

LEVEL *iTe* F50[®]

SELF-LEVELLING SCREED

DATA SHEETS

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1. TECHNICAL DATA

1.1 DESCRIPTION

LEVELiTe[®]F50 self-levelling floor screed compound is a free flowing self-levelling compound that has been specifically formulated for levelling and smoothing rough or uneven sub-floors prior to the application of epoxy floor coatings or industrial flooring. Its rapid set, high strength formulation has been designed to repair a variety of sub-floor types, including cement/sand screeds, and concrete floors. The applied compound can be walked on after 2 to 3 hours. Floor coverings – such as epoxy coatings, tiles, vinyl and rubber – can typically be installed 24 hours after application. **LEVELiTe[®]F50** can be feathered down to approximately 0,5mm and is resistant to moisture once cured, and will not swell or delaminate.

LEVELiTe[®]F50 sets to an initial 28MPa after 24 hours and achieves a final setting strength of >35MPa after 28 days.

1.2 SURFACE PREPARATION

*NOTE: For internal use only due to the difficulty of controlling the elements such as temperature and air movement. It is recommended that direct to ground sub-floors be protected from rising damp to prevent dimensional changes in the floor covering or epoxy coating (confirm the maximum permissible moisture content that the floor covering or adhesive can tolerate). **LEVELiTe[®]F50** is resistant to rising moisture and should not swell or delaminate if exposed to reasonable moisture. Standard European practice has evolved that when vinyl flooring is to be installed, the substrate is to be sealed with an epoxy moisture barrier, or similar. **VAPORiTe +PLUS[®]** epoxy moisture barrier system has been specifically developed for this purpose. The surface must be hard, sound, dry and free of dust, dirt and other materials such as grease, oil and paint.*

Due to its flow characteristics, sealing strip should be placed at doorways or where the levelling compound is not desired.

1.3 PRIMING

BONDiTe[®] primer and bonding agent is an essential component in the application of **LEVELiTe[®]**. It acts as a pore sealer which will maintain the flow life and prevent air bubbles rising through the applied **LEVELiTe[®]F50** screed smoothing compound. Accordingly it is necessary to prime all surfaces with **BONDiTe[®]**. With very smooth non-absorbent sub-floors e.g. power floated floors, epoxy coated water barriers, and ceramic tiles it is essential to apply **iTe SLURRY[®]**. See the technical data sheet for **VAPORiTe[®]+PLUS**. When the **iTe SLURRY[®]** is dry, the application of the **LEVELiTe[®]** can proceed.

1.4 MIXING

*Use 5.0 liters of water per 20.5 kg bag. Do NOT over-water. Add the powder to the required amount of clean cool water in a clean mixing container whilst using a +/-600 rpm electric paddle mixed until a lump free screed is produced. This will take approximately 3 to 4 minutes. Stop the mixer and scrape the inside of the mixing vessel to allow any unmixed product to fall onto the paste. Briefly remix the **LEVELiTe[®]F50** and then discharge onto the affected floor.*

*Mixed **LEVELiTe[®]F50** should be applied within 5 minutes at 20°C. This time is extended at lower temperatures and reduced at higher temperatures.*



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1.5 APPLICATION

Pour the mixed **LEVELiTe[®] F50** onto the prepared sub-floor. The mixed mortar will flow out and self-level. Use a suitable notched epoxy rake or spreader to obtain the required thickness; while a long-handled pin leveller/rake with height adjustment will simplify this operation and yield more consistent results. A long-handled spiked roller should be used to prevent air blister from marring the finished surface.

1.6 THICKNESS

LEVELiTe[®] F50 can be applied at a minimum thickness of 0.4mm to a maximum of 15mm in a single application.

When applying **LEVELiTe[®] F50** at a thickness of over 15mm, it is recommended to apply multiple layers, with a coat of **BONDiTe[®]** between each layer. If desired, incorporate up to an equal volume of 3mm clean, dry, fines free, graded gravel to achieve a bulked up system. Alternatively, multiple layers can be applied to the dry previous layer. Contact our technical advisors for detailed information.

1.7 COVERAGE

Approximately 1.6 kg of **LEVELiTe[®] F50** per mm per m². E.g. one 20.5kg bag of **LEVELiTe[®] F50** will give enough material to cover approximately 4.3m² at an average thickness of 3mm.

NOTE: The coverage figure is based on a flat level surface. Additional material should be allowed for where the surface is rough or uneven.

1.8 GENERAL

All data given was tested at a room temperature of 20°C and 50% humidity. Please be aware that the technical data may alter if the climatic conditions are in contrast to that in which the product has been tested, either hardening more quickly or setting slower.

1.9 WARNING

Do not ingest. Keep away from children and pets. Do not empty into a drain. Wear rubber gloves, and in the event of contamination, rinse thoroughly with cold water. Seek medical advice if irritation or discomfort persists. For further information, consult the relevant health and safety data sheet.

1.10 IMPORTANT NOTICE

The information supplied in our literature or given by our employees is given in good faith. We reserve the right to update this information at any time without prior notice. We guarantee the consistent high quality of our product, however we have no control over site conditions or execution of the work, we accept no liability for any loss or damage which may arise as a result thereof.

