

RF[®]GREEN[®]

RF SHIELDING PAINT



VERSATILE COATINGS FOR CONTROL
OF ELECTROMAGNETIC SIGNALS

SKU#

CPC-54

Application & Performance

RF^{GREEN}

CPC-54 - SAFETY DATA

2022/05



CPC-54
Shielding Paint

PLACE OF TEST

In our manufacturer's EMC laboratory according to international standards, for daily quality control and product development.

CONFORMITY

The measurement of the attenuation of electromagnetic waves from 600 MHz to 40 GHz has been performed in close accordance with standards IEEE Std 299™-2006 or ASTM D4935-10.

TEST SETUP

Measuring devices: Vector Network Analyzers Rohde & Schwarz ZNB20 and ZNB40 with a measuring dynamics up to 140 dB. Antennas: For IEEE Std 299™-2006 horn antennas with horizontal/vertical polarisation inside and outside a test chamber. For ASTM D4935-10 TEM cells with radial polarisation.

$$dB = 10 \cdot \log_{10} \frac{S_1}{S_2}$$

dB	Attenuation
10	90%
20	99%
30	99,9%
40	99,99%
50	99,999%
60	99,9999%
...	...

*Shielding performance below 600MHz is at least as good as 600MHz.

TEST OBJECT

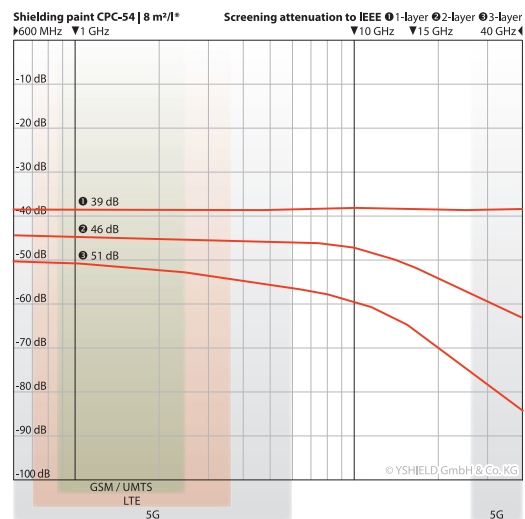
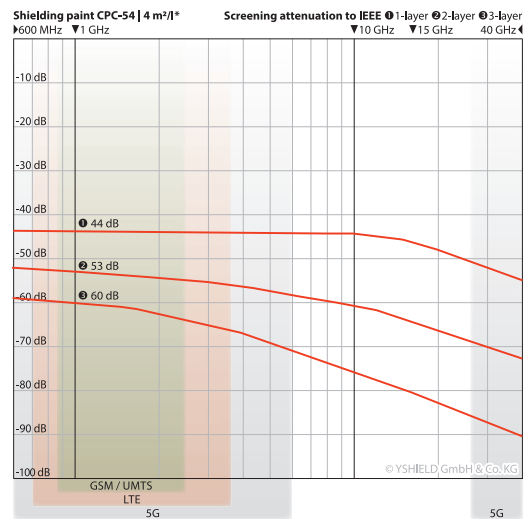
Shielding paint CPC-54 with paint roller. Thick 4 m2/l + Thin 8 m2/l

DATE OF MEASUREMENT

05/11/2021

GUARANTEE

We bindingly guarantee the shielding attenuation of a product with this laboratory report. The measuring curves represent the mean value of all tested charges, within a tolerance range of +/- 2 dB.



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IDENTIFICATION OF THE MIXTURES AND OF THE COMPANY

PRODUCT IDENTIFIER - CPC-54 BRAND RELEVANT IDENTIFIED USES OF THE MIXTURE

Electrically conductive priming coats and accessory products

RELEVANT IDENTIFIED USES ADVISED AGAINST

There are no information about relevant identified uses of the product, which are advised against.

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

LBA Technology
3400 Tupper Dr.
Greenville, NC 27834

HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE DIRECTIVE 67/548/EEC OR 1999/45/EC AND REGULATION (EC) NO 1272/2008 (GHS)

None.

LABEL ELEMENTS

None.

OTHER HAZARDS	AS	PROP.
None	7732-18-9	0-70%
ADDITIONAL INFORMATION		0-40%
This products are not dangerous concerning the regulation (EC) No. 1272/2008 (CLP) or the directive 1999/45/EC		0-10%
		0-50%
		0-40%
		0-5%
COMPOSITION, INGREDIENTS	2634-33-5 (BIT)	< 200 ppm
	13653-10-7 (ZINKE)	
	2682-20-4 (MST)	

SUBSTANCES

UNSUITABLE EXTINGUISHING MEDIA

None known.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.

ADVICE FOR FIREFIGHTERS

Appropriate breathing apparatus may be required.

ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Refer to protective measures listed in sections 7 and 8. The product produced in combination with water slippery surfaces.

ENVIRONMENTAL PRECAUTIONS

Do not empty into drains. If the product contaminates lakes, rivers or seewages, inform appropriate authorities in accordance with local regulations. Holding polluted washing water back and disposing of duly.

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Remove residue by rinsing thoroughly with water. Thoroughly clean contaminated objects and floors and observe environmental regulations.

REFERENCE TO OTHER SECTIONS

None.

HANDLING AND STORAGE PRECAUTIONS FOR SAFE HANDLING

No special measures necessary in the case of regulation storage and handling. Ensure a good ventilation in room and working area. Comply with the health and safety at work laws. Phrase P102: Keep out of reach of children. Phrase P103: Read label before use.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

This products are not flammable. Store in accordance with local regulations.

HINTS ON STORAGE ASSEMBLY

Keep away from: Alkali (lye), acid, oxidizing agent. Storage class : 12.

FURTHER INFORMATION ON STORAGE CONDITIONS

MIXTURES

This products are a mixture.

OTHER MEANS OF IDENTIFICATION

Not available.

HAZARDOUS COMPONENTS

Not applicable. This products does not contain any components classified for health hazards above the relevant cut off value.

FIRST AID MEASURES

GENERAL

In all cases of doubt, or when symptoms persist, seek medical attention. Immediately remove all contaminated clothing.

AFTER INHALATION

When symptoms persists, take the casualty into the fresh air and keep warm. Call a doctor, should the air passages be affected.

AFTER SKIN CONTACT

Wash away with soap and water and rinse. Do NOT use solvents or thinners. Take off immediately all contaminated clothes.

AFTER EYE CONTACT

Remove contact lenses, keep eyelids open. Rinse open eye immediately with plenty of running water. Seek medical advice if complaint continues.

AFTER INGESTION

Keep at rest. Do not induce vomiting. Drink water in small draught. When swallowed immediately consult and show packing or label to physician.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

No further relevant information available.

INDICATION OF ANY MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

None.

FIREFIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA

This products are not flammable. In case of a fire extinguish surroundings as indicated.

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Observe label and technical data sheet precautions. Keep only in the original container in a cool, well-ventilated place. Protect against Heat. Frost. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SPECIFIC END USE(S)

Basic coatings interior and exterior.

EXPOSURE CONTROLS, PERSONAL PROTECTION

CONTROL PARAMETERS, OCCUPATIONAL EXPOSURE LIMIT VALUES

Informations on occupational exposure to RCP-method TRGS 900 (D). Limit value type (country of origin): TRGS 900 (D). Limit value: Not relevant.

PERSONAL PROTECTIVE EQUIPMENT

Avoid contact with eyes and skin. Immediately remove all contaminated clothing. Do not eat or drink during work - no smoking. Wash hands before breaks and after work.

RESPIRATORY PROTECTION

Breathing protection equipment is not required at brush or roll application. Do not breathe spray. By spraying: Use filter mask P2 (white).

