



► Static dissipative and conductive flooring systems for...

## ELECTRONIC ENVIRONMENTS

# Welcome to Flowcrete Asia

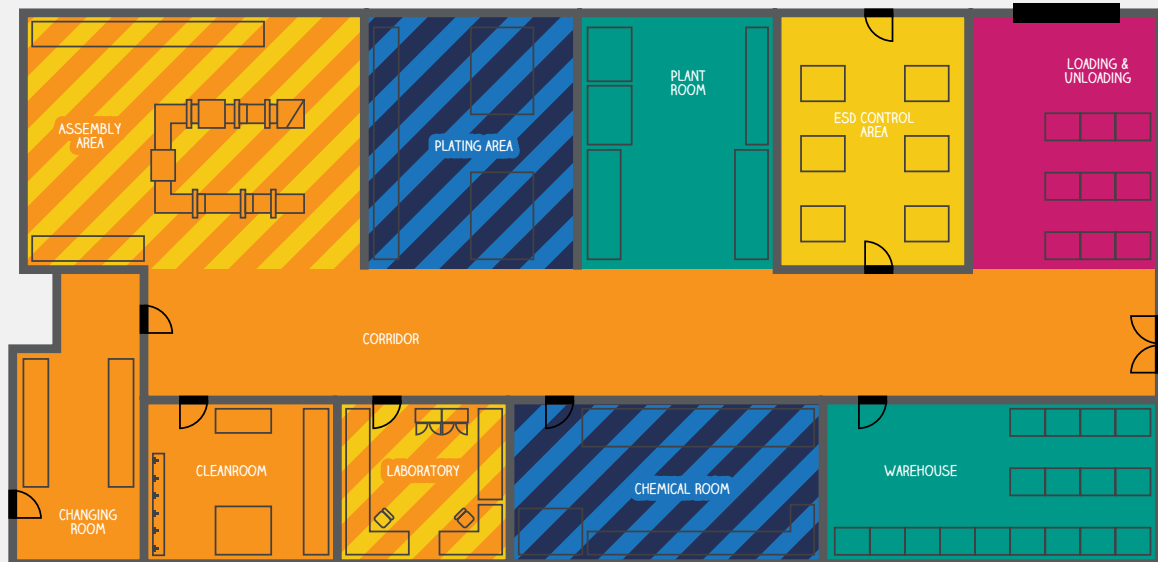
With the ever growing investment in the electronics manufacturing industry across the Southeast Asia region and beyond, the demand for electrostatic sensitive manufacturing environments is as high as ever.










Flowcrete's range of anti-static flooring can help to safely dissipate the build-up of electrostatic charge whilst meeting BS2050, ANSI/ESD 2020, ASTM F150, IEC 61340-5-1 requirements.

Flowcrete's broad range of industrial grade solutions meets all of the specialised needs associated with the electronic manufacturing and processing industries, with anti-static, low VOC, heavy duty flooring systems, chemical resistant finishes and hygienic wall coating.

Operating from its manufacturing plant in Malaysia, and with warehousing facilities throughout Southeast Asia, Flowcrete Asia is well placed to serve electronic manufacturing environments across the region.

## Electronics Environment Floor Plan



	Flowshield ESD Conductive		Flowshield UCR 1000		Flowcoat HTS
	Flowshield SL		Flowshield UCR 1000		Flowcoat SF41
	Flowshield ESD Conductive or Flowshield SL		Flowshield UCR 1000 or Flowchem VE GL		Flowseal EPW Wall Sealer or Flowgard WB

For the application suitability of each system, look out for the check mark symbol throughout the brochure.



## What is ESD Flooring?

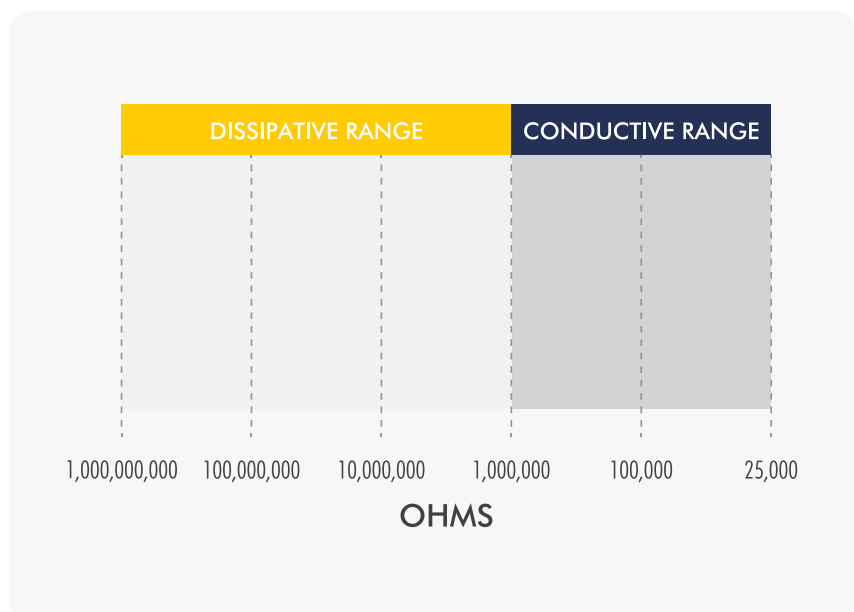
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Electrostatic Discharge (ESD) refers to the rapid, spontaneous transfer of electrostatic charge induced by a high electrostatic field.

Charge can build-up while simply walking across the floor of a processing environment.

Without flooring materials equipped with adequate protection, that charge can be passed to sensitive electronic components, causing irreversible damage.

Systems are categorised as Conductive or Dissipative, determined using various testing methods.



# Flowshield ESD Conductive

(Thickness dependent on specification)



An anti-static epoxy resin floor finish that complies with BS2050, ANSI/ESDS2020, ASTM F150 Conductive, IEC 61340-4-1 and IEC 61340-4-5.

ESD CONTROL ROOMS, ASSEMBLY AREAS, LABORATORIES

## Standard Colours



### ELECTRICAL RESISTANCE

ASTM F150	$2.5 \times 10^4 - 1.0 \times 10^6 \Omega$
BS 2050	$5.0 \times 10^4 - 1.0 \times 10^8 \Omega$

### BODY VOLTAGE GENERATION (BVG)

IEC 61340-4-5 and ANSI/ESD STM 97.1/97.2	<100 V
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### COMPRESSIVE STRENGTH

BS 6319	60 N/mm <sup>2</sup>
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### SLIP RESISTANCE

Method described in BS 7976-2 (typical values for 4-S rubber slider)	Dry >40, Wet depends on specification (in accordance with HSE and UKSRG guidelines)
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# Flowcoat HTS

(Thickness dependent on specification)

A high performance, UV light stable, chemical resistant, extremely abrasion resistant pigmented hybrid polyurethane coating system. Flowcoat HTS is used primarily in heavily trafficked environments where durability is essential.

WAREHOUSES, PLANT ROOMS

## Standard Colours



### SLIP RESISTANCE

Method described in BS 7976-2 (typical values for 4-S rubber slider)	Dry >40, Wet depends on specification (in accordance with HSE and UKSRG guidelines)
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### ABRASION RESISTANCE

Taber Abrader (1 kg load using CS10 wheels)	40 mg loss per 1000 cycles
BS 8204-2	Grade AR2

