique low-shrink Flowchem range has been engineered to support the toughest of environments, offering first class resistance to most of these corrosive agents and delivering exceptional protection against their potentially irreparable damage. All systems are fast cure systems, and the range provides a thermal shock resistant finish to ensure a reliable and easily maintained finish.

What's more, with insulation, isolation and electrostatic performance benefits, the Flowchem range delivers the ultimate in corrosion protection to take on the chemical processing industries.

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## Transforming Chemical Processing Environments

Offering total protection against corrosive agents and chemical attack, Flowchem systems can support even the toughest of facilities in a range of applications.



Weather resistant protection



Chemical processing plants



Metal structure coatings

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## Resin Technology

All Flowchem systems are available in resin types (T1, T2 or T3). The resin type is dependent on chemical exposure and other operating conditions. For more information, please consult your Flowcrete representative.



## Performance Benefits

✓	Exceptional chemical resistance
✓	Low-shrink to reduce stress
✓	Withstands temperatures up to 185°C
✓	Coatings can be applied to a range of substrates
✓	Vertical systems available for tanks and silos
✓	Abrasion and impact resistant
✓	Withstands thermal shock
✓	Antistatic grades available to protect against shock
✓	Some finishes are UV resistant
✓	Fast cure systems minimise downtime
✓	Easy to clean and maintain



# Technical Specifications

## PRODUCT SELECTOR

How to choose the optimum product for your application:

- 1 Select your intended area of application.
- 2 Identify your possible system options.
- 3 Make your final selection using the ratings given.

## SYSTEM PERFORMANCE GUIDE

The table shows how well the system complies with different performance characteristics using a scale from 1 to 5.

- 5 Excellent 4 Very Good 3 Good (pass) 2 Fair 1 Poor

System Options	Flowchem VE Roller Coat	RC Composite	Flowchem VE Spray Coat	Flowchem VE Self Levelling	Flowchem VE Glass Lining	Flowchem VE Honeycomb	Flowchem VE HD V - 5mm	Flowchem VE HD H - 5mm	Flowchem VE HD H - 10mm	Flowchem VE HD H - 15mm
<b>AREAS OF APPLICATION</b>	<b>COATINGS</b>			<b>LININGS</b>			<b>FLOOR SCREEDS AND RENDERS</b>			
Secondary Containment Bunds					✓	✓	✓	✓	✓	
Storage and Warehousing	✓	✓		✓	✓		✓	✓	✓	✓
Waste Water Treatment			✓M		✓	✓				
Metal Tank Linings	✓M		✓M		✓M					
Liquid Processing		✓		✓	✓		✓	✓	✓	
Dry Powder Processing	✓			✓	✓		✓	✓	✓	
Solvent Handling and Storage	✓	✓		✓	✓		✓		✓	✓
Explosion Risk (♦)	✓♦	✓♦			✓♦	✓♦	✓♦	✓♦	✓♦	✓♦
Plant and Battery Rooms	✓	✓	✓M	✓	✓		✓	✓	✓	
Clean Room Laboratories	✓	✓		✓			✓	✓		
Liquid Nitrogen Handling					✓		✓			
Tanker Handling Bays					✓		✓			✓
Flue Gas Desulphurisation Process					✓	✓	✓		✓	
<b>PERFORMANCE CRITERIA</b>										
Fire Safety	5	5	5	5	5	n/a	5	5	5	5
Slip Resistance	3	5	3	4	2/3	n/a	4	4	4	4
Impact Resistance	2	3	3	4	5	3/4	5	4	5	5
Thermal Resistance	5	5	5	5	5	5	5	5	5	5
Heavy Traffic	3	4	3	4	4	2/3	4	4	5	5
Impermeability	5	5	5	5	5	n/a	5	5	5	5
Wear Resistance	3	3	5	5	5	n/a	5	5	5	5
Chemical Resistance	5	5	5	5	5	5	5	5	5	5
Scratch Resistance	4	4	5	4	4	n/a	5	5	5	5
Cleanability	5	3	5	4	5	n/a	4	4	4	4
ESD Systems Available	♦	♦	n/a	n/a	♦	♦	♦	♦	♦	♦

♦ ESD Systems Available M Metal Substrate System

Chemical Base of System	Cement Based	Epoxy Resin	Polyurethane Resin	Vinyl Ester Resin
<b>CHEMICAL CONDITIONS (Spillage)</b>				
Acetic Acid - 30% at 20°C			✓	✓
Acetic Acid (glacial) - 100% at 40°C				✓
Citric Acid - 30% at 20°C		✓	✓	✓
Citric Acid - 100% at 100°C				✓
Hydrochloric Acid - 10% at 20°C			✓	✓
Hydrochloric Acid - 37% at 80°C				✓
Lactic Acid - 10% at 20°C		✓	✓	✓
Lactic Acid - 100% at 100°C				✓
Nitric Acid - 10% at 20°C			✓	✓
Nitric Acid - 50% at 20°C				✓
Sodium Hydroxide - 50% at 20°C	✓	✓	✓	✓
Sodium Hydroxide - 50% at 80°C				✓
Sulphuric Acid - 20% at 20°C		✓	✓	✓
Sulphuric Acid - 95% at 20°C				✓
Ethanol, Butanol and Methanol	✓		✓	✓
Sugars		✓	✓	✓
<b>CHEMICAL CONDITIONS (Spillage)</b>				
Steam Cleaning	✓		✓ (9mm)	✓
Maximum Temperature	200°C plus	60°C	110°C (9mm)	145 - 185°C
Ultimate Compressive Strength (Mpa)	50	60	70	120+





## Superior Chemical Resistance

Flowchem's impressive performance benefits make the range suitable for application in a range of environments.

✓	Chemical processing
✓	Chemical storage
✓	Tank linings
✓	Wastewater treatment
✓	Plant rooms
✓	Outdoor walkways
✓	Concrete and metal structures





# Flowchem VE GL (2–3 mm)

A hand or spray applied low-shrink vinyl ester resin based glass fibre reinforced lining system.

Designed for the protection of concrete and metal structures subject to continuous or occasional exposure to heavy duty chemical, thermal and mechanical attack.



### Thermal resistance:

Can withstand a temperatures up to 165°C.



### Chemical Resistant:

Protects against the majority of acids used in manufacturing processes.



### Abrasion Resistant:

Holds its own against impact, traffic and chemical attack.



### Fast Curing:

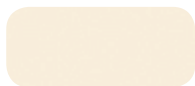
Minimises downtime for less interruption to industry.



### UV Stable:

UV light stable grade is available. Prevents from yellowing effect.

## Colours



Cream



Light Grey



Green



Dark Grey

## Technical Profile

### APPLICATION SUITABILITY

- ✓ New build
- ✓ Refurbishment

### THICKNESS

2–3mm

### CHEMICAL RESISTANCE

Contact your local Technical Department

### TEMPERATURE RESISTANCE

Tolerant up to 165°C

### SLIP RESISTANCE

BS 7976-2 Dry >40 low slip potential

### BARCOL HARDNESS

ASTM 2583 > 50

### VOLUME SHRINKAGE

< 0.004 % Rill 4 2.5.3.2.1

### COMPRESSIVE STRENGTH

ASTM D-695 160 MPa

### FLEXURAL STRENGTH

ASTM D-790 125MPa

### TENSILE STRENGTH

ASTM D 638 73 MPa

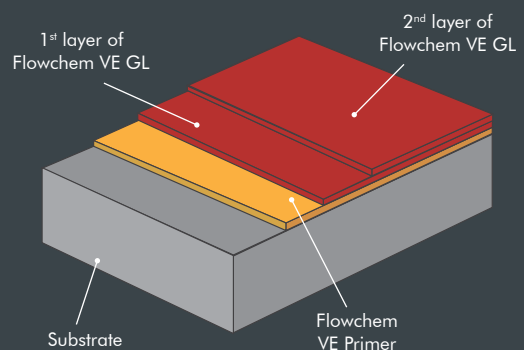
### SPEED OF CURE

20 °C

Light Traffic 12 hours

Full Traffic 24 hours

Full Chemical Cure 72 hours





# Flowchem VE RC (0.5–1 mm)

A roller coat shrinkage compensated vinyl ester resin based coating system with excellent chemical and mechanical resistance.