2. MATERIAL SAFETY DATA

2.1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Name of substance/preparation:

Commercial product name:.....**LEVELiTe[®] F50**

2.1.1 USE OF SUBSTANCE / PREPARATION

Industrial/Commercial.

Used for: Levelling of floors

All other areas of application to be agreed with the Application Engineering/Technical Marketing Department of the manufacturer.

2.1.2 COMPANY NAME

Manufacturer/distributor:.....iTe Products (Pty) Ltd

Street:.....7 Clarke Street South

State/postal code/city:.....Alrode, 1451

Telephone:.....+27 11 864 4918

Telefax:.....+27 11 864 2123

Information about the Safety Data Sheet:.....+27 11 864 4918

eMail:.....info@iteproducts.co.za

2.2 HAZARDS IDENTIFICATION

2.2.1 CLASSIFICATION

Classification (67/548/EEC, 1999/45/EC):

R-Phrase Description – irritant to eyes

This product is not a dangerous preparation within the meaning of Directive 1999/45/EC.

2.2.2 LABELLING

Labelling (67/548/EEC, 1999/45/EC):

R-Phrase Description – 36/38 Irritant to eyes

S-Phrase Description

2.2.3 FURTHER HAZARDS TO HUMAN AND ENVIRONMENT:

The product does not have any further hazards

2.3 COMPOSITION/INFORMATION ON INGREDIENTS

2.3.1 CHEMICAL CHARACTERIZATION:

Mixture

2.3.2 DESCRIPTION:

Mixture of cement and sand mixture with other non hazardous additions

2.4 FIRST-AID MEASURES

2.4.1 GENERAL INFORMATION:

Under ordinary workplace conditions: No special measures required



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2.4.2 AFTER CONTACT WITH THE SKIN

Wash with plenty of water or water and soap.

First-aid measures cont.

2.4.3 AFTER CONTACT WITH THE EYES

Rinse immediately with plenty of water. Seek medical advice in case of continuous irritation.

2.4.4 AFTER SWALLOWING

If conscious, give several small portions of water to drink. Do not induce vomiting. In cases of sickness seek medical advice (show label if possible).

2.4.5 ADVICE FOR THE PHYSICIAN

Due to its physical properties, may cause mechanical irritation. Product may agglutinate in the gastrointestinal tract. Medical assistance should be sought. Depending on the symptoms, invasive measures may be necessary.

2.5 FIRE-FIGHTING MEASURES

2.5.1 SUITABLE EXTINGUISHING MEDIA

Water spray , water mist , extinguishing powder , foam , carbon dioxide .5.2 Extinguishing media which must not be used for safety reasons

Water jet .

2.5.2 SPECIAL EXPOSURE HAZARDS ARISING FROM THE SUBSTANCE OR PREPARATION ITSELF, COMBUSTION PRODUCTS, RESULTING GASES

No further relevant information available

2.5.3 SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING

No further relevant information available

2.5.4 AFTER CONTACT WITH THE SKIN

Wash with plenty of water or water and soap.

First-aid measures cont.

2.5.5 AFTER CONTACT WITH THE EYES

Rinse immediately with plenty of water. Seek medical advice in case of continuous irritation.

2.5.6 AFTER SWALLOWING

If conscious, give several small portions of water to drink. Do not induce vomiting. In cases of sickness seek medical advice (show label if possible).

2.5.7 ADVICE FOR THE PHYSICIAN

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2.6.2 SPECIAL EXPOSURE HAZARDS ARISING FROM THE SUBSTANCE OR PREPARATION ITSELF, COMBUSTION PRODUCTS, RESULTING GASES

No further relevant information available

2.6.3 SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING

No further relevant information available

2.7 ACCIDENTAL RELEASE MEASURES

2.7.1 PERSONAL PRECAUTIONS

Wear a dust mask

2.7.2 ENVIRONMENTAL PRECAUTIONS

Do not allow to enter into sewer, drainage or potable water systems

2.7.3 METHODS FOR CLEANING UP

Take up mechanically and dispose of according to local/state/federal regulations.

2.7.4 FURTHER INFORMATION:

Observe notes under section 7 with regards to safe handling

Observe section 8 for information on personal protective equipment.

2.8 HANDLING AND STORAGE

2.8.1 HANDLING

Precautions for safe handling:

Avoid dust formation.

Precautions against fire and explosion:

No special measures required

2.8.2 STORAGE

Conditions for storage rooms and vessels:

No special measures required

Advice for storage of incompatible materials:

not applicable .

Handling and storage continued..

Further information for storage:

not applicable .

2.9 EXPOSURE CONTROLS AND PERSONAL PROTECTION EQUIPMENT

2.9.1 EXPOSURE LIMITS -

2.9.2 EXPOSURE LIMITED AND CONTROLLED

2.9.2.1 EXPOSURE IN THE WORK PLACE LIMITED AND CONTROLLED

General protection and hygiene measures:

Do not breathe dust. Do not eat when handling.

Personal protection equipment

Respiratory protection



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In case of dust formation: fine dust mask without protection rating .

Eye protection

Recommendation in case of dust formation: tight fitting protective goggles .

2.9.2.2 EXPOSURE TO THE ENVIRONMENT LIMITED AND CONTROLLED

Prevent material from entering surface waters and soil.

