TERRALUDIS

IMPACT-ABSORBING SURFACING FOR PLAYGROUNDS

CALZADO

DON'T GIVE UP ON AN ACCESSIBLE SURFACE BECAUSE OF BUDGET.



Calzado installation

Illustrative image

Calzado — the circular route to wet-pour surfacing.

Three origins, three materials

	Tyre SBR	Calzado	Virgin EPDM
Origin	End-of-life used tyres	**Shoe-sole production offcuts**	Virgin synthetic polymer
Originally designed for	Contact with the road	**Prolonged contact with the skin**	Not applicable — synthetic polymer
Road residues	Present	**Absent by origin**	Not applicable
Traceability	Scattered collection streams	**Identified industrial streams**	Supplier traceability

Note — Calzado is a circular elastomeric polymer. The name describes a material origin and grade, not a chemical family.

> The base polymer belongs to the same family as SBR granules: **what differs is the formulation and the history of the material**. A tyre is made to roll and has picked up road residues; a sole is made to be worn in direct contact with the skin, and these offcuts have never been used.

> **Granules made 100% from shoe-sole production offcuts: no virgin material is extracted.** At the end of its service life, the surface can be recycled into new technical surfaces or impact-absorbing base layers.

Fall height follows thickness.

From 0.80 m at 20 mm to 3.00 m at 120 mm, top layer included.

Critical fall height by system thickness

System thickness	Build-up	Critical fall height
20 mm	10 + 10	0.80 m
40 mm	30 + 10	1.30 m
50 mm	40 + 10	1.60 m
60 mm	50 + 10	1.80 m
70 mm	60 + 10	2.10 m
80 mm	70 + 10	2.40 m
90 mm	80 + 10	2.60 m
100 mm	90 + 10	2.70 m
120 mm	110 + 10	3.00 m

Source — Laboratory tests to EN 1177, on a concrete slab. Indicative values, higher on compacted aggregate or asphalt. Total thicknesses, including the 10 mm top layer. The installer adapts thicknesses and binder ratios to each site and carries out the on-site acceptance test.



System section: multicoloured impact-absorbing base layer, pigmented top layer.

Installation

The Calzado top layer goes down considerably faster than EPDM granules — a direct productivity gain on labour.



Laying the Calzado top layer: coloured mix in the foreground, trowelled by the installers.

System build-up

Layer	Thickness	Consumption	PU binder
Primer	—	0.250 kg/m²	—
Calzado base 3–7 mm	to suit fall height	4 kg/cm/m²	12%
Calzado top layer 1–3 mm	10 mm	6 kg/m²	22% ± 2%

Multicoloured Calzado granules receive an encapsulated, UV-protected finish. 15 standard colours, custom colours after study — see the Colours and finishes sheet.

Material properties

Property	Value	Reference
Elastomer content	> 85%	Mill spec.
Granule density	1.180 ± 0.050 g/cm³	Mill spec.
Grading, base / top layer	3–7 / 1–3 mm	Industrial grading

A material designed for human contact.

Calzado granules have undergone toxicological testing by INESCOP, a leading European technology centre for the footwear industry — report no. C-24041693.



From production offcut to graded granule.

Toxicological testing — substances analysed

Substance	Method	Measured content	Regulatory threshold
Phthalates (DBP, DEHP, BBP, DIBP, DINP, DIDP…)	EN ISO 16181-1:2021 (GC-MS)	**< 50 mg/kg — n.d.**	1,000 mg/kg
Organotins (DBT, DOT, TBT, TPhT)	CEN ISO/TS 16179:2013 (GC-MS)	**< 0.2 mg/kg — n.d.**	1,000 mg/kg
PAHs	EN ISO 16190:2022 (GC-MS)	**< 1 mg/kg — n.d.**	20 mg/kg — REACH Annex XVII, entry 50
Chlorinated paraffins C10–C13	INESCOP 1770 (GC/ECD)	**< 0.01%**	< 1.5% (POP)
Heavy metals (Pb / Cd)	CPSC-CH-E1002-08.3 (ICP-MS)	**Pb < 16 · Cd < 16 mg/kg**	Pb < 500 · Cd < 100 mg/kg
Dimethyl fumarate (DMFu)	EN ISO 16186:2022 (GC-MS)	**not detected** (LOQ 0.1 mg/kg)	0.1 mg/kg

n.d. = not detected. Source — INESCOP report no. C-24041693.