For the protection of concrete walls, floors, kerbs, equipment bases, trenches and drains against aggressive chemicals, solvents and heavy duty mechanical plus thermal attack.



### Thermal resistance:

Can withstand a temperatures up to 145°C.



### Chemical Resistant:

Protects against the majority of acids used in manufacturing processes.



### Abrasion Resistant:

Holds its own against impact, traffic and chemical attack.



### Fast Curing:

Minimises downtime for less interruption to industry.



### UV Stable:

UV light stable grade is available. Prevents from yellowing effect.



### Easy to clean:

A seamless, smooth finish that is easy to clean and maintain.



## Technical Profile

### APPLICATION SUITABILITY

- ✓ New build
- ✓ Refurbishment

### CHEMICAL RESISTANCE

Contact your local Technical Department

### TEMPERATURE RESISTANCE

ASTM D 648-56 Tolerant up to 145°C

### SLIP RESISTANCE

BS 7976-2 Dry >40 low slip potential

### BARCOL HARDNESS

ASTM 2583 > 40

### E-MODULUS

ASTM D 695 3.1 GPa

### VOLUME SHRINKAGE

< 0.004 % Rill 4 2.5.3.2.1

### FLEXURAL STRENGTH

ASTM D 790 125 MPa

### TENSILE STRENGTH

ASTM D 638 73 MPa

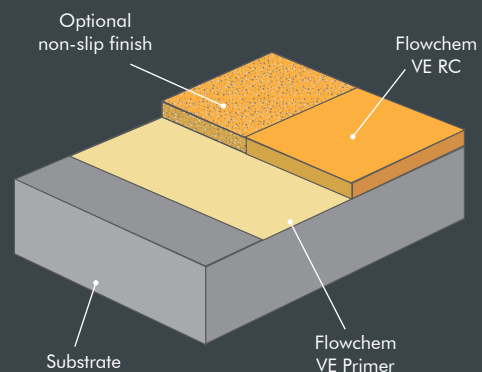
### SPEED OF CURE

20°C

Light Traffic 12 hours

Full Traffic 24 hours

Full Chemical Cure 72 hours



The applied colours may differ from the examples shown. For a full colour chart and samples, contact your local Flowcrete office.





Vinyl Ester

## Flowchem VE H-05 (5 mm)

A horizontal, trowel applied, low-shrink vinyl ester resin based screed system.

Applied at 5mm thick, Flowchem VE H-05 has high resistance properties and is used to protect against aggressive chemicals, solvents and thermal attack in medium duty environments.



Thermal resistance up to 160°C



Excellent chemical resistance



Abrasion and impact resistant



Fast curing for minimum downtime

### Technical Profile

#### APPLICATION SUITABILITY

✓ New build      ✓ Refurbishment

#### CHEMICAL RESISTANCE

Contact your local Technical Department

#### TEMPERATURE RESISTANCE

Tolerant up to 160°C

#### VOLUME SHRINKAGE

< 0.003 % Rill 4 2.5.3.2.1

#### COMPRESSIVE STRENGTH

ASTM D 695      120 MPa

#### FLEXURAL STRENGTH

ASTM D 790      42 MPa

#### TENSILE STRENGTH

ASTM D 638      23 MPa

### Technical Profile

#### APPLICATION SUITABILITY

✓ New build      ✓ Refurbishment

#### CHEMICAL RESISTANCE

Contact your local Technical Department

#### TEMPERATURE RESISTANCE

Tolerant up to 185°C

#### VOLUME SHRINKAGE

< 0.003 % Rill 4 2.5.3.2.1

#### COMPRESSIVE STRENGTH

ASTM D 695      120 MPa

#### FLEXURAL STRENGTH

ASTM D 790      42 MPa

#### TENSILE STRENGTH

ASTM D 638      23 MPa

## Flowchem VE H-10 (10 mm)

A horizontal, trowel applied, low-shrink vinyl ester resin based screed system with high resistance properties.

Flowchem VE H-10 protects against aggressive chemicals, solvents and thermal attack in medium to heavy duty environments.



Thermal resistance up to 185°C



Excellent chemical resistance



Abrasion and impact resistant



Fast curing for minimum downtime

## Technical Profile

### APPLICATION SUITABILITY

✓ New build      ✓ Refurbishment

### CHEMICAL RESISTANCE

Contact your local Technical Department

### TEMPERATURE RESISTANCE

Tolerant up to 160°C

### VOLUME SHRINKAGE

< 0.003 % Rill 4 2.5.3.2.1

### VOLUME SHRINKAGE

< 0.003 % Rill 4 2.5.3.2.1

### FLEXURAL STRENGTH

ASTM D 790      42 MPa

### TENSILE STRENGTH

ASTM D 638      23 MPa

## Flowchem VE V-05 (5 mm)

A vertical trowel applied vinyl ester resin based screed system with excellent chemical and mechanical resistance.

Protects concrete walls, kerbs & equipment bases against aggressive chemicals, solvents and thermal attack.



Thermal resistance up to 160°C



Excellent chemical resistance



Abrasion and impact resistant



Fast curing for minimum downtime

## Flowchem VE SL (3 mm)

A horizontal self smoothing shrinkage compensated vinyl ester resin based floor screed system with excellent resistance properties.

For the protection of concrete floors and bunds against aggressive chemicals, solvents and thermal attack in medium to heavy duty areas.



Thermal resistance up to 145°C



Excellent chemical resistance



Abrasion and impact resistant



Fast curing for minimum downtime

## Technical Profile

### APPLICATION SUITABILITY

✓ New build      ✓ Refurbishment

### CHEMICAL RESISTANCE

See chart [www.flowcrete.com](http://www.flowcrete.com)

### TEMPERATURE RESISTANCE

ASTM 648.56      145°C max

### SLIP RESISTANCE

BS 7976-2      Dry >40 low slip potential

### COMPRESSIVE STRENGTH

ASTM D 695      120 MPa

### FLEXURAL STRENGTH

ASTM D 790      100 MPa

### TENSILE STRENGTH

ASTM D 638      50 MPa





## Technical Profile

### APPLICATION SUITABILITY

- ✓ New build
- ✓ Refurbishment

### FIRE RESISTANCE

BS476:Part7      Class 1

### SLIP RESISTANCE

TRRL Pendulum Slip Test      Dry >40, Wet depends on specification

### CHEMICAL RESISTANCE

Contact your local Technical Department

### TEMPERATURE RESISTANCE

Tolerant up to 70°C

### ABRASION RESISTANCE

Taber Abrader      80 mg loss per 1000 cycles (1 kg load using CS10 wheels)

### COMPRESSIVE STRENGTH

BS6319      >60 N/mm<sup>2</sup>

### FLEXURAL STRENGTH

BS6319      >40 N/mm<sup>2</sup>

## Flowchem NE RC

A two pack, solvent free, novolac epoxy resin based coating with extremely high chemical resistance.

Available in a non-slip grade, this flooring provides an easy to clean, highly chemical resistant finish that is suitable for use in processing and manufacturing environments.



Extremely high chemical resistance



High abrasion resistance



Low maintenance and easy to clean



Slip resistant version available

# Flowchem NE SL (1 mm)

An extremely hard-wearing, self-smoothing novolac epoxy resin with high resistance properties.

Suited to dry chemical process areas where the floor is subjected to chemical spillage and a variety of traffic, from laboratories and chemical storage to aerospace and warehouses.



### Chemical Resistant:

Protects against the majority of acids used in manufacturing processes.



### Abrasion Resistant:

Holds its own against impact, traffic and chemical attack.



### Easy to clean:

A seamless, smooth finish that is easy to clean and maintain.



### Durable:

Holds its own against medium to heavy duty foot, trolley and fork-lift truck traffic.