2.10 PHYSICAL AND CHEMICAL PROPERTIES

2.10.1 GENERAL INFORMATION

Physical state / form.....: solid - powder

Colour: grey - brown

Odour: odourless

2.10.2 IMPORTANT INFORMATION ABOUT THE PROTECTION OF HEALTH, SAFETY AND THE ENVIRONMENT

Property: Value: Method:

Melting point / melting range: not applicable

Boiling point / boiling range: "

Flash point.....: "

Auto-ignition temperature.....: product is not self-igniting

Lower explosion limit (LEL): not applicable

Vapour pressure.....: "

Bulk density..: 1300-1500 kg/m³ (DIN EN ISO 60)

Water solubility / miscibility.....: Insoluble sets in water

pH-Value: 11

Viscosity (dynamic): not applicable

2.11 STABILITY AND REACTIVITY

2.11.1 GENERAL INFORMATION:

If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

2.11.2 CONDITIONS TO AVOID

none known .

2.11.3 MATERIALS TO AVOID

none known .

2.11.4 HAZARDOUS DECOMPOSITION PRODUCTS

If stored and handled properly: none known .

At increased temperature: acetic acid .

2.12 TOXICOLOGICAL INFORMATION

2.12.1 GENERAL INFORMATION:

According to our present state of knowledge no damaging effect expected when treated in accordance with standard industrial practices and local regulations where applicable.

2.12.2 TOXICOLOGICAL TESTS

Acute toxicity

Primary irritation:

Eyes: irritating effect

Sensitization:

no sensitizing effects known

Further information:

The product shows the following aspects:

Irritant

2.13 ECOLOGICAL INFORMATION

2.13.1 ECOTOXICITY

No expected damaging effects to aquatic organisms.

Effects in sewage treatment plants (bacteria toxicity: respiration-/reproduction inhibition):

According to current knowledge adverse effects on water purification plants are not expected.

2.13.2 MOBILITY

No further relevant information available

2.13.3 BIO-ACCUMULATION POTENTIAL

No adverse effects expected.

2.13.4 OTHER HARMFUL EFFECTS

2.13.5 ADDITIONAL INFORMATION

General information:

2.14 DISPOSAL CONSIDERATIONS

2.14.1 MATERIAL

Do not allow product to reach sewerage system

Disposal should be in accordance with local, state or national legislation.

Mix product residue with water, allow to harden and dispose of as construction waste

2.14.2 UN-CLEANED PACKAGING

Recommendation:

Completely discharge packaging. Paper packaging may be recycled

2.15 TRANSPORT INFORMATION

2.15.1 LAND TRANSPORT ADR AND RID

Road ADR:

Valuation: Not regulated for transport

Railway RID:

Valuation: Not regulated for transport



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2.15.2 TRANSPORT BY SEA IMDG-CODE

Valuation: Not regulated for transport

Marine Pollutant: no

2.15.3 AIR TRANSPORT ICAO-TI/IATA-DGR

Valuation: Not regulated for transport

2.16 REGULATORY INFORMATION

2.16.1 NATIONAL REGULATIONS

National and local regulations must be observed.

For information on labelling please refer to section 2 of this document.

2.17 OTHER INFORMATION

2.17.1 MATERIAL

The above information describes exclusively the safety requirements of the product(s) and is based on our present-day knowledge. It does not represent a guarantee for the properties of the product(s) described in terms of the legal warranty regulations. Properties of the product are to be found in the respective product leaflet.

2.17.2 FURTHER INFORMATION:

Commas appearing in numerical data denote a decimal point. Vertical lines in the left-hand margin indicate changes compared with the previous version. This version supersedes all previous versions.

3. METHOD STATEMENT

3.1 BASIC LEVELiTe APPLICATION

3.1.1 THICKNESS & USAGE

LEVELiTe[®] F50 can be applied from 0.4mm thick to a maximum of 15mm in a single application. For thicknesses over 15mm, incorporate up to an equal volume of 3mm clean, dry fines-free graded gravel to bulk it up, or apply multiple layers to the dry previous layer. Prime each layer with a coat of **BONDiTe[®]**. Approximately 1.6 kg of **LEVELiTe[®]** per mm per m² will be required. **BONDiTe[®]** must be used as a primer onto the concrete substrate to prevent air bubbles from rising once the **LEVELiTe[®]** is applied, to ensure a proper flow of the compound over the substrate and to bind the surface well. **BONDiTe[®]** is applied at an average of 4m² per litre.

LEVELiTe[®] F50 F50 is available in 20.5kg bags. **BONDiTe[®]** is available in 5 & 25 Litre Plastic Containers.

3.1.2 PREPARATION

Prior to applying **LEVELiTe[®] F50** Self Levelling Compound, it is important to determine that the substrate is sound (cracks are often an indication of delamination between the slab and cement sand screeds, and it is advisable to tap the screed at regular intervals and listen for hollow sounds which indicate poor inter-coat adhesion), with no signs of loose or friable material, dry, ie less than 5%MC (Verify the maximum permissible screed moisture level of the floor covering to be installed, and that screed moisture tests indicate suitability), free of contaminants and dust free.

LEVELiTe[®] is resistant to moisture, and will not expand or delaminate when exposed to reasonable levels of screed moisture.