HAND PROTECTION

At use as agreed a protective gloves from nitrile rubber with a material thickness 0.4 mm has to be used. Notes of the manufacturer have to be taken into account. Penetration time of the glove material: >= 8 h. By longer or repeated contact the penetration times can be considerably shorter. The protective gloves should be replaced after the first wear out or a damage of the gloves. Gloves of cotton should be used under the gloves of polychloropren or nitrile rubber. After washing hands replace lost skin fat by fat containing skin creams.

EYE PROTECTION

Use protection glasses in case of spattering.

BODY PROTECTION

Using protective clothing. If the product must sprayed, use a protective clothing.

ENVIRONMENTAL EXPOSURE CONTROLS

See chapter 7. No additional measures necessary.

PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Form: Liquid to pasty.

ODOR

Characteristic.

ODOUR THRESHOLD

Not determined.

RELEVANT SAFETY DATA

Boiling temperature: Not applicable.

Flash point: Not applicable.

Ignition temperature: Not applicable.

Vapor pressure: Not determined.

Density: See technical data sheet.

Solvent separation test: Not applicable.

Solvent content in all products: 0 %.

pH value: All products: 8; HSF64,

HSF74: 12.

Viscosity: Liquid to pasty, see technical data sheet.

VOC value: See technical data sheet,

max. 0.2 g/l.

OTHER INFORMATION

Formulated in Germany for LBA

STABILITY AND REACTIVITY

REACTIVITY

No dangers connected by a possible reactivity of the product are known to proper handling and storage.

CHEMICAL STABILITY

Stable under recommended storage and handling conditions (see Handling & Storage).

POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reactions are known if stored and handled correctly.

CONDITIONS TO AVOID

Keep away from frost, heat and direct sunlight.

INCOMPATIBLE MATERIALS

No dangerous reaction known. Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

HAZARDOUS DECOMPOSITION PRODUCTS

No dangerous decomposition product are known if stored and handled correctly. When exposed to high temperatures or in case of fire hazardous decomposition products such as carbon dioxide, carbon monoxide, smoke, nitric oxides or thick, black smoke may produced.

TOXICOLOGICAL INFORMATION

Toxicological data are not available.

The classification was carried out according to the calculation method of the Preparations Directive (1999/45/EC).

INFORMATION ON TOXICOLOGICAL EFFECTS,

ACUTE EFFECTS

Acute oral toxicity: None.

Acute dermal toxicity: None.

Acute inhalation toxicity: None.

SENSITIZATION

Not sensitizing.

REPEATED DOSE TOXICITY (SUBACUTE, SUBCHRONIC, CHRONIC)

Toxicological data are not available.

CMR EFFECTS (CARCINOGENICITY, MUTAGENICITY AND TOXICITY FOR REPRODUCTION)

Carcinogenicity: No data. Germ cell

mutagenicity/Genotoxicity: No data.

Reproductive toxicity: No data.

ECOLOGICAL INFORMATION

TOXICITY

Acute or chronic damages to water organisms by the product in the aquatic environment are not expecting.

PERSISTENCE AND DEGRADABILITY

These are not data available.

BIOACCUMULATIVE POTENTIAL

These are not data available.

MOBILITY IN SOIL

These are not data available.

RESULTS OF PBT AND VPVB ASSESSMENT

These are not data available.

OTHER ADVERSE EFFECTS

These are not data available.

ADDITIONAL ECOLOGICAL INFORMATION

Avoid exposing into ground, waterways and drainage. The product is evaluated according the method of 1999/45/EC and is not classified as harmful for the environment but contents components witch are harmful for the environment. See sections 2 and 3 for details.

DISPOSAL CONSIDERATIONS

WASTE TREATMENT METHODS

Packaging with not dry uped residues have to dropped at official collecting sites. Do not empty into waters or drains. Packaging with dry uped residues can be disposed together with household garbage or building site garbage.

WASTE KEY

Disposal-definition No. (AVV-Code): 08 01 12 Paint and varnish waste with the exception of the ones who come under 08 01 11 *.

CONTAMINATED PACKAGING

Contaminated packaging must be emptied of all residues and, following appropriate cleaning, may be sent to a recycling plant. Uncleaned packaging must be disposed of in the same manner as the medium.

TRANSPORT INFORMATION

UN NUMBER

No dangerous good in sense of this

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CPC-54 - SCREENING ATTENUATION

2022/05



CPC-54
Shielding Paint

PRODUCT FEATURES

INTENDED USE

Electro-conductive base coatings to shield high-frequency electromagnetic fields and/or low-frequency electric fields. Low-frequency magnetic fields are not shielded.

AREA OF APPLICATION

Walls and ceilings: Unlimited possible. You will find the suitability for interior or exterior application in the technical data table.

Floor areas: Loose or floating floor coverings (carpets, laminate, etc.) can be laid directly onto the shielding paints. Pay attention, that the shielding paints are not damaged! In case of glued floor coverings (carpets, cork, laminate, etc.) the shielding paints have to be after treated with our primer GK5 to improve the adhesion. We advise against bonding e.g. real-wood parquets.

Under plaster: Due to high adhesive tensile strengths applicable directly under pure organic plasters.

CORROSION RESISTANCE

All shielding paints don't contain metal particles. Based on carbons they are long-term durable and not oxidizing.

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.

GROUNDING

GROUNDING REGULATION

Large area shieldings executed with shielding materials are no electrical equipment but new conductive parts according to IEC 826-03-03 or IEC 195-06-11 and thereby a new method of DIN VDE 0100-100:2009-06. By connecting the material(s) to the potential equalization they are an inherent part of the electrical system.

TECHNICAL DATA

DESCRIPTION	Our best-selling product, proven tens of thousands of times. One paint for all if you cannot decide.
SHIELDING	
Usage	Room/Building
Screening HF / LF	HF / LF
Screening 1 layer 10 GHz	44 dB
Screening 2 layer 10 GHz	61 dB
Screening 3 layer 10 GHz	75 dB
Coverage	5 - 7.5 m ² /l
Scope	Interior & Exterior
Substrates	Almost All
Moisture-Resistance	High
Sd-Value	0.1 m
Application	Paint roller Airless (> 0.2 mm)
Spatter	No
TECHNICAL COATING	
Application	Screen Printing Roller / Blanket
Thickness 200 µm	~ 1.4 Ω/
Thickness 150 µm	~ 2.2 Ω/
Thickness 100 µm	~ 4.6 Ω/
Thickness 50 µm	~ 35 Ω/
ECOLOGY	
Ecology	High
VOC Content	0.18 g/l
SVOC Content 7d	6 µg/m ³
Full Declaration	64 ppmBIT 34 ppmINN 3 ppm MIT
Certification	TÜV-SÜD
Fire behavior	DIN EN 13501-1
PHYSICAL & CHEMICAL	
Color	Black
Binder	Acrylate
Film Hardness	Elastic Hard
Pigmentation Size d90	50 µm
Adhesive Strength	5.3 N/mm ²
Viscosity (Brookfield)	~ 2000 mPas
Rheology	Newtonian
Max Temperature	140°F / 60°C
pH Value	8
Density	1.19 kg / l
MFFT	41°F / 5°C
Frost/Thaw Resistance	5 Cycles
Delivery Sizes	1 / 5 / 20 Liters
Shelf Life	12 Months

Generally accepted rules of technology have to be respected. According to the latest state of technology it is important to distinguish between protective equipotential bonding and functional equipotential bonding (FEB). The protective equipotential bonding (green/yellow cable) is a protective measure and ensures, in the event of contact voltage, the immediate action of safety devices (e.g. line safety switch). The function of the functional equipotential bonding (transparent cable) is the reduction of emission of low frequency electrical fields on large area shieldings (i.e. prevention of leaking electrical field).

GROUNDING ACCESSORIES

To obtain an accurate grounding, we exclusively recommend our grounding accessories. For interior use: Grounding plate GW or GB in combination with grounding strap EB2. For exterior use: Grounding plate GE. Please find more information in our "Technical datasheet - Grounding".