## Colours



Signal Yellow



Pastel Green



Emerald Green



Light Blue



Tomato Red



Sky Blue



Light Grey



Agate Grey



Tele Grey



Window Grey

## Technical Profile

### APPLICATION SUITABILITY

- ✓ New build
- ✓ Refurbishment

### CHEMICAL RESISTANCE

Contact your local Technical Department

### TEMPERATURE RESISTANCE

Tolerant up to 60°C

### SLIP RESISTANCE

BS 7976-2 Dry 67

### WATER PERMEABILITY

Karsten Test Nil-Impermeable

### COMPRESSIVE STRENGTH

BS6319 >60 N/mm<sup>2</sup>

### FLEXURAL STRENGTH

BS6319 >40 N/mm<sup>2</sup>

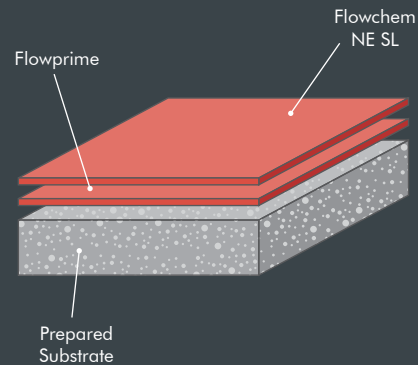
### TENSILE STRENGTH

BS6319 >25 N/mm<sup>2</sup>

### BOND STRENGTH

Greater than the cohesive strength of 25 N/mm<sup>2</sup> concrete > 1.5MPa\*

SPEED OF CURE**	10°C	20°C	30°C
Light Traffic	30 hrs	24 hrs	12 hrs
Full Traffic	72 hrs	48 hrs	24 hrs
Full Chemical Cure	12 days	7 days	6 days



\*Assumes concrete compressive strength is greater than 25N/mm<sup>2</sup>

\*\* Cure times at temperatures between 0-30°C can be achieved by altering the quantity of catalyst used. For applications falling outside of this temperature range, please contact your local Flowcrete Technical Department.

The applied colours may differ from the examples shown. For a full colour chart and samples, contact your local Flowcrete office.

# Flowchem NE SL ESD

Flowchem NE SL ESD is a hard-wearing and self-smoothing epoxy resin floor solution with a solid, vibrantly coloured finish, available in Conductive and Dissipative grades.

Suitable for dry process areas where the floor is subject to medium to heavy duty traffic such as laboratories and electronic testing areas.



### Antistatic:

Reduces the risk of damage to sensitive electronic equipment.



### Chemical Resistant:

Protects against the majority of acids used in manufacturing processes.



### Abrasion Resistant:

Holds its own against impact, traffic and chemical attack.



### Easy to clean:

A seamless, smooth finish that is easy to clean and maintain.

## Colours



Ivory



Yellow



Light Blue



Dark Blue



Light Green



Dark Green



Brick Red



Light Grey



Steel Grey



Charcoal

## Technical Profile

### ELECTRICAL RESISTANCE: CONDUCTIVE

$2.5 \times 10^4 - 1.0 \times 10^6 \Omega$  (ASTM F150)  
 $5.0 \times 10^4 - 1.0 \times 10^8 \Omega$  (BS2050)

### ELECTRICAL RESISTANCE: DISSIPATIVE

$1.0 \times 10^6 - 1.0 \times 10^9 \Omega$

### BODY VOLTAGE GENERATION (BVG): CONDUCTIVE

<100V (IEC 61340-4-5 and ANSI/ESD STM 97.1/97.2)

### TEMPERATURE RESISTANCE

Softens over 60°C

### WATER PERMEABILITY

Karsten Test

Nil-Impermeable

### BOND STRENGTH

Greater than the cohesive strength of 25 N/mm<sup>2</sup> concrete  
 > 1.5MPa\*

### FIRE RESISTANCE

BS476

Part 7 Surface spread of flame: Class 2 (indicative)