NOTE: For internal use only as environmental conditions such as temperature and air movement cannot be controlled. It is recommended that direct to ground sub-floors be protected from rising damp to prevent dimensional changes in the floor covering (confirm the maximum permissible moisture content that the floor covering or adhesive can tolerate). Standard European practice has evolved that when vinyl flooring is to be installed, the substrate is to be sealed with an epoxy moisture barrier, or similar. **VAPORiTe[®]+PLUS** epoxy moisture barrier system has been specifically developed for this purpose.



Fig 01: VAPORiTe+PLUS first coat

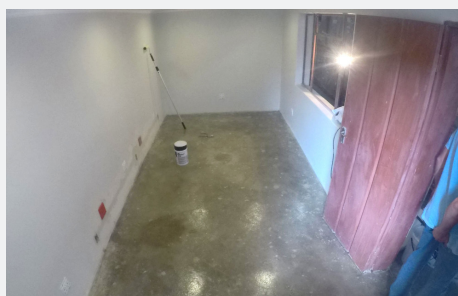


Fig 02: VAPORiTe+PLUS dry 2nd coat



Fig 03: iTe SLURRY over VAPORiTe+PLUS

Should hollow areas be found, this is best rectified by establishing the affected area, cutting a border around the area with an angle grinder, removing the loose screed and filling the area with **PATCHiTe[®]** Rapid Set Patching Compound.

Any large holes or saw cut joins should be patched or filled by pouring mixed **PATCHiTe[®]** into them and trowelling the surface flush with the adjacent surfaces. Commence with the application once the



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PATCHiTe[®] is dry. Where expansion joints are encountered, it is important to honour these and establish the end client's finish specification to ensure compliance with technical slab movement requirements.

Bond 10 x 25mm foam tape to surfaces where the compound is to end, eg. doorways, stairs etc. This will prevent the self-leveller from running into areas not to be levelled.

Assess the access area where the **LEVELiTe[®]** is to be mixed and if necessary, place protective plastic sheeting on the ground to prevent cement dust contamination. When the job is complete, it should be clean and tidy, as it was found.

3.1.3 PRIMING

The screed must be primed with **BONDiTe[®]** primer and bonding agent, using a lamb's wool roller or brush, making sure that the entire surface is well coated. The **BONDiTe[®]** seals the concrete pores and promotes the smooth flow of the levelling compound while preventing air bubbles rising through the applied **LEVELiTe[®] F50**.

To ensure that no bubbles arise, care must be taken that no uncoated spots are left. Please note that the primer must be allowed to dry properly before application of the levelling compound. This normally takes approximately 20 minutes.

At this point it is advisable to install the sealing strip to doorways and places where the compound is to end.

Non-absorbent substrates such as power-floated concrete, ceramic or porcelain tiles must first be primed with **iTe SLURRY[®]**, which is rolled on with a mohair roller and allowed to dry.

3.1.4 MIXING

Use 5.0 litres of water per 20.5 kg bag. Do NOT over-water. Add the powder to the required amount of clean cool water in a clean mixing container whilst using a +/-600 rpm electric paddle mixed until a lump free screed is produced. This will take approximately 3 to 4 minutes. Stop the mixer and scrape the inside of the mixing vessel to allow any unmixed product to fall onto the paste. Briefly remix the **LEVELiTe[®] F50** and then discharge onto the affected floor.

Mixed **LEVELiTe[®] F50** should be applied within 5 minutes at 20°C. This time is extended at lower temperatures and reduced at higher temperatures.

3.1.5 APPLICATION

Pour the mixed **LEVELiTe[®]** onto the primed substrate, spreading it out with a long handled pin leveller with adjustable skegs, or a notched rake suitable for the required thickness, "pushing" the compound to fill initial area, and the "pulling" or "drawing" the compound in one general direction until the entire surface is covered. The self-levelling properties of the **LEVELiTe[®]** will ensure an even, smooth distribution of the compound. Roll the wet compound with a spiked roller gently and slowly, but thoroughly, at right angles to the draw, before the setting process advances too much. This will remove any small air bubbles and retain effective mixing or any deviations left by the skeg leveller. The person rolling the compound should wear spiked boots to minimise disturbance of the applied compound.

NB. Floor coverings can typically be installed the following day after the application of the levelling compound. When left uncovered, the new screed may become contaminated by building activities, and it is recommended that once cured, that it is protected by covering with a suitable material.

3.1.6 PUMP PREPARATION

Careful planning is important when applying **LEVELiTe[®]** with a pump, as large areas are completed very quickly. Firstly the position of the mixer and pump is to be established to ensure an easy exit once the entire area is covered. Preferably two 15 Ampere electrical sockets should be close by and easily accessible,



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as is the case for water supply, and a suitable drain for waste water.

Assess the access area where the pump is to be located and if necessary, place protective plastic sheeting on the ground to prevent cement dust contamination. When the job is complete, it should be clean and tidy, as it was found.

Study the lay out of the area to be applied, and work out where to start, the progress route and the best way to get to the final point of exit. Check that the dispensing pipe reaches to the furthest point, and how it will be extracted at the end, without damaging the newly applied leveller.

