

## SCHEDA DATI SISTEMA

# Sikafloor® MultiDur ES-28 ECF/EQ

SMOOTH, ULTRA-LOW VOC, ELECTROSTATICALLY DISSIPATIVE FLOOR COVERING

## DESCRIZIONE DI PRODOTTO

**SCHEDA DI UN SISTEMA CHE NON ABBIAMO IN SIKA ITALIA, NON TRADOTTA, NON AGGIORNATA**

Sikafloor® MultiDur ES-28 ECF/EQ is a total solid, electrostatically conductive, low particle and ultra-low VOC/AMC emission, self-smoothing epoxy flooring system designed for cleanroom environments.

## IMPIEGHI

Sikafloor® MultiDur ES-28 ECF/EQ può essere utilizzato esclusivamente da professionisti in possesso di un adeguato livello di capacità ed esperienza.

It is used as:

- Especially designed for the use in cleanroom environments, where ultra-low VOC/AMC and particle emissions are mandatory, such as optical goods, medical or space industry.
- Also suitable as a hard wearing course for many industries, such as automotive, pharmaceutical, storage facilities and warehouses.

## CARATTERISTICHE / VANTAGGI

- Ultra-low VOC/AMC emissions
- Low particle emissions
- Organo phosphate and phthalate free
- Good chemical and mechanical resistance
- Electrostatically conductive system
- Easy to clean
- Economical
- Liquid proof
- Total solid
- Gloss finish

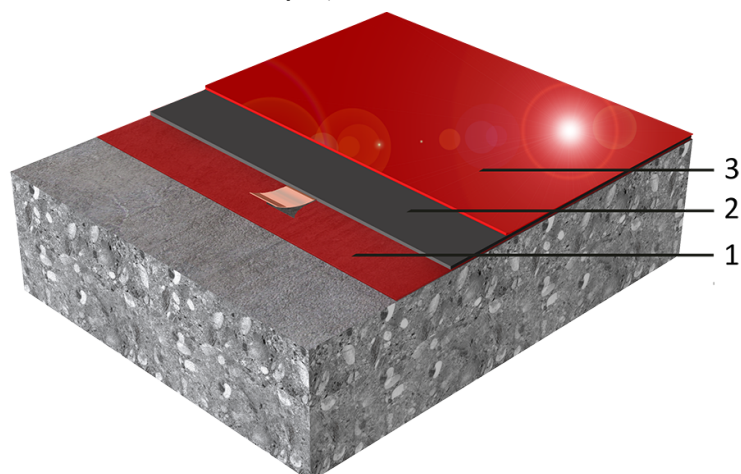
## CERTIFICAZIONI / NORMATIVE

- Self-smoothing, coloured epoxy resin coating according to EN 1504-2: 2004 and EN 13813, DoP 0208 01 02 045 0 000008 2017, certified by Factory Production Control Body No. 0921, certificate 2017, and provided with the CE-mark.
- Particle emission certificate Sikafloor®-269 ECF CR CSM Statement of Qualification - ISO 14644-1, class 4
- Report No. SI 0908-494 and GMP class A, Report No. SI1008-533.
- Outgassing emission certificate Sikafloor-269 ECF CR: CSM Statement of Qualification - ISO 14644-8, class - 9.6 - Report No. SI 0908-494.
- Biological Resistance in accordance with ISO 846, CSM Report No. SI 1008-533.
- Fire classification in accordance with EN 13501-1, Report-No. 2009-1823 K1, Bodycoat Frankfurt, Germany, August 2009.
- Outgassing Datasheet Sikafloor®-269 ECF CR (+90°C), M+W Group, 13.05.2009.

## INFORMAZIONI DI SISTEMA

Struttura del sistema

Sikafloor® MultiDur ES-28 ECF/EQ:



1. Primer + Earthing connection	Sikafloor®-144/-156/-160/-161/-701+ Sika® Earthing Kit
2. Conductive primer	Sikafloor®-220 W Conductive
3. Final conductive coating	Sikafloor®-269 ECF CR filled with Sikafloor®-Filler 1

The system configuration as described must be fully complied with and may not be changed.