### SLIP RESISTANCE

TRRL Pendulum Slip Test

Dry >67

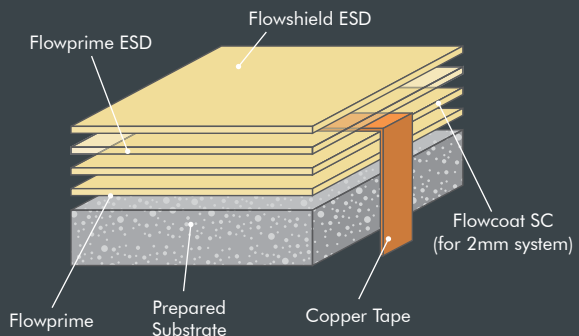
### ABRASION RESISTANCE

Taber Abrader

80mg loss per 1000 cycles (1kg Load using CS17 wheels)

### SPEED OF CURE\*\*

	10°C	20°C	30°C
Light Traffic	36 hrs	30 hrs	24 hrs
Full Traffic	72 hrs	48 hrs	36 hrs
Full Chemical Cure	12 days	7 days	6 days



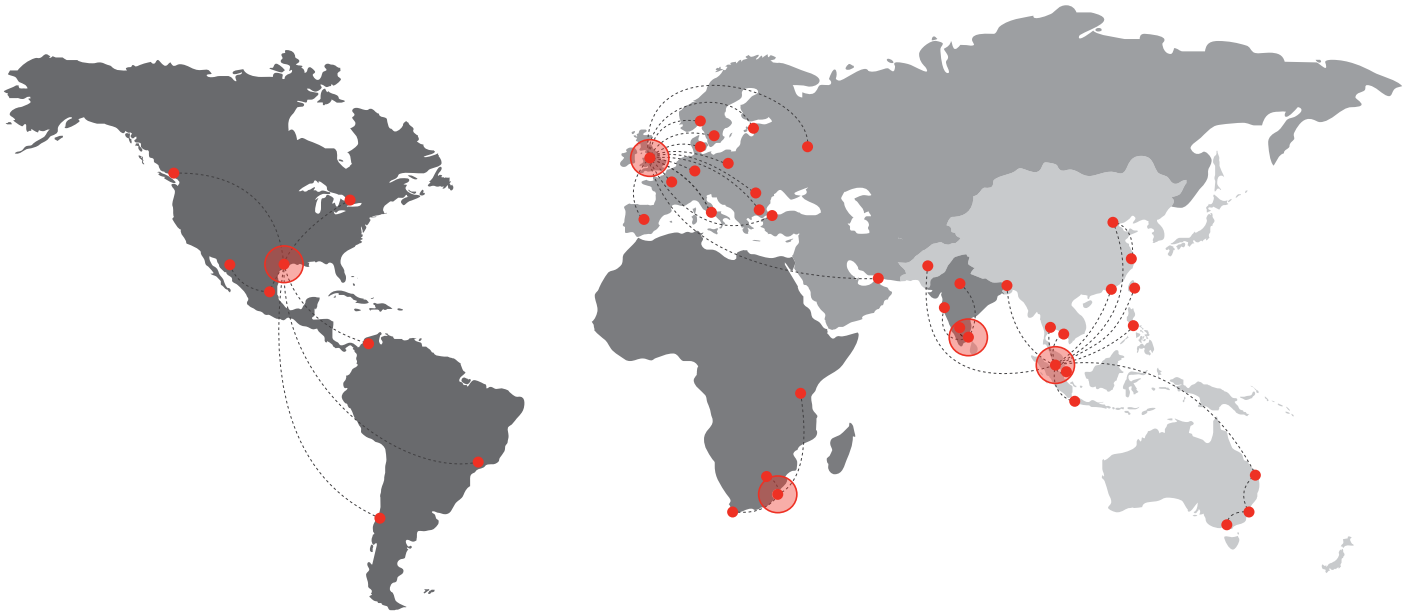
\*Assumes concrete compressive strength is greater than 25N/mm<sup>2</sup>

\*\* Cure times at temperatures between 0-30°C can be achieved by altering the quantity of catalyst used. For applications falling outside of this temperature range, please contact your local Flowcrete Technical Department.

The applied colours may differ from the examples shown. For a full colour chart and samples, contact your local Flowcrete office.







## Flowcrete

World leader in seamless resin flooring solutions and other specialist coatings.

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