Bond 10 x 25mm foam tape to surfaces where the compound is to end, eg. doorways, stairs etc. This will prevent the self-leveller from running into areas not to be levelled. Make sure it has adhered properly.

It is recommended that two people be available to direct the pipe outlet, (depending on area size), two people to draw the poured material with the skeg levellers, and two people to roll the applied mixture with long spiked rollers. One person is sufficient to break the bags into the mixer.

Open the water source and start the mixer and pump. Place the outlet of the discharge pipe into the drain, and monitor, to check that there is sufficient power and water supply, and that there is no obstructions in the pipe. The **LEVELiTe[®]** bags are to be emptied into the mixer, and the outlet observed. Once the cementitious mix emerges, the pump should be turned off and the outlet pipe should be lifted at head height and taken to the starting area where the **LEVELiTe[®]** is to be discharged.

Pour sufficient compound to allow for drawing of the compound to the desired thickness, and rake the compound out, filling the whole area. The two spiked rollers should now be introduced into the process, slowly rolling the applied area repeatedly to ensure that no air bubbles are entrapped, and that no compound build-up occurs.

Continuously break the bags into the mixer and proceed with the pour as per plan. The **LEVELiTe[®]** representative will ensure that the correct consistency of product is maintained throughout the pour.

Drawing closer to the final stages, care needs to be taken in respect of when to stop adding compound, and to ensure that the last poured product is properly raked and trowelled for continuity of appearance. Leave the tap for water open to allow for thorough cleaning of the mixer, pump, pipe and equipment.

Pour any excess compound emitted from the hose into a bucket, and once the appearance is very watery, let it run into the drain, until the water runs clear. Turn off the tap.

3.1.7 GENERAL

In order to maintain a constant even drying process, windows should be closed and drafts avoided.

All supplied data is based on laboratory tests conducted at 20 C, and a relative humidity of 50% as required by international standards. Based on practical building site conditions, temperatures should be between 10°C and 30°C. When higher temperatures are experienced, the drying will accelerate and allowance for this needs to be made by the applicator. Actual conditions experienced may result in slightly different results. Experience has shown that to achieve the best results iro levelness, a depth of 4 to 5mm or more should be poured.

Once the **LEVELiTe[®]** is trafficable, it is advisable to open windows to allow atmospheric moisture build up during drying to equalise.

Specialist applications such as bulking out should be discussed with our technical staff.

Please do not hesitate to contact us for training or any queries you may have.

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3.2 APPLYING LEVELITE OVER TILES

3.2.1 PRECAUTIONS

- **LEVELiTe[®]** be applied over existing ceramic or porcelain tiled floors. Certain precautions need to be taken before proceeding:
- Check soundness and hollowness of tiles – remove and hollow sounding or loose tiles and apply **BONDiTe[®]** and then **PATCHiTe[®]** to fill void as per standard **PATCHiTe[®]** application methodology.
- Check for moisture – moisture exceeding flooring covering specification must be dealt with by applying **VAPORiTe[®]** moisture barrier as per **VAPORiTe[®] +PLUS** installation specification.
- Check that the tiles are not coated with a sealer which could cause lack of proper adhesion. If so, the sealer must be stripped prior to proceeding.
- Check that the tiles are not contaminated by oils or any materials which may hinder proper adhesion.

Should moisture not be an issue the **LEVELiTe[®]** application is applied as shown below.

3.2.2 INSTALLATION

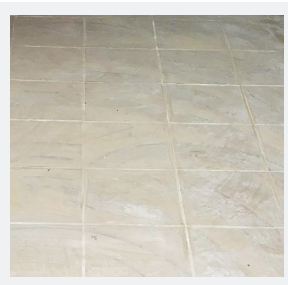
STEP 01

Pour the **iTe SLURRY[®]** onto the tiles and apply a thin, even coat with a mohair roller.



STEP 02

Allow the slurry to harden and dry.



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STEP 03

Apply **LEVELiTe[®]** Self levelling compound (F10, F30 or F50) onto floor as per standard **LEVELiTe[®]** application methodology.



Allow the floor to cure and install the floor covering 12 hours later, using the appropriate **GRIPiTe[®]** adhesive.

NOTE: When priming with **BONDiTe[®]** over old ceramic tile adhesive, please ensure that the old adhesive is properly sealed, even applying a second coat, due to the porosity of the adhesive and the tendency for air to escape during curing, causing pinholes in the dry **LEVELiTe[®]**.

3.3 BULKING UP LEVELiTe

Bulking out of **LEVELiTe[®]** is undertaken where the regular application of a self-levelling compound to the thickness exceeding say 15mm is prohibitive from a cost perspective, and where the installation of a regular sand/cement screed will result in serious time delays due to the slow drying process of the screed. The bulking up process is a two-step process, which enables the installation of vinyl flooring within 24 hours at a reduced cost.

3.3.1 PREPARATION

Prior to applying the bulked-up system, it is important to determine that the substrate onto which it is to be applied is sound. (Cracks are often an indication of delamination between the slab and screed. Tap the screed at regular intervals and listen for hollow sounds or changes in pitch.) This identifies potential hollow spots. The substrate should not be friable or powdery. If the substrate is sound, but slightly (not excessively dusty), this can be improved by applying a slurry to the surface and allowed to dry before commencing with priming. Should the screed not be sound, remove all friable or loose materials until a sound base is obtained.