<b>Base chimica</b>	Epoxy
<b>Aspetto</b>	Self-smoothing system – gloss finish
<b>Colore</b>	Almost unlimited choice of colour shades. Due to the nature of carbon fibres providing the conductivity, it is not possible to achieve exact colour matching. With very bright colours (such as yellow and orange), this effect is increased. Under direct sunlight there may be some variations and colour variation, this has no influence on the function and performance of the coating.
<b>Spessore nominale</b>	~ 1.0 - 1.5 mm
<b>Contenuto di composti organici volatili (VOC)</b>	Ultra low content of volatile organic compounds. Sikafloor®-269 ECF CR, the finishing layer of the Sikafloor® MultiDur ES-28 ECF/EQ System, has been awarded the Fraunhofer IPA CSM Certificate of Qualification with the report number SI 0908-494. The outgassing test was performed in accordance with CSM procedures. TVOC: ISO-AMC Class -9.6 (see ISO 14644-8).

## INFORMAZIONI TECNICHE

<b>Durezza Shore D</b>	~ 84 (resin filled)	(14 days / +23 °C)	(DIN 53 505)
<b>Resistenza all'abrasione</b>	~ 50 mg (resin filled)	(CS 10/1000/1000) (14 days / +23 °C)	(DIN 53109 Taber Abraser Test)
<b>Resistenza a compressione</b>	~ 100 N/mm <sup>2</sup> (resin filled)	(28 days / +23 °C)	(EN 13892-2)
<b>Resistenza a trazione</b>	~ 44 N/mm <sup>2</sup> (resin filled)	(28 days / +23 °C)	(EN 13892-2)
<b>Reazione al fuoco</b>	Bfl s1		(EN 13501-1)
<b>Resistenza chimica</b>	Resistant to many chemicals. Contact Sika technical service for specific information.		

<b>Resistenza termica</b>	<b>Exposure*</b>		<b>Dry heat</b>
	Permanent		+50 °C
	Short-term max. 7 d		+80 °C
Short-term moist/wet heat* up to +80 °C where exposure is only occasional (i.e. during steam cleaning etc.) *No simultaneous chemical and mechanical exposure.			
<b>USGBC LEED Rating</b>	Conforms to the requirements of LEED EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings SCAQMD Method 304-91 VOC Content < 100 g/l		
<b>Comportamento elettrostatico</b>	Resistance to ground <sup>1</sup>	$R_g < 10^9 \Omega$	(IEC 61340-4-1)
	Typical average resistance to ground <sup>2</sup>	$R_g < 10^6 \Omega$	(DIN EN 1081)
<sup>1</sup> In accordance with IEC 61340-5-1 and ANSI/ESD S20.20. <sup>2</sup> Readings may vary, depending on ambient conditions (i.e. temperature, humidity) and measurement equipment.			

## INFORMAZIONI PER L'APPLICAZIONE

<b>Consumo</b>	<b>Coating</b>	<b>Product</b>	<b>Consumption</b>
	Primer	Sikafloor®-144/-156/-160/-161/-701	1-2 x ~ 0.3 - 0.5 kg/m <sup>2</sup>
	Levelling (if required)	Sikafloor®-144/-156/-160/-161/-701 levelling mortar	Refer to PDS of Sikafloor®-144/-156/-160/-161/-701
	Earthing connection	Sika® Earthing Kit	1 earthing point per approx. 200 -300 m <sup>2</sup> , min. 2 per room.
	Conductive primer	Sikafloor®-220 W Conductive	1 x 0.08 - 0.10 kg/m <sup>2</sup>
	Final conductive coating	Sikafloor®-269 ECF CR filled with Sikafloor® Filler 1*	Maximum 2.0 kg/m <sup>2</sup> Binder + Sikafloor® Filler 1. Filling grade: 1 : 0.1 pbw to 1 : 0.2 pbw (Depending on the air temperature the filling grade varies)

These figures are theoretical and do not allow for any additional material due to surface porosity, surface profile, variations in level or wastage etc.  
\* All values have been determined using Sikafloor® Filler 1. Other type off fillers will have an effect on the product, such as filling grade, levelling properties and aesthetics. Generally, the lower the temperature the less the filling grade.