All substances analysed are **below the European regulatory thresholds**, most of them below the detection limit.

For PAHs, the measured content is **at least twenty times lower than** the European threshold applicable to playground granules (REACH Annex XVII, entry 50).

Odour-neutral

No sulphur emissions and no tyre smell — a decisive criterion for nurseries, schools and indoor spaces.

Supply-chain traceability

Identified European industrial streams, processed by a licensed and audited operator. Consistent material, free from textile fibres and metal particles. Mill certificates on request, under a non-disclosure agreement.

Hygiene in use

A porous, free-draining system: no puddles and no mud — unlike loose-fill surfaces (sand, bark, wood chip), which need raking, topping up and replacement if contaminated.

Photo credits: Terraludis Systems and industrial partners.

Less material, less work.

The system's economy is measured in material: fewer kilos to buy, transport and install. The values below are weights per m²; they do not prejudge the cost of the works.

Material consumption compared

Item	Calzado	SBR + EPDM
Top layer	**6 kg/m²**	10 kg/m²
Impact-absorbing base layer	**4 kg / cm / m²**	6 kg / cm / m²

Note — Material weights per m² as installed.

How much material per m²?

Calzado granules required, base and top layer included (binder excluded).

Fall height	Total thickness	Granules
1.30 m	40 mm	**18 kg/m²**
2.40 m	80 mm	**34 kg/m²**
3.00 m	120 mm	**50 kg/m²**

Example: a 200 m² area with a 2.40 m fall height needs about 6.8 tonnes of granules.

Less material, a lighter job

Top layer: 6 kg/m² instead of 10 — on 200 m², that is 800 kg less, or 32 fewer 25 kg bags to transport and lay. Base layer: a third less material per centimetre. Less handling, a faster job.

TOP-LAYER MATERIAL

−40 %

6 kg/m² instead of 10 for the top layer.

Over ten years, compared with sand and bark

Loose fill needs regular topping up, raking, depth checks and replacement after contamination, and it limits access for people with reduced mobility. A continuous, free-draining Calzado surface stays in place, walkable and accessible with no intervention.

The range

Calzado base	Impact-absorbing base layer, specified to suit the fall height.
Calzado top	15 standard colours, custom colours after study.
Binders and primers	Polyurethane binders and the system's bonding primer. Data sheets included in the folder.
3D modules	Hemispheres, seats and shapes moulded in Calzado, in colours matching the surface, made to measure.
Circular end of life	At the end of its service life, the surface can be collected, shredded and reused to manufacture technical surfaces or impact-absorbing base layers, with nothing sent to landfill.

Warranty

Three separate commitments: impact absorption, granule cohesion and colour stability, subject to the installation protocol being followed and to documented maintenance. See the Warranty sheet included in the folder.

Note — Commercial warranty from the material supplier, without prejudice to statutory warranties.

For responsible procurement — Granules made 100% from industrial offcuts, and a surface that is recyclable at end of life: Calzado fits public-sector circular-economy policies and scores on the environmental criteria of public tenders.

Got a project? We carry out the design study.

SPECIFICATION
Thickness per zone, set by each item's free fall height.

QUANTITIES
Material quantities and colours, layout plan.

REMOTE SUPPORT
Remote technical support for you and your installer.

contact@terraludis.com · +33 6 70 67 74 43

Design study and specification by Terraludis, then remote technical support for the installer you appoint, who prices and carries out the works.