

DEK STANDARD ENGINEERING INSTRUCTION

Title

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PAINT: “Electromagnetic Shield Coating”

DSF 2.9.32

Paint Description:

Electromagnetic Shield Coating

Manufacturer:

TRIMITE

Manufacturer Product Reference:

J2904

For the latest information and application details please check with Trimite.

Issue	01	02	03	04	05	06	07	08
DCR	40586	02/06/21						

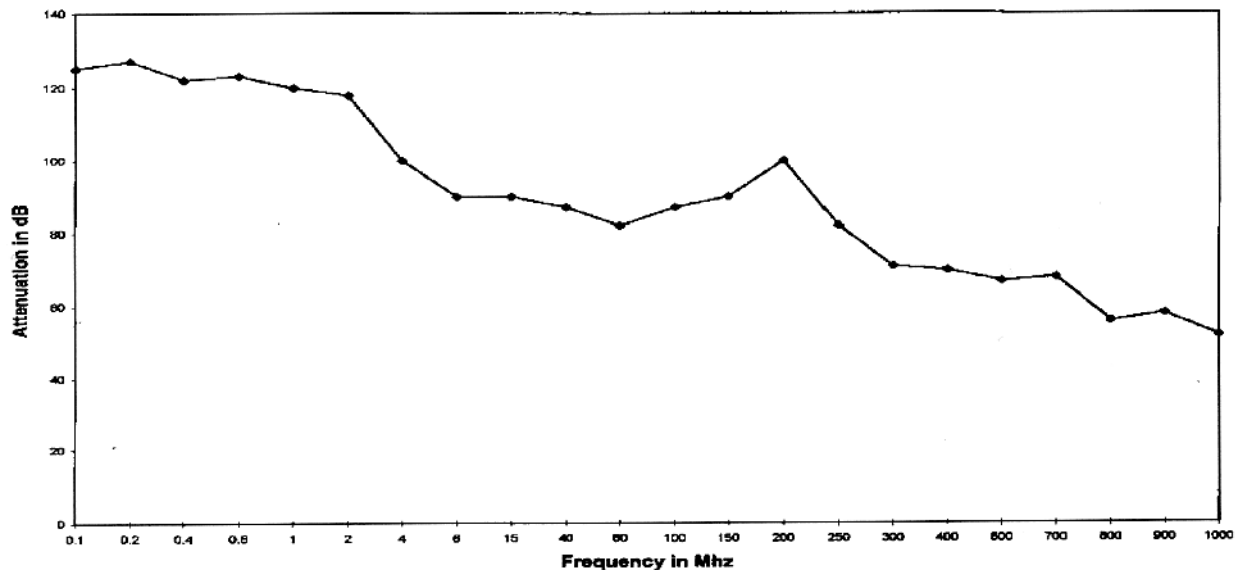
DESCRIPTION:	Electromagnetic Shield Coating J2904 has been manufactured to meet the strictest control of electrical interference. It is formulated utilizing specially prepared metallic nickel to provide electromagnetic compatibility (EMC) on plastic housings for a wide range of electronic equipment. This highly conductive coating when applied correctly provides an effective shielding against radiated electromagnetic interference (EMI) and protection against electrostatic discharge (ESD). This product provides a cost effective and efficient way of complying with The United States Federal Communications Commission (F.C.C.) Docket 20780 and the German Regulations V.D.E. 0871-0879. (The Association of German Electrotechnical Engineers) and has also been given approval by the U.S. Underwriters Laboratory Inc. Electromagnetic Shield Coating J2904 air dries rapidly to a pleasing metallic grey finish. It is suitable for application, without priming, to most plastic substrates used in the manufacture of electronic housings. It is formulated to minimize settlement both in the can and in supply lines of the spray equipment.						
AVAILABILITY:	Call our Hot Line 0121 554 7000 for full details of the container sizes and prices.						
FLASH POINT:	Flash point in the range of 21°C-32°C. Tested to BS 3900 Part A8.						
STORAGE:	Store between 5°C – 35°C for a period not exceeding twelve months before use. Note: When not in use cans must be kept sealed.						
COVERAGE:	Calculated on a dry film thickness of 50 microns. Conventional Spraying: 2-3 square metres per kilogram. The coverage figures shown are approximate and will vary with the type of equipment used and the shape of the component.						
PREPARATION:	The surface must be thoroughly clean and free from mould release agents and static charges. Owing to the sensitivity of many plastics to certain solvents, Antistatic Cleaner J131 should be used.						
PRIMING:	Electromagnetic Shield Coating J2904 is suitable for direct application to thermo- plastics. Priming is necessary on the thermoset range of plastics (ie Glass Reinforced Polyesters, Glass Reinforced Phenolics, SMC, DMC and Polyurethane Foam mouldings) and AP210 Two Pack Polyurethane Primer or AP262 Two Pack Acrylic Primer should be used.						
FINISHING:	Application: Electromagnetic Shield Coating J2904 may be applied by the following method: Conventional Spraying Conventional Spraying: Thinner PT1000 or Thinner PT1002 (depending of type of plastic substrate) may be added up to 50% by volume to obtain a viscosity of 45-50 seconds at application temperature using a BS B4 viscosity cup. Film Thickness: To achieve the full shielding properties, the Coating J2904 should be applied in several passes to achieve a wet film thickness of 100 microns which will result in a dry film thickness of approximately 50 microns.						
OVERCOATING:	It is not usual to overcoat Electromagnetic Shield Coating J2904 but if this is required, our Product Advisory Department should be consulted for a suitable recommendation.						
AIR DRYING:	At an ambient temperature of 20°C, the drying time is approximately as follows: <table><tr><td>Surface Dry:</td><td>10-15 minutes</td></tr><tr><td>Hard Dry:</td><td>½ -1 hour</td></tr><tr><td>Full Properties:</td><td>7 days</td></tr></table> Note: Properly painted parts should attain a conductivity of less than 1ohm/square in one hour. Maximum conductivity is normally achieved in 12 hours.	Surface Dry:	10-15 minutes	Hard Dry:	½ -1 hour	Full Properties:	7 days
Surface Dry:	10-15 minutes						
Hard Dry:	½ -1 hour						
Full Properties:	7 days						

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CLEANING: Gun Cleaning Solvent J103 is suitable for cleaning all equipment after use.

SAFETY: Before use, refer to our Individual Safety Information Sheets.

ATTENUATION EFFICIENCY: Measured readings of a typical 52 micron application under actual test conditions at an independent laboratory.



Frequency MHZ	Attenuation dB	Frequency MHZ	Attenuation dB
0.1	125	100	87
0.2	127	150	90
0.4	122	200	100
0.6	123	250	82
1	120	300	71
2	118	400	70
4	100	600	67
6	90	700	68
15	90	800	56
40	87	900	58
60	82	1000	52

WARRANTY: Information provided in this leaflet is given in good faith but without warranty on the understanding that users satisfy themselves about the product's suitability for their own purpose. Our Technical Service team is available to assist in cases of doubt. Any sale by this Company is strictly subject to our Conditions of Sale.

TRIMITE

GLOBAL COATINGS

SAFETY DATA SHEET

ELECTROMAGNETIC SHIELD COATING

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product name ELECTROMAGNETIC SHIELD COATING

Product number J2904

Special User Instructions

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Finish coat.

1.3. Details of the supplier of the safety data sheet

Supplier Trimite Global Coatings
Firwood Paints Ltd. Oakenbottom Road, Bolton, