

**Overview - Shielding paints**

|  | <b>HSF54</b>  | <b>HSF64</b>   | <b>PRO54</b>   | <b>TEC54</b>  | <b>NSF34</b>  |
|--|---|--|--|---|---|
| Brief description  | <b>Our best-selling product</b> , proven tens of thousands of times. One paint for all if you cannot decide | <b>Dispersion silicate paint without preservation agent</b> . Minimal-istic formulation. | <b>Technically our best paint on basis of carbon fibers</b> . With a hard surface that do not stain. | <b>With a very fine pigmentation of only 5 µm</b> . Particularly suitable for technical processing. | <b>Shielding of low-frequency electrical fields</b> . Proven tens of thousands of times |
| <b>As shielding paint to shield electromagnetic fields</b> |   |  |  |   |   |
| Usage  | Room / building shielding.  | Room / building shielding.   | Room / building shielding.   | Room / building shielding.  | Room / building shielding.  |
| Screening HF / LF  | HF / LF   | HF / LF  | HF / LF  | HF / LF   | - / LF  |
| Screening 1 layer ①  | <b>39 dB</b>  | <b>32 dB</b>   | <b>32 dB</b>   | <b>30 dB</b>  | <b>40 dB (99 %)</b>   |
| Screening 2 layers ①                                       | <b>49 dB</b>  | <b>40 dB</b>   | <b>40 dB</b>   | <b>38 dB</b>  | ---   |
| Screening 3 layers ①                                       | <b>59 dB</b>  | <b>48 dB</b>   | <b>48 dB</b>   | <b>46 dB</b>  | ---   |
| Coverage   | 5 - 7.5 m <sup>2</sup> /l   | 5 - 7.5 m <sup>2</sup> /l  | 5 - 7.5 m <sup>2</sup> /l  | 5 - 7.5 m <sup>2</sup> /l   | 7.5 - 10 m <sup>2</sup> /l  |
| Scope of application                                       | Interior, exterior  | Interior   | Interior, exterior   | Interior, exterior  | Interior, exterior  |
| Substrates   | Almost all  | All absorbent  | Almost all   | Almost all  | Almost all  |
| Moisture-resistance  | High  | Normal   | High   | High  | High  |
| Sd-value   | 0.1 m   | 0.05 m   | 0.1 m  | 0.1 m   | 0.1 m   |
| Applicable with  | Paint roller, airless (> 0.2 mm)  | Paint roller, airless (> 0.2 mm)   | Paint roller, airless (> 0.4 mm)   | Paint roller, airless (> 0.1 mm)  | Paint roller, airless (> 0.1 mm)  |
| Spatter behavior   | No  | Low  | No   | No  | No  |
| <b>As coating in technical applications</b>                |   |  |  |   |   |
| Application  | Screen printing, roller / blanket coating   | ---  | Blanket coating  | Screen printing, roller / blanket coating, spraying   | Screen printing, roller / blanket coating, spraying                                     |
| Thickness 200 µm ②   | ~ 1.4 Ω/□   | ---  | ~ 2.9 Ω/□  | ~ 3.2 Ω/□   | ~ 20 Ω/□  |
| Thickness 150 µm ②   | ~ 2.2 Ω/□   | ---  | ~ 4.3 Ω/□  | ~ 4.7 Ω/□   | ~ 30 Ω/□  |
| Thickness 100 µm ②   | ~ 4.6 Ω/□   | ---  | ~ 7.8 Ω/□  | ~ 8.6 Ω/□   | ~ 50 Ω/□  |
| Thickness 50 µm ②  | ~ 35 Ω/□  | ---  | ~ 35 Ω/□   | ~ 40 Ω/□  | ~ 200 Ω/□   |
| <b>Ecology and certifications</b>                          |   |  |  |   |   |
| Ecology  | High  | Very high  | High   | High  | High  |
| VOC content ③  | 0.18 g/l  | 0.17 g/l   | 0.19 g/l   | 0.18 g/l  | 0.20 g/l  |
| SVOC content 7d ③  | 6 µg/m <sup>3</sup>   | 0 µg/m <sup>3</sup>  | 0 µg/m <sup>3</sup>  | 6 µg/m <sup>3</sup>   | 0 µg/m <sup>3</sup>   |
| Full declaration ③④ preservation                           | 64 ppm BIT<br>34 ppm INN<br>3 ppm MIT   | 0 ppm BIT<br>0 ppm INN<br>0 ppm MIT  | 58 ppm BIT<br>15 ppm INN<br>2 ppm MIT  | 64 ppm BIT<br>34 ppm INN<br>3 ppm MIT   | 69 ppm BIT<br>9 ppm INN<br>2 ppm MIT  |
| Certification  | <b>TÜV-SÜD</b>  | <b>TÜV-SÜD</b>   | <b>TÜV-SÜD</b>   | ---   | <b>TÜV-SÜD</b>  |
| Fire behaviour   | DIN EN 13501-1  | DIN 4102-1   | DIN 4102-1   | ---   | ---   |
| <b>Physical and chemical properties</b>                    |   |  |  |   |   |
| Color  | Black   | Black  | Black  | Black   | Black   |
| Binder   | Acrylate  | Silicate, acrylate   | Acrylate   | Acrylate  | Acrylate  |
| Film hardness  | Elastic hard  | Elastic soft   | Elastic hard   | Elastic hard  | Elastic hard  |
| Pigmentation size d90                                      | <b>50 µm</b>  | 50 µm  | <b>100 µm</b>  | <b>5 µm</b>   | 5 µm  |
| Adhesive strength  | <b>5.3 N/mm<sup>2</sup></b>   | 2.8 N/mm <sup>2</sup>  | <b>5.7 N/mm<sup>2</sup></b>  | <b>8.5 N/mm<sup>2</sup></b>   | 12.4 N/mm <sup>2</sup>  |
| Viscosity (Brookfield)                                     | ~ 2000 mPas   | ~ 2000 mPas  | ~ 2000 mPas  | ~ 2000 mPas   | ~ 2000 mPas   |
| Rheology   | Newtonian   | Pseudoplastic  | Newtonian  | Newtonian   | Newtonian   |
| Temperature max.   | 60° C   | 60° C  | 60° C  | 60° C   | 60° C   |
| pH value   | 8   | 11.6   | 8  | 8   | 8   |
| Density  | 1.19 kg / l   | 1.23 kg / l  | 1.13 kg / l  | 1.10 kg / l   | 1.05 kg / l   |
| MFFT   | 5° C  | 5° C   | 5° C   | 5° C  | 5° C  |
| Frost-/thaw resistance                                     | 5 cycles  | 5 cycles   | 5 cycles   | 5 cycles  | 5 cycles  |
| Delivery sizes   | 1 / 5 liter   | 1 / 5 liter  | 1 / 5 liter  | 1 / 5 liter   | 1 / 5 liter   |
| Shelf life   | 12 months   | 12 months  | 12 months  | 12 months   | 12 months   |

① dB = screening attenuation: 10 dB = 90 %; 20 dB = 99 %; 30 dB = 99.9 %; 40 dB = 99.99 %, 50 dB = 99.999 %; ...

② Film thickness given as wet film; Measured with Schütz-Messtechnik MR-1 and 4-point-probe.

③ Values taken from the inspection report YSHIELD-191203 from TÜV-SÜD.

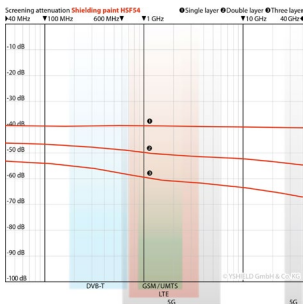
④ ppm = parts per million (millionth percentages); Permitted value according to TÜV-SÜD from 2020 are 500 ppm.

## HSF54 - Shielding paint (HF+LF)

### UNIVERSAL CLASSIC



YSHIELD® HSF54



### As shielding paint for rooms and buildings

Shielding paint for shielding high-frequency radiation (HF) and low-frequency electric fields (LF).

**Our best-selling product, proven tens of thousands of times. One paint for all if you cannot decide. Improved again 2019.**

Breathable, solvent-free, plasticizer-free and low-emission. With phenomenal physical and chemical properties, along with high ecology.

#### Underground

Excellent adhesion on almost all substrates interior and exterior.

#### Top coating

Preferably covered with plastic bonded **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints.

#### Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding plate GW**, exterior the **fiber additive AF3** plus the **grounding plate GE**.

#### Optional: Fiber additive AF3

For crack bridging and a better grounding we advise our fiber additive AF3 with long conductive carbon fibers.

### As coating in technical applications

With the fine pigmentation of 50 µm, high film hardness, good substrate wetting, high adhesive tensile strength and newtonian rheology ... our customers discovered **more and more technical applications** through the years:

Technical shielding of parts, devices, machines or facilities. Manufacturing of absorber materials, pressure sensors, screen printing on heating films or gypsum boards.

#### Screening attenuation

Single layer **39 dB**  
Double layer **49 dB**  
Three layer **59 dB**

#### Frost resistance

**This product is frost resistant** (proved for 5 frost-/thaw cycles) and can be shipped throughout the year by air cargo or ship.

#### Ingredients

Water, natural graphite, pure acrylics dispersion, carbon black, additives, preservative (BIT, INN, MIT).

#### Technical data

Please find detailed data in the table overview and the technical data sheet.

#### Ready for 5G

Our shielding paints have an almost linear screening attenuation for a very large frequency range including both 5G frequency spectrums FR1 (600 MHz - 6 GHz) and FR2 (24 GHz - 40 GHz).

#### Safety up to 40 GHz

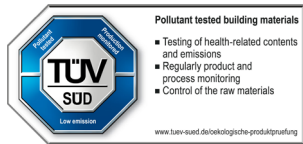
We have a professional EMC-laboratory according to various standards up to 40 GHz on site. You'll find the measuring curves and reports from 40/600 MHz - 40 GHz in the internet on the corresponding product pages.

#### No nanotechnology

Our shielding paints are developed in accordance with strict ecological criteria. We use the carbon black with the lowest emission possible on the market and untreated natural graphite. We consciously do not use graphene, a nanomaterial where the hazard potential is still completely unknown.

#### TÜV-SÜD certification

We have our shielding paints monitored by TÜV-Süd. The whole **production process** including **quality control, emission behaviour** and economical use of **preserving agents** is subject to monitoring.

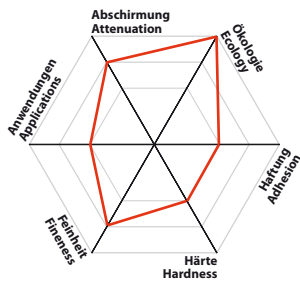
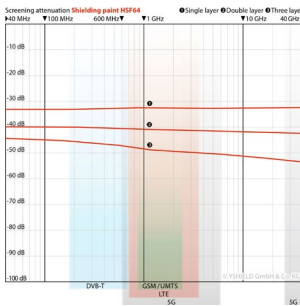


**HSF64 - Shielding paint (HF+LF)**

**DISPERSION SILICATE WITHOUT PRESERVATION**



YSHIELD® HSF64



**As shielding paint for rooms and buildings**

Shielding paint for shielding high-frequency radiation (HF) and low-frequency electric fields (LF).

**Dispersion silicate paint without preservation agent. Minimalistic formulation with small limitations at hardness, adhesion and shielding. Improved again 2019.**

Breathable, solvent-free, plasticizer-free, low-emission and without preservation agent.

**Underground**

Adhesion on almost all absorbent substrates interior.

**Top coating**

Preferably covered with plastic bonded **water-based emulsion paints**, dispersion silicate paints or silicon resin paints.

**Grounding**

Must be grounded! We recommend interior the **grounding strap EB2 plus grounding plate GW**.

**Screening attenuation**

Single layer **32 dB**  
 Double layer **40 dB**  
 Three layer **48 dB**

**Frost resistance**

**This product is frost resistant** (proved for 5 frost-/thaw cycles) and can be shipped throughout the year by air cargo or ship.

**Ingredients**

Water, potassium silicate, natural graphite, carbon black, pure acrylics dispersion, additives, NO preservation agent.

**Technical data**

Please find detailed data in the table overview and the technical data sheet.

**Ready for 5G**

Our shielding paints have an almost linear screening attenuation for a very large frequency range including both 5G frequency spectrums FR1 (600 MHz - 6 GHz) and FR2 (24 GHz - 40 GHz).

**Safety up to 40 GHz**

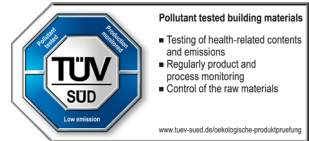
We have a professional EMC-laboratory according to various standards up to 40 GHz on site. You'll find the measuring curves and reports from 40/600 MHz - 40 GHz in the internet on the corresponding product pages.

**No nanotechnology**

Our shielding paints are developed in accordance with strict ecological criteria. We use the carbon black with the lowest emission possible on the market and untreated natural graphite. We consciously do not use graphene, a nanomaterial where the hazard potential is still completely unknown.

**TÜV-SÜD certification**

We have our shielding paints monitored by TÜV-Süd. The whole **production process** including **quality control, emission behaviour** and economical use of **preserving agents** is subject to monitoring.



## PRO54 - Shielding paint (HF+LF)

### HARD AND RELIABLE



YSHIELD® PRO54

Breathable, solvent-free, plasticizer-free and low-emission. With phenomenal physical and chemical properties, along with high ecology.

#### Underground

Excellent adhesion on almost all substrates interior and exterior.

#### Top coating

Preferably covered with plastic bonded **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints.

#### Grounding

Must be grounded! We recommend interior the **grounding strap EB2 plus grounding plate GW**, exterior the **fiber additive AF3 plus the grounding plate GE**.

#### Optional: Fiber additive AF3

For crack bridging and a better grounding we advise our fiber additive AF3 with long conductive carbon fibers.

#### Screening attenuation

Single layer **32 dB**  
Double layer **40 dB**  
Three layer **48 dB**

#### Frost resistance

**This product is frost resistant** (proved for 5 frost-/thaw cycles) and can be shipped throughout the year by air cargo or ship.

#### Ingredients

Water, pure acrylics dispersion, carbon fibers, natural graphite, carbon black, additives, preservative (BIT, INN, MIT).

#### Technical data

Please find detailed data in the table overview and the technical data sheet.

#### Ready for 5G

Our shielding paints have an almost linear screening attenuation for a very large frequency range including both 5G frequency spectrums FR1 (600 MHz - 6 GHz) and FR2 (24 GHz - 40 GHz).

#### Safety up to 40 GHz

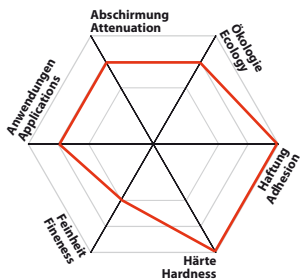
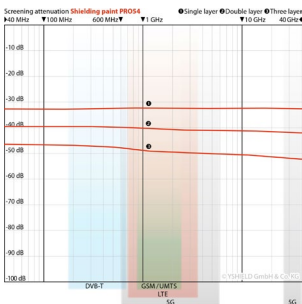
We have a professional EMC-laboratory according to various standards up to 40 GHz on site. You'll find the measuring curves and reports from 40/600 MHz - 40 GHz in the internet on the corresponding product pages.

#### No nanotechnology

Our shielding paints are developed in accordance with strict ecological criteria. We use the carbon black with the lowest emission possible on the market and untreated natural graphite. We consciously do not use graphene, a nanomaterial where the hazard potential is still completely unknown.