Determine Screed Moisture Levels – Measure the screed moisture levels using appropriate, reliable test equipment to check that the moisture levels are below the tolerances of the floor covering to be installed. (SANS 10070 code of practice stipulates that if the screed moisture exceeds 3% moisture content (70% RH), then a moisture primer (barrier) should be applied).



Fig 01: Moisture Testing

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barrier in accordance with the Data Sheet for **VAPORiTe[®] +PLUS**. This is followed by application of **iTe SLURRY[®]**.

The Bulking-up process entails applying a bulked material layer to build the level up to a point where a second, conventional layer of **LEVELiTe[®]** is added to achieve the final thickness allowing for the thickness of the floor covering to be installed.

Depending on the size of the area to be bulked-up, two methods can be used to set out the depth of the bulking to be done.

Large Areas:

At regular intervals drill holes to hold rebar vertically. The intervals can be say at 1m squares, until the entire surface to be bulked up is marked out. Use a fast setting epoxy adhesive to hold the bars in place vertically. Using a laser level, mark the rebar rods at the desired height below the final level to be achieved. (Final floor level minus floor covering thickness minus say 3mm self-levelled **LEVELiTe[®]** application). Cut the rebar off at these marked heights.

Smaller Areas:

Set up the laser level in the recess, determine the level to be achieved with bulking up, or the level below the final floor surface as above, and apply a chalk line to the side walls of the recess.

3.3.2 APPLICATION

Ensure that the surface of the recess is dry. (If Moisture Barrier has been applied, ensure that it has set)

Prime the surface with **BONDiTe[®]** until the screed surface and walls are covered properly. Allow to dry.

Fill the recess with 6 to 8mm washed stone, creating a level surface to the level of the rods, or wall markings.



Fig 04: Stone spread in area to be filled



Fig 05: Levelled stone spread

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Mix **LEVELiTe[®]** as per the data sheet, and pour the mixed compound into the stone. Use a garden rake or trowel to mix the compound with the aggregate (stone) ensuring that the aggregate is properly coated and settles on the substrate.

Maintain the desired level, compacting with a straight edge, so that any aggregate does not protrude excessively.



Fig 06: Trolling in LEVELiTe. Bulked up coat.



Fig 07: Finished bulked up coat

Repeat this process until the entire recess is filled.

Due to the high volume of **LEVELiTe[®]** in this application, it will tend to set faster than normal. It is important to work fast, and maintain a constant flow of product to be integrated with the aggregate.

Allow the bulked-up mix to cure for at least 2 hours, and ensure that it is sound enough to be walked on.

Apply **BONDiTe[®]** primer liberally to the bulked-up surface and allow it to dry. (During drying, it will change colour from white to clear, when it is finally dry).

Mix and apply the self-levelling layer of **LEVELiTe[®]** as per normal (see technical data sheets) to the height ready for installation of floor covering, and allow it to cure till the next day, ready for installation of the flooring.



Fig 08: Final LEVELiTe coat

Materials Calculation:

Stone 6 – 8mm washed stone:

+/- 15,5Kg per m² per 10mm thickness

LEVELiTe[®] For Bulking

F30 = 1,5Kg per m² per 1mm thickness x 0,6

Thereafter the final topping of **LEVELiTe[®]** at the rate of 1,5 Kg per m² per 1mm thickness

4. THEORETICAL (VOC) CONTENT

4.1 PRODUCT:

LEVELiTe[®] F50 Self Levelling Floor Screed Compound

4.2 ABBREVIATIONS

S.G. = Specific Gravity

g/ml = grams/millilitre

g/l = grams/litre

4.3 FORMULAS

Sum of VOC's in Sealer/Primer formulation = VOC %

$VOC (g/l) = VOC \% \times S.G. \times 10$

4.4 S.G. (g/ml) = 1.00g/ml

4.5 VOC % = 0%

4.6 $VOC (g/l) = 0 \times 1.00 \times 10 = 0g/l$

Maximum VOC content (Specified by Green Building Council of South Africa): 50g/l

Peter Funke

Product Development Manager

5. SHORT REPORT VOC

31 March 2015

Short Report: Product LEVELiTe F50 Self Levelling Floor Screed

iTe Products **LEVELiTe[®] F50** Self Levelling Floor Screed Compound meets the Green Building Council of South Africa's credit criteria for the following reasons:

Maximum VOC allowable (gms/litre) 50g/l

LEVELiTe[®] F50 0g/l

This is based on the fact that the product contains no organic solvents.

I declare the above information to be correct

Signed:



Shaun Van Heerden

6. VOC CONFIRMATION NOTICE

7 August 2014

To: All interested Parties

Dear Sir/Madam,

Re: GBCSA requirements for VOC levels in flooring adhesives, sealers and primers

We hereby confirm that LEVELiTe F10, F30, F50 and F100 Self Levelling Floor Screed Compounds as manufactured by iTe Products (Pty) Ltd comply with the GBCSA requirements in respect of permissible VOC levels in flooring adhesives, sealers and primers.

The attached Short Report, VOC Datasheet and this signed letter provides the necessary supporting documentation required as per page 107 of the GBCSA Technical Manual.