PROCESSING

INTERIOR APPROACH

1. Prepare the underground with our primer GK5. 2. Drill holes for the grounding plate. 3. The grounding strap has to be applied uninterrupted in one piece through all surfaces to be painted, as stated in our grounding instructions sheet. 4. Apply the shielding paint in one or two layers, depending on the favored shielding attenuation. Apply second coat of shielding paint to the area where the grounding plate will be mounted. 5. Allow the paint 24 hours to dry. 6. Fix the grounding plate. 7. For further procedure references please follow up at subitem "Final coat".

EXTERIOR APPROACH

1. Use a first-class paint roller with a pile height of 10-13 mm. To achieve a constant high attenuation, it is essential to apply the shielding paint with equal thickness, do not skip areas! Always soak the paint roller with the equal amount of paint and try to coat equal large surfaces with this amount! 2. Limited usable are lacquer rollers, foam-rollers or brushes, as the coating often gets applied too thin for a good attenuation! 3. Airless spraying is possible, please find the minimum hole sizes in the technical data table. 4. Application methods in technical coatings: Knife coating, dip-coating, roll application, etc.

APPLICATION TEMPERATURE

Minimum application temperature: 41°F / 5°C. This temperature also counts for the drying time!

UNDERGROUND

Excellent adhesion on almost all undergrounds like emulsion paints, dry construction boards, wallpaper, cement, plaster, masonry, wood, many plastics, etc.. The underground needs to be solid, clean, degreased and dry. Absorbent or porous surfaces must be prepared with a primer. Old coats of paint or old wallpapers which can be etched with water, should be removed.

PREPARATION

The conductive particles deposit on the bottom of the paint container. Shake the paint container well and mix it thoroughly after opening with an electrical paint stirrer for at least one minute.

COMPATIBILITY

All shielding paints are ready for use. Never mix with water or other coating materials.

APPLICATION

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Drying time

1. Allow to dry for 24-48 hours before overcoating. 2. Protect from rain at least for 24 hours. 3. The coating is entirely cured after 7 days.

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CPC-54 - SCREENING ATTENUATION

2022/05

SAFE MATERIAL HANDLING

SAFETY NOTES

All paints have a high coloring capability, so please proceed with care. Wipe off stains immediately with damp cloth. Do not let stains dry up. Do not inhale spray mist! Absolutely make sure, that all areas are well ventilated during use and drying time. Do not eat, drink or smoke during painting! Rinse thoroughly immediately after skin or eye contact!

VOC-CONTENT

Please refer to the technical data table. The EU limit value for cat. A/a is 30g/l (by 2010).

INGREDIENTS

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

PRESERVATIVE

If stated above, the shielding paint contains BIT (1,2-Benzisothiazolin-3-on), INN (Zink-Pyrithion) and MIT (2-Methyl-4-isothiazolin-3-on) for preservation. Zink-Pyrithion (INN) is a safe replacement for MIT, that is by legislature subject to labeling from 2020 over 15 ppm

FURTHER INFORMATION

STORAGE

Store cool and frost free. Keep safe from children. Once the paint container has been opened, close tightly after usage and store cool.

SHELF-LIFE

At least 12 months, see the batch sticker on the paint container.

DISPOSAL

Utensils have to be cleaned immediately after use with water and soap. Containers must be absolutely empty for recycling. Dried up paint remainders may be disposed of with the household garbage. Do not let remains escape into sewerage, water bodies or ground.

SAFETY DATA SHEET

The safety data sheet is in the Application & Performance document and is shipped along with the packing slip and available upon request.

DISCLAIMER

Preceding information has been assorted to the latest state of processing and application technology. As we don't have any influence on processing and application, no liability can be accepted out of the contents of this information sheet. Processors are in either case bounded to a skilled evaluation of the processing, in consideration of the product attributes and fitness. Details and notwithstanding details, transcending the content of this information sheet, require our confirmation in writing. Our general terms and conditions are valid as mentioned. With this newest edition of our technical data sheet all previous versions lose their validity



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