Product overview

YSHIELD shielding paints are electro-conductive coatings for the protection of large areas from electromagnetic radiation (EMR). They offer the best shielding qualities for protection against **high-frequency (HF)** radiation and (or) against **low-frequency (LF)** electric fields. Typical areas of application are living areas (e. g. bedrooms, nurseries, living rooms), or the protection of whole buildings; the shielding paints should be covered with emulsion (or vinyl) paint.

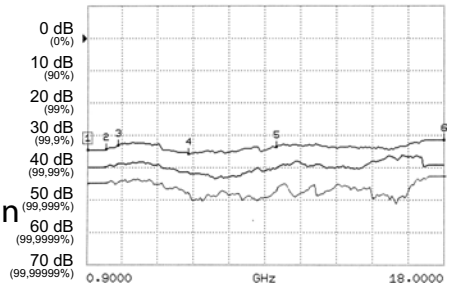
	HSF54	NSF34
Shielding **HF**	X	
Shielding **LF**	X	X
Brief description	Standard paint for low- and high-frequency shielding	Standard paint for low-frequency shielding only
Screening (Shielding power)	40 dB (99.99%)	40 dB
Screening agent	Carbon	Carbon
Application area	Interior / Exterior	Interior / Exterior
Water resistance	Excellent	Excellent
Typ. coverage with 1 liter (1.06 US quarts)	Interior: 7.5 m^2 (~81 ft^2) Exterior: 5 m^2 (~54 ft^2)	Interior: 12.5 m^2 (~135 ft^2) Exterior: 10 m^2 (~108 ft^2)
Ecology	Good	Good
Binding agent	Pure acrylic	Pure acrylic
Solvent	Water	Water
VOC content *	0,2 g/l	0,2 g/l
Water vapor permeability	SD ~ 0.1 m	SD ~ 0.1 m
Application with	Paint roller	Paint roller, airless spraying
Grounding required	Interior: EB + ES Exterior: ES-A	Interior: EB + ES Exterior: EB + ES-A
Frost resistance in delivery form	5 frost-/ thaw cycles	5 frost-/ thaw cycles
Delivery sizes	1 liter (1.06 US quarts); 5 liters (1.32 US gallons) 30 liters (7.93 US gallons)	1 liter (1.06 US quarts); 5 liters (1.32 US gallons) 30 liters (7.93 US gallons)
Shelf life	12 months	12 months

* EU limit value for this product (Cat. A/a): 75 g/l (from 2007) and 30 g/l (from 2010).

General Product descriptions

HSF54 (Pure acrylic, HF radiation + LF electric fields, Interior + Exterior application)

Our standard product for interior and exterior application.
● Based on a high quality pure-acrylic binder this shielding paint offers a perfect compromise of **excellent attenuation, high water resistance and good ecology** ● Minimal VOC content, highly breathable, free of solvents, plasticisers, etc. ● Good adhesion on many surfaces and substrates like old emulsion latex paint layers, construction boards, sheetrock, gypsum boards, cement, plaster, polystyrene, masonry surfaces, etc. ● This shielding paint has to be **applied with a paint roller and can easily be overpainted.** A small amount of conductive fibers helps to bridge eventual gaps forming in the underground / the substrate of the shielding paint coat. Due to this new development no ground strap is needed for safe grounding of the shielding paint coat, specifically in outdoor applications. ● Can easily be covered with two top layers of water based emulsion paint. ● **The paint is frost resistant** (tested for 5 freeze / thaw cycles).



1: GSM 900, 2: GSM 1800, 3: UMTS, DECT, WLan, 4: DECT, WLan
Top: Thin application (10 qm/l) on construction board
Middle: Normal application (7.5 qm/l) on construction board
Bottom: 2-layer application (2x 7.5 qm/l) on construction board

Attenuation of 40 dB (shielding effectiveness of 99.99 %) at typical coverage in one layer. ● Ingredients: Water, pure acylic binder, graphite, carbon black, additives, preservative.

NSF34 (Pure acrylic, LF electric fields, Interior + Exterior application)

Like HSF54, but for protection from low-frequency electric fields only.

Common Characteristics of all Shielding Paints

Carefully Selected Ingredients

YSHIELD shielding paints **do not contain toxic solvents, plasticisers, or any other toxic ingredients**; they only contain marginal amounts of VOC containing components. Therefore they are **low-emission** products and meet the strictest standards for application in "Building Biology" projects. All ingredients are carefully selected , according to their high quality; and their safety for the environment and for all people who are in contact with the paint: the factory personnel, the painters applying the paint, and the individuals occupying the rooms shielded with YSHIELD shielding paints.

Simple handling and processing

YSHIELD shielding paints **can be universally applied**. The shielding paints are easy to apply, even in structured rooms with bays, pitched roofs and dormers. House painters recommend YSHIELD's shielding paints for ease of application. All shielding paints are best applied with a paint roller.

Perfect Corrosion restistance

Most shielding products containing metal components are not adequately protected against corrosion. YSHIELD shielding paints **shield without metal particles** using only carbon. Therefore they offer **perfect corrosion resistance** (no oxidizing) and **long-term durability**.

Security and protection even against future High-Frequency applications

Due to its holohedral structure, without fibers or meshes, all YSHIELD shielding paints offer almost constant attenuation, without preferred direction of polarization, for frequencies of up to 18 GHz. This means: **perfect protection against future developments of the telecommunications industry in the higher Gigahertz range is guaranteed, when using our shielding paints**.

Areas of application

Living areas: Protection against HF-radiation from cellphone towers, TV and radio broadcasting antennas, radar, digital standard cordless telephones and wireless networks, etc. Protection against low-frequency electric fields from power supply lines, etc. **Industry:** To prevent interception of data from wireless networks ("data-stealing") and to prevent interception of potentially bugged conference rooms. **Science and R&D:** Shielding of EMI-sensitive facilities and equipment. **Medicine:** Protection of sensitive technical equipment; to guarantee that important medical data is derived correctly and will not be altered by electromagnetic interference (EMI). **Electronics Industry** (e.g. recording studios): To reduce induction and interference. **Further applications**: schools, nurseries, hotel rooms, hospital rooms, etc.

Certificate of shielding

Tested and certified by the Microwave Laboratory of the **University of the German Federal Armed Forces** in Munich, Germany. Professor Diploma-Engineer Peter Pauli states: "Another remarkable fact is the very constant and almost frequency independent **outstanding shielding**."

Certificate of VOC emissions

All of our shielding paints are tested for volatile organic compound (VOC) emissions according to **EU standard 2004/42/EG ChemVOCFarbV**. This testing is done by an accredited and independent laboratory. Test results are given in the table on page 1. Current limits as prescribed by law are 75 g/l for A/a classified products. YSHIELD's **HSF54 boasts a 0.2 g/l VOC value, far below the current limit of 75 g/l**, and even beating the stricter limits in effect from 2010, which will be 30 g/l.

Common handling and processing instructions

Underground / Subsurface: Underground needs to be solid, clean, degreased and dry. Interior: Shielding paints may be applied over existing emulsion paint, wallpaper, construction boards, cement, plaster, etc. Exterior: Shielding paints may be applied on concrete, plaster, cement facade, emulsion paint, polystyrene, masonry surfaces, etc. Strongly absorbent or porous surfaces are to be prepared with a primer coat. **Application:** Best to use paint roller; also possible is airless spraying. **Minimum application temperature:** (MFFT) +5°C / 41°F. **Covering of shielding paint / Top coat:** Depending on

the environment temperature and humidity the paint needs 12-24 hours to dry. The surfaces of YSHIELD paints have to be protected against mechanical exposure. Interior: Cover with typical emulsion or vinyl paint offering good coverage. Exterior: Cover with hydrophobic emulsion facade paint. NOTE: Do not cover with silicate paints, plasters, mortars, etc. (applies for interior + exterior paint)!

Accessories for Grounding / Earthing

Grounding requires a licensed electrician. Please be sure to follow all local laws and standards.
For interior use we recommend YSHIELD Ground-Connection-Set ES in combination with Ground-Strap EB to ensure good ground connection of the shielding paint coat. For exterior use we recommend 2 Ground-Connection-Sets ES-A.

Ground-Connection-Set ES "interior"

Ground-Connection-Set for all YSHIELD Shielding Paints. Ground-Connection-Set ES is specifically designed to guarantee proper grounding of the shielding paint coat. For each connected area (or surface) of shielding paint coat, one Ground-Connection-Set is required! ● High-grade steel plate 8 x 8 x 0.3 cm with conductive fleece back; ● 4 Stainless steel screws, 4 dowels / wall plugs ø 6 mm; ● 1 m grounding cable ø 2.5 mm^2;

Ground-Strap EB "interior"

Ground-Strap for shielding paints for interior use. All areas / surfaces shielded with YSHIELD shielding paints need to be grounded for personal protection. In case of cracks forming in the walls, which would possibly disconnect grounding for parts of the painted surfaces, the ground strap will secure grounding even for those parts which are disconnected from the grounding / the ground plate due to the crack(s). Therefore, the ground strap is to be applied uninterrupted, in one piece on all shielded surfaces, to secure good ground connection in case of cracks in walls, etc.; ● Self-adhesive strap with highly conductive silver-containing glue; ● **100% corrosion resistant** copper strap, tin-coated on both sides; ● **Length 10 m**, width 2 cm, thickness 0.06 mm.

Ground-Connection-Set ES-A "exterior"

Ground-Connection-Set for all YSHIELD Shielding Paints. Ground-Connection-Set ES-A is specifically designed to guarantee proper grounding of the shielding paint coat in exterior applications. We recommend using one ground connecton set ES-A (or two sets for added security) per every connected surface / connected area of shielding paint coat in outdoor shielding applications.
● High-grade steel plate 8 x 8 x 0.3 cm with conductive fleece back;
● Mounted IP65-casing; ● 4 Stainless steel screws, 4 dowels / wall plugs ø 6 mm; ● 1 m grounding cable ø 16 mm^2;