The Flooring Contractor must provide written confirmation that LEVELiTe F10, F30 or F50 is to be used in the installation of the floor covering.

Should there be any questions or queries, please contact the writer at 082 772 9137 or via e-mail at sales@iteproducts.co.za

Yours faithfully,



Shaun Van Heerden



LEVELiTe[®]F50

SELF-LEVELLING SCREED

7. WARRANTY

iTe PRODUCTS warrants that **LEVELiTe[®] F50** is manufactured to comply with international EN standards for P2 and P3 class self levelled screeds in respect of Flow determination, setting time, Drying Kinetics, and compressive strength.

LEVELiTe[®] F50 is compliant with EN expansion and shrinkage standards, is resistant to substrate moisture levels below 5% screed moisture, and will not expand or delaminate. It will also not powder or soften.

LEVELiTe[®] F50 self-levels to an end finish compliant with SANS 10070:2007, provided the thickness of application allows the elimination of deviations. The surface hardens to >35MPa, and is suitable for castor traffic, high point loadings and light vehicular traffic. **LEVELiTe[®] F50** is typically recommended for use in residential, commercial, light industrial and health-care applications, provided the sub-base is of a suitable quality.

This warranty is based on the substrate being sound, dry and free of contamination. All applications are to be carried out in strict compliance with the method statement as issued. The warranty is dependent on all the above conditions being conformed with, including a signed compliance confirmation from the applicator.

LEVELiTe[®] F50 is guaranteed not to delaminate, break up or deteriorate under an epoxy coating or vinyl floor covering for the life of the floorcovering itself, provided that it is applied on a sound substrate in accordance with our specifications as indicated above.

iTe PRODUCTS further warrants that the products are manufactured to strict quality control standards and that the products supplied are free of defect.



LEVELiTe[®] F50

SELF-LEVELLING SCREED

8. INFORMATION SHEET

F10, F30 and F50 Self Levelling Compound Information Sheet

As a basis for evaluation of self-levelling compounds we use the applicable European Standard EN 13813:2002. This information sheet tries to set out the criteria used in the evaluation, and where our LEVELiTe[®] products are positioned. Products are classified under performance classes, P2, P3, P3R, P4 and P4R. The table at the end of this sheet sets these out.

DESCRIPTION:	RANGE OF CONFORMITY – WHAT IS ARE GOOD VALUES.	EXPLANATION
1. Compressive strength	Wide range of conformities are applicable but most screeding compounds range between 20-30MPa	<p>What does MPa really mean? The actual load or force the material can handle before deforming (crushing in this case)</p> <p>Calc: 1 MPa = 1N/mm² = 0.102 kg force/ mm²</p> <p>E.g. The maximum load for a trolley wheel that has a contact area of 10mmx25mm on a screed with a compressive strength of 20MPa would be:</p> <p>20 MPa = N (force)/250mm² (area)</p> <p>N(force) = 5000 Newton</p> <p>Therefore the point load for a surface contact area of the 10mmx25mm wheel can be as much as +/-510kg load per wheel</p> <p>For the same wheel size and a 30 MPa substrate the wheel could exert a load of 765kg.</p>
2. Flexural strength	Wide range of flexural strength are applicable but good values would range between 6-10 MPa	Flexural strength is the tensile force that the material can withstand. A typical example of this is the higher the flexural strength the better the product can withstand excessive shrinkage without cracking or slab deflections due to loading of the slabs.
3. Wear resistance	The best values attainable for abrasion resistance is in the class AR0.5 in accordance to the BCA testing method	This is one of the most important features in high traffic areas such as hospital corridors and the like in conjunction with vinyl application. The class rating AR0.5 means that the average wear resistance is no more than 50µm over the given test area.
4. Bonding strength	Bonding strength is the amount of force needed to pull the screed from actual substrate. This is described in MPa or N/mm ² . A very good class would be a B2.0 = 2MPa	The bond strength is a very important aspect to prevent delamination of the screed. Screeds are always subject to some or other force within itself. Reason for this can be internal or external. Internal forces are created by shrinkage or expansion of the screed itself and external factors would be issues such as deflection of suspended slabs when placed under load.
5. Setting time	A good setting time is around 30-40 min on Self Levelling Screeds.	Fast track construction in today's world calls for quick setting systems. A fine line is also drawn here to allow the contractor enough time to apply the product but have it cure sufficiently to be able to lay the floor covering 24h later.
6. Consistency /Flow	These are more based on internal testing of the manufacturer and flow should be consistent over the duration up until initial setting of the screeding compound	Proper flow of the screeding compound facilitates the system to find its true level and to fill all deviations and voids in the substrate leaving a smooth and level surface to apply the floor coverings on to.