<b>Temperatura ambiente</b>	+15 °C min. / +30 °C max.
<b>Umidità relativa dell'aria</b>	80 % r.h. max.
<b>Punto di rugiada</b>	Beware of condensation! The substrate and uncured floor must be at least 3 °C above dew point to reduce the risk of condensation or blooming on the floor finish.
<b>Temperatura del substrato / supporto</b>	+15 °C min. / +30 °C max.
<b>Contenuto di umidità del substrato / supporto</b>	<4 % pbw moisture content. Test method: Sika Tramex Meter, CM-measurement or Oven-Dry-Method. No rising moisture according to ASTM (Polyethylene-sheet).

## Tempo di attesa / sovracopertura

Before applying Sikafloor®-220 W Conductive on Sikafloor®-144 allow:

Substrate temperature	Minimum	Maximum
+10°C	26 hours	4 days
+20°C	24 hours	2 days
+30°C	12 hours	1 days

Before applying Sikafloor®-220 W Conductive on Sikafloor®-701 allow:

Substrate temperature	Minimum	Maximum
+10°C	36 hours	4 days
+20°C	24 hours	2 days
+30°C	12 hours	1 days

Before applying Sikafloor®-220 W Conductive on Sikafloor®-156/-160/-161 allow:

Substrate temperature	Minimum	Maximum
+10°C	24 hours	4 days
+20°C	12 hours	2 days
+30°C	8 hours	1 days

Before applying Sikafloor®-269 ECF CR on Sikafloor®-220 W Conductive allow:

Substrate temperature	Minimum	Maximum
+10°C	26 hours	7 days
+20°C	17 hours	5 days
+30°C	12 hours	4 days

Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

## Prodotti applicati pronti per l'uso

Temperature	Foot traffic	Light traffic	Full cure
+15°C	~ 72 hours	~ 7 days	~ 21 days
+20°C	~ 48 hours	~ 4 days	~ 7 days
+30°C	~ 24 hours	~ 2 days	~ 5 days

Note: Times are approximate and will be affected by changing ambient conditions

## INFORMAZIONI DI PRODOTTO

Imballaggio	Please refer to individual Product Data Sheet.
Durata di conservazione	Please refer to individual Product Data Sheet.
Condizioni di immagazzinamento	Please refer to individual Product Data Sheet.

## MANUTENZIONE

To maintain the appearance of the floor after application, Sikafloor®-269 ECF CR must have all spillages removed immediately and must be regularly cleaned using rotary brush, mechanical scrubbers, scrubber dryer, high pressure washer, wash and vacuum techniques etc. using suitable detergents.

### PULIZIA

Please refer to the Sikafloor® Cleaning Regime.

## ULTERIORI DOCUMENTI

Please refer to:

- Sika® Method Statement Mixing and Application of Flooring Systems
- Sika® Method Statement Surface Evaluation & Preparation

## LIMITAZIONI

- This system may only be used by experienced professionals.
- Due to the nature of carbon fibres providing the conductivity, surface irregularities might be possible. This has no influence on the function and performance of the coating.
- Do not apply the Sikafloor® MultiDur ES-28 ECF/EQ System on substrates in which significant vapour pressure may occur.
- Do not blind the primer.
- The freshly applied final conductive coating of the Sikafloor® MultiDur ES-28 ECF/EQ system must be protected from damp, condensation and water for at least 24 hours.
- Only start application of Sikafloor® conductive primer after the priming coat has dried tack-free all over. Otherwise there is a risk of wrinkling or impairing of the conductive properties.
- Maximum layer thickness of the final conductive coating

ting: ~ 1.5 mm. Excessive thickness (more than 2.0 kg/m<sup>2</sup>) causes reduced conductivity.