#### TÜV-SÜD certification

We have our shielding paints monitored by TÜV-Süd. The whole **production process** including **quality control**, **emission behaviour** and economical use of **preserving agents** is subject to monitoring.



### As shielding paint for rooms and buildings

Shielding paint for shielding high-frequency radiation (HF) and low-frequency electric fields (LF).

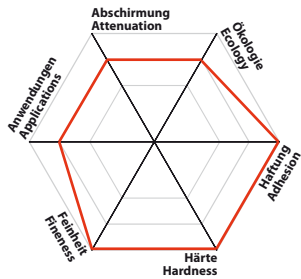
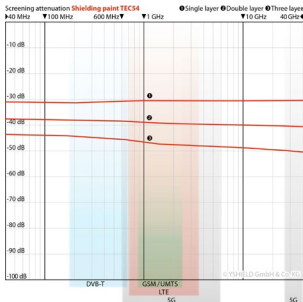
**Technically our best paint on basis of carbon fibers with a hard surface that do not stain. Improved again 2019.**

**TEC54 - Shielding paint (HF+LF)**

**FOR TECHNICAL COATING PROCESSES**



YSHIELD® TEC54



**As coating in technical applications**

With a very fine pigmentation of only 5 µm perfect for technical coating processes: Screen printing, blanket coating, roller coating, dipping, rinsing, spraying, airless, etc.

Technical shielding of parts, devices, machines or facilities. Manufacturing of absorber materials, pressure sensors, screen printing on heating films or gypsum boards.

**As shielding paint for rooms and buildings**

Shielding paint for shielding high-frequency radiation (HF) and low-frequency electric fields (LF).

**Very fine surface, with small limitations at shielding.**

Breathable, solvent-free, plasticizer-free and low-emission. With phenomenal physical and chemical properties, along with high ecology.

**Underground**

Excellent adhesion on almost all substrates interior and exterior.

**Top coating**

Preferably covered with plastic bonded **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints.

**Grounding**

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding plate GW**, exterior the **fiber additive AF3** plus the **grounding plate GF**.

**Optional: Fiber additive AF3**

For crack bridging and a better grounding we advise our fiber additive AF3 with long conductive carbon fibers.

**Screening attenuation**

Single layer **30 dB**  
 Double layer **38 dB**  
 Three layer **46 dB**

**Frost resistance**

**This product is frost resistant** (proved for 5 frost-/thaw cycles) and can be shipped throughout the year by air cargo or ship.

**Ingredients**

Water, natural graphite, pure acrylics dispersion, carbon black, additives, preservative (BIT, INN, MIT).

**Technical data**

Please find detailed data in the table overview and the technical data sheet.

**Ready for 5G**

Our shielding paints have an almost linear screening attenuation for a very large frequency range including both 5G frequency spectrums FR1 (600 MHz - 6 GHz) and FR2 (24 GHz - 40 GHz).

**Safety up to 40 GHz**

We have a professional EMC-laboratory according to various standards up to 40 GHz on site. You'll find the measuring curves and reports from 40/600 MHz - 40 GHz in the internet on the corresponding product pages.

**No nanotechnology**

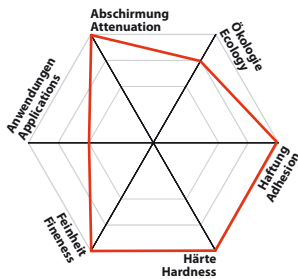
Our shielding paints are developed in accordance with strict ecological criteria. We use the carbon black with the lowest emission possible on the market and untreated natural graphite. We consciously do not use graphene, a nanomaterial where the hazard potential is still completely unknown.

## NSF34 - Shielding paint (LF)

### FOR ELECTRICAL FIELDS ONLY



YSHIELD® NSF34



### Grounding

Must be grounded! We recommend interior the **grounding strap EB2** plus **grounding plate GW**, exterior the **fiber additive AF3** plus the **grounding plate GE**.

### Optional: Fiber additive AF3

For crack bridging and a better grounding we advise our fiber additive AF3 with long conductive carbon fibers.