LEVELiTe[®]F50

SELF-LEVELLING SCREED

7. Shrinkage in dry environment	Shrinkage is not allowed to be in excess of 1mm/m A safe shrinkage number would be between 0.3-0.5mm/m	Shrinkage comes from excess water in the system evaporating into the air. This leaves voids in the screed resulting in shrinkage. If the shrinkage becomes excessive (>1mm/m) then internal forces will exceed the internal flexural strength on the screed, resulting in cracking.
8. Expansion in a wet environment	Expansion is not allowed to be in excess of 1mm/m. A safe expansion number would be 0.3-0.5mm/m	Most levelling compounds are subject to expansion under wet/moist conditions. An excess expansion will result in the internal forces exceeding the screeding bond strength. Bonding strength should therefore be around 2MPa to avoid any delamination.
DESCRIPTION:	RANGE OF CONFORMITY – WHAT IS ARE GOOD VALUES.	EXPLANATION
1. Compressive strength	Wide range of conformities dependent on application requirements—15 to 40MPa+	MPa equates to the actual load or force the material can handle before deforming (being crushed). Calc: 1MPa = 1N/mm ² = 0.102kg force/mm ² Eg. A trolley wheel with a contact surface area of 25 x 10mm, on a 25MPa LEVELiTe F30 screed can bear a maximum load of 637.5kg
2. Flexural strength	Wide range of conformities dependent on application requirements— 6 to 10MPa	Flexural strength is the tensile force that the material can withstand. I.e: The higher the flexural strength, the better the product can withstand excessive shrinkage without cracking, or slab deflections due to loading of the slabs.
3. Wear resistance	The best values attainable for abrasion resistance is in the class AR0.5 in accordance with the BCA test method	This is one of the most important features in high traffic areas such as hospital corridors and the like in conjunction with vinyl application. The class rating AR0.5 means that the average wear is no more than 50µm over the test area.
4. Bonding strength	Bonding strength is the amount of force needed to pull the screed from the substrate. This measured in MPa or N/mm ² . A very good class would be a B2.0 = 2MPa	The bond strength is critical to prevent delamination of the screed. Screeds are continually subject to forces within itself, either internal or external. Internal shrinkage or expansion , or external factors such as deflection of slabs can cause delamination.
5. Setting time	Initial Set—25 to 30 minutes Walkability—2 h30minFinal Set—24 Hours75% Final hardness—72 hoursFinal Hardness—28 Days	Due to site conditions, the newly laid screed must be able to take foot traffic asap. This should be in approximately 2 hours. If the setting is too rapid, the product is very difficult to apply without dry joints. The drying of the screed should enable installation of vinyl after 24 hours. (thickness dependent)
6. Consistency /Flow	The better the flow, the better the self-levelling properties. The flow should be consistent during the duration of the application until the initial set commences. The flow test should exceed 135mm diameter.	Proper flow of the screeding compound facilitates the system to find its true level and to fill all deviations and voids in the substrate, leaving a smooth and level surface ready for the application of floor coverings.
7. Shrinkage in dry environment	Shrinkage is not allowed to exceed 1mm/m1 (SANS 10070:2012). A safe shrinkage number would be between 0.3 and 0.5mm/m1	Shrinkage comes from excess water in the system evaporating into the air. This leaves voids in the screed resulting in shrinkage. If the shrinkage is excessive, (>1mm/m1), then the internal forces will exceed the internal flexural strength on the screed, resulting in cracking.
8. Expansion in a wet environment	Expansion is not allowed to exceed 1mm/m1 (SANS 10070:2012). A safe expansion number would be between 0.3 and 0.5mm/m1	Most levelling compounds are subject to expansion under wet/moist substrate conditions. An excess expansion will result in the internal forces exceeding the screed bond strength, Bonding strength should be around 2MPa to avoid any delamination.

LEVELiTe[®] F50

SELF-LEVELLING SCREED

CLASS	FACTORS	PRODUCT
P2	Premises where there are no intense constraints. Static constraints, <2MPa, no castors, typically light commercial and residential.	LEVELiTe F10, F30
P3	Premises such as offices using castor chairs, corridors (eg hospitals) with trollies moved by hand, hospital wards and heavier trafficked commercial areas.	LEVELiTe F30
P3R	Premises classified as P3, which bear heavy rolling traffic (fork-lifts, heavy vehicles) or intense loads.	LEVELiTe F30, F50
P4	Premises classified as P3, which bear heavy rolling traffic loads, intense loads or repetitive and severe shocks	LEVELiTe F50

CLASS OF PERFORMANCE		LEVELITE						
		P2	P3	P3R	P4R	F10	F30	F50
Flow Determination Flow Determination	Initial	Diameter 150mm				155mm	155mm	155mm
	10 Min	-	-	-	-	155mm	155mm	155mm
	20 Min	135mm	135mm			155mm	155mm	155mm
Initial Set		No Specification - Ideally should be >20 Minutes				>30 Min	>30 Min	>30 Min
Walkable		No Specification - Ideally should be <3 Hours				2 Hours	2 Hours	2 Hours
Layable		No Specification - Ideally should be <48 Hours				24 Hours	24 Hours	24 Hours
Drying Kinetics				<2.5%	<2.5%	<1%	<1%	<1%
Abrasion resistance			<8 a 10			TBA	<2	<2
Flexural Strength 28 days MPa						>6	>10	>12
Compressive Strength 28 days MPa		>10	>18			18	25	35
Adhesion Strength	Initial	>0.5	>1			>1.0	>1.5	>1.5
	Wet	>0.4	>0.8			>0.4	>0.8	>1.2



9. SUGGESTED SPECIFICATION

Apply _____m² **LEVELiTe® F50** self-levelling compound system in accordance with the manufacturer's specifications to a thickness of _____mm after priming with **BONDiTe®** primer.