### THERMAL RESISTANCE

Tolerant up to 70°C

# Electrostatic Dissipative Flooring Comparison

	ESD CARPET TILE	ESD CARPET	ESD VINYL TILE	ESD VINYL SHEET	ESD EPOXY	ESD RUBBER
ESD PERFORMANCE	Excellent	Good	Excellent	Excellent	Excellent	Good
INSTALLATION COST	Moderate	Lowest	Low	Low	Moderate	Highest
DURABILITY	Not suitable for heavy loads	Not suitable for heavy loads	Excellent	Excellent	Superior	Good
HABITUAL CLEANING	Vacuum only	Vacuum only	Sweeping and damp mopping	Sweeping and damp mopping	Sweeping and damp mopping	Sweeping and damp mopping
MAINTENANCE	Hot water extraction as required	Hot water extraction as required	Buffing and waxing optional	Buffing and waxing optional	Buffing and waxing optional	Sealing optional
CHEMICAL RESISTANCE	Poor (not recommended)	Poor (not recommended)	Good	Good	Superior	Excellent
ACID, ALKALI & SOLVENT RESISTANCE	Poor (not recommended)	Poor (not recommended)	Good	Good	Superior	Excellent
COMPRESSIVE STRENGTH	N/A	N/A	Moderate	Low	Highest	Lowest
COLOUR THROUGHOUT	N/A	N/A	Yes (manufacturer specific)	Yes	Yes	Yes (manufacturer specific)
COLOUR CONSISTENCY FOR LARGE PROJECTS	Yes	Yes	Yes	Yes	Yes	Yes

# Flowseal EPW Wall (0.2 mm)

A hygienic, pigmented, water-based epoxy wall sealer, suitable for environments where hygiene from floor to ceiling is critical. Flowseal EPW Wall has met the requirements of a number of cleanroom standards set out by the IPA, in accordance with the Cleanroom Suitable Materials test parameters.

WALLS, CEILINGS, CLEANROOMS

## Standard Colours



White



Oyster



Silver Grey



Dolphin Grey



Sky Blue



Pale Green

### FIRE RESISTANCE

EN 13501-1	B <sub>fl</sub> - s1
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### TEMPERATURE RESISTANCE

Tolerant up to 60°C

### VAPOUR PERMEABILITY

ASTM E96:90	20 g / m <sup>2</sup> / mm / 24hr
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### CHEMICAL RESISTANCE

Contact Technical Department

### SPEED OF CURE\*\*

	10°C	20°C	30°C
Overcoating Time	16 hrs	8 hrs	6 hrs
Full Chemical Cure	14 days	7 days	6 days

\*\*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.

## System Benefits



Delivers a seamless, hygienic & easy to clean finish



Vapour permeable so the substrate can breathe



Attractive finish to enhance workspaces

## Flowseal EPW Wall Cleanroom Suitability



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



## System Benefits



Delivers a seamless, hygienic & easy to clean finish



Attractive finish to enhance workspaces



Low odour application



Crack bridging

## Flowgard WB (0.2 mm)

A single component water based polyurethane interior wall coating that provides a smooth, non yellowing, flexible and hygienic wall surface. Flowgard WB can be applied onto a variety of substrates including concrete, masonry, steel, wood and plastic.

WALLS, CEILINGS

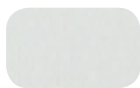
### Standard Colours



White



Oyster



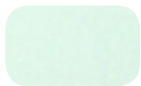
Silver Grey



Dolphin Grey



Sky Blue



Pale Green

### FIRE RESISTANCE

EN 13501-1

B<sub>fl</sub> - s1

### TEMPERATURE RESISTANCE

Tolerant up to 60°C

### VAPOUR PERMEABILITY

ASTM E96:90

20 g / m<sup>2</sup> / mm / 24hr

### CHEMICAL RESISTANCE

Contact Technical Department

### SPEED OF CURE\*\*

20°C

30°C

Surface Dry

1.5 hrs

1 hr

Hard Dry

5 hrs

3 hrs

Full Chemical Cure

7 days

6 days

\*\*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.

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

# Flowshield UCR 1000 (1 mm)

An extremely chemical resistant, hard wearing, self-smoothing novolac epoxy resin flooring system that resists medium to heavy traffic.

PLATING AREAS, CHEMICAL ROOMS

## Standard Colours



### SLIP RESISTANCE

BS 7976-2 (typical values for 4-S rubber slider)	Dry >40, Wet depends on specification (in accordance with HSE and UKSRG guidelines)
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### ABRASION RESISTANCE

Taber Abrader (1kg load using CS17 wheels)	90mg loss per 1000 cycles
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### COMPRESSIVE STRENGTH

BS 6319	>60 N/mm <sup>2</sup>
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### FLEXURAL STRENGTH

BS 6319	>40 N/mm <sup>2</sup>
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# Flowchem VE GL (1.5–3 mm)

A roller or spray applied vinyl ester based, fiberglass-reinforced lining system that provides excellent chemical and thermal resistance (up to 165°C). Flowchem VE GL protects concrete and metal structures subject to continuous or occasional exposure to aggressive chemicals, thermal and mechanical stress.