### As coating in technical applications

With the fine pigmentation of 5 µm, high film hardness, good substrate wetting, high adhesive tensile strength and newtonian rheology ... our customers discovered **more and more technical applications** through the years:

Technical shielding of parts, devices, machines or facilities. Manufacturing of absorber materials, pressure sensors, screen printing on heating films or gypsum boards.

### Screening attenuation

Single layer **40 dB = 99 %**

### Frost resistance

**This product is frost resistant** (proved for 5 frost-/thaw cycles) and can be shipped throughout the year by air cargo or ship.

### Ingredients

Water, pure acrylics dispersion, carbon black, natural graphite, additives, preservative (BIT, INN, MIT).

### Technical data

Please find detailed data in the table overview and the technical data sheet.

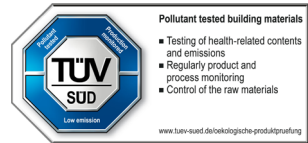
### No nanotechnology

Our shielding paints are developed in accordance with strict ecological criteria. We use the carbon black with the lowest emission possible on the market and untreated natural

graphite. We consciously do not use graphene, a nanomaterial where the hazard potential is still completely unknown.

### TÜV-SÜD certification

We have our shielding paints monitored by TÜV-Süd. The whole **production process** including **quality control**, **emission behaviour** and economical use of **preserving agents** is subject to monitoring.



### As shielding paint for rooms and buildings

Shielding paint for shielding low-frequency electric fields (LF) only. No magnetic fields are shielded.

**Standard product for shielding low-frequency electrical fields from power lines and electrical devices. Tens of thousands of times proved in the building biology. Improved again 2019.**

Breathable, solvent-free, plasticizer-free and low-emission. With phenomenal physical and chemical properties, along with high ecology.

### Underground

Excellent adhesion on almost all substrates interior and exterior.

### Top coating

Preferably covered with plastic bonded **water-based emulsion paints**, dispersion silicate paints, facade paints or silicon resin paints.

## Accessories

### AF3 - Fiber additive



YSHIELD® AF3

#### Characteristics

**Special additive for mixing with our shielding paints.** All our shielding paints are formulated without crack-bridging carbon fibers for airless spray application. In case of cracks forming in the substrate, this additive contains long, electrically conductive carbon fibers which guarantee the grounding even without using the grounding strap.

#### Processing

Stir in the additive (90 ml) into **5 liter shielding paint**. Use an electro mixer that all mixes homogeneously.

#### Ingredients

Water, carbon black, carbon fibers, additives, preservative (MIT, BIT)

### GK5 - Primer concentrate



YSHIELD® GK5

#### Characteristics

**Special coordinated high quality primer concentrate** for surface preparation with our shielding paints. For priming of solid old coats of paint, brittle, chalky and absorbent substrates. Consolidating, adhesion promoting, good penetration, regulates the absorbency. Also recommended on our smearing graphite shielding paints, if problematic (mineralic) coatings should be applied.

#### Processing

Use a first-class paint roller. Do not work at temperatures below 5°C/41°F.

#### Consumption

The consumption depends on the character and absorbency of the underground. Typical **interior productivity: 7.5 m<sup>2</sup>/l**. Typical **exterior productivity: 5 m<sup>2</sup>/l**.

#### Preparation

Mix the concentrate (1 liter) with 4 liters of water. Gives 5 liters of primer. If you use tap-water, process within 48 hours.

#### Ingredients

Pure-acrylic binder, additives, preservative (MIT, BIT).

### AR40 - Paint stirrer

#### IMPORTANT FOR OUR 1-LITER BINS



YSHIELD® AR40

#### Characteristics

Paint stirrer to mix up our shielding paints. Our **1-liter paint containers have an opening of 40 mm diameter**. None of the usual paint stirrers will fit in this opening. That's why we have developed a stirrer by ourselves. Our paint stirrer is mixing up shielding paints quickly and consistently, even in slim and high paint containers.