- Under certain conditions, underfloor heating combined with high point loading, may lead to imprints in the resin.
- If heating is required do not use gas, oil, paraffin or other fossil fuel heaters, these produce large quantities of both CO<sub>2</sub> and H<sub>2</sub>O water vapour, which may adversely affect the finish. For heating use only electric powered warm air blower systems.
- The incorrect assessment and treatment of cracks may lead to a reduced service life and reflective cracking - reducing or breaking conductivity.
- For exact colour matching, ensure the final conductive coating of the Sikafloor® MultiDur ES-28 ECF/EQ system in each area is applied from the same control batch numbers.
- ESD clothing, ambient conditions, measurement equipment, cleanliness of the floor and the test person have a substantial influence on the measurement results.

All measurement values for the Sikafloor® MultiDur ES-28 ECF/EQ system stated in the system data sheet (apart from the ones referring to proof statements) were measured under the following conditions:

Ambient conditions:	+23 °C/50%
Measurement device for the Resistance to Ground:	Metriso 2000 (Warmbier) or comparable
Surface resistance probe:	Carbon Rubber electrode. Weight: 2.50 kg / Tripod electrode acc. DIN EN 1081
Rubber pad hardness:	Shore A 60 (± 10)

The number of conductivity measurements is strongly recommended to be as shown in the table below:

Ready applied area	Number of measurements
< 10 m <sup>2</sup>	6 measurements
< 100 m <sup>2</sup>	10-20 measurements
<1000 m <sup>2</sup>	50 measurements
<5000 m <sup>2</sup>	100 measurements

In case of values lower/higher as required, additional measurements has to be carried out, approx. 30 cm around the point with insufficient readings. If the newly measured values are in accordance with the requirements, the total area is acceptable.

Installation of earthing points: Please refer to the Method Statement: "MIXING & APPLICATION OF FLOORING SYSTEMS".

Numbers of earth connections: Per room at least 2 earthing points. The optimum number of earth connections depends on the local conditions and should be specified using available drawings.

## VALORI BASE

Tutti i dati tecnici riportati in questa Scheda Dati Prodotto sono basati su test di laboratorio. I dati di misurazione effettiva possono variare a causa di circostanze al di fuori del nostro controllo.

## RESTRIZIONI LOCALI

A seconda delle normative specifiche locali le prestazioni di questo prodotto possono variare da Paese a Paese. Si prega di consultare la Scheda Dati Prodotto locale per la descrizione esatta dei campi di applicazione.

## ECOLOGIA, SALUTE E SICUREZZA

Per informazioni e consigli sulla manipolazione sicura, lo stoccaggio e lo smaltimento di prodotti chimici, l'utilizzatore deve far riferimento alla più recente Scheda di Sicurezza, contenente i dati fisici, ecologici, tossicologici ed altri dati relativi in tema di sicurezza.

## NOTE LEGALI

Le informazioni e, in particolare, le istruzioni relative all'applicazione e all'uso finale dei prodotti Sika sono fornite in buona fede in base alle conoscenze ed all'esperienza attuale di Sika sui prodotti a condizione che gli stessi vengano adeguatamente immagazzinati, movimentati ed utilizzati in condizioni normali ed osservando le raccomandazioni di Sika. Nella pratica, le differenze di materiale, substrati e reali condizioni del luogo sono così varie che non può essere rilasciata alcuna garanzia per la commerciabilità o l'idoneità per uno scopo particolare, allo stesso modo nessuna responsabilità derivante da qualsiasi rapporto giuridico può essere dedotta da queste informazioni, da qualsiasi raccomandazione scritta o da ogni altra consulenza prestata. L'utilizzatore deve testare l'idoneità del prodotto per l'applicazione prevista e la relativa finalità. Sika si riserva il diritto di modificare le proprietà dei suoi prodotti. Devono essere rispettati i diritti di proprietà di terzi. Tutti gli ordini vengono accettati alle nostre vigenti condizioni di vendita e consegna. Gli utilizzatori devono fare sempre riferimento alla versione più recente della locale scheda tecnica relativa al prodotto in questione, le cui copie verranno fornite su richiesta.

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SISTEMA DI GESTIONE  
QUALITA'  
UNI EN ISO 9001:2008  
CERTIFICATO DA  
CERTIQUALITY  
N. 951

Scheda Dati Sistema  
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