PLATING AREAS

## Standard Colours



### BARCOL HARDNESS

ASTM 2583	>30
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### E-MODULUS

ASTM D-695	3.1 GPa
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### VOLUME SHRINKAGE\*

ASTM D2566	7.5–9.8%
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### FLEXURAL STRENGTH\*

ASTM D790	117–150 MPa
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\*Different resin types of Flowchem VE GL are available. Ranges are provided to cover results from all variations.

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





# Flowshield SL (2-3 mm)

A high-gloss, self smoothing epoxy resin floor coating system that has met the requirements of a number of cleanroom standards set out by the IPA.

- ✓ ASSEMBLY AREAS, CORRIDORS, CLEANROOMS, LABORATORIES, CHANGING ROOMS

## Standard Colours



### TEMPERATURE RESISTANCE

Tolerant of sustained temperatures up to 60°C

### SLIP RESISTANCE

Method described in BS 7976-2 (typical values for 4-S rubber slider)

Dry >40, Wet depends on specification (in accordance with HSE and UKSRG guidelines)

### COMPRESSIVE STRENGTH

EN 13892-2

>50 N/mm<sup>2</sup>

### FIRE RESISTANCE

EN 13501-1

B<sub>FL</sub> - s1

### WATER PERMEABILITY

Karsten Test

Nil (Impermeable)

### ABRASION RESISTANCE

Taber Abrader (1 kg load using CS17 wheels)

90mg loss per 1000 cycles

### FLEXURAL STRENGTH




EN 13892-2

>30 N/mm<sup>2</sup>

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

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

## System Benefits

-  High chemical & abrasion resistance
-  Seamless, hygienic finish
-  Cleanroom Suitable Material (IPA)

## Flowshield SL Cleanroom Suitability



# Flowcoat SF41

(Thickness dependent on specification)

A chemical resistant, solvent free, high-build epoxy resin coating system with graded aggregates between coats for tailored slip resistance.

LOADING & UNLOADING

## Standard Colours



### SLIP RESISTANCE

Method described in BS 7976-2 (typical values for 4-S rubber slider)	Dry >40, Wet depends on specification (in accordance with HSE and UKSRG guidelines)
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### ABRASION RESISTANCE

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

BS 6319	>60 N/mm <sup>2</sup>
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### FLEXURAL STRENGTH

BS 6319	>40 N/mm <sup>2</sup>
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Applied colours may differ from the examples shown. For a full technical profile, colour chart and samples, contact your local Flowcrete office.

## Flowcrete Flooring Systems Summary

	THICKNESS	TYPE	DESCRIPTION
<b>FLOWSHIELD ESD CONDUCTIVE</b>	Dependent on specification	Epoxy	Anti-static self-smoothing epoxy resin floor finish.
<b>FLOWCOAT HTS</b>	Dependent on specification	Hybrid polyurethane	High performance hybrid polyurethane coating system.
<b>FLOWSEAL EPW WALL</b>	0.2mm	Epoxy	Hygienic, pigmented, water-based epoxy wall sealer.
<b>FLOWGARD WB</b>	0.2mm	Polyurethane	Single component water based polyurethane wall coating.
<b>FLOWSHIELD UCR 1000</b>	1mm	Novolac epoxy	Chemical resistant, self-smoothing novolac epoxy.
<b>FLOWCHEM VE GL</b>	1.5–3mm	Vinyl ester	Vinyl ester based, fiberglass-reinforced lining system.
<b>FLOWSHIELD SL</b>	2–3mm	Epoxy	High-gloss, self-smoothing epoxy resin floor finish.
<b>FLOWCOAT SF41</b>	Dependent on specification	Epoxy	High-build epoxy resin with graded aggregates.

**Flowcrete**  
for the world at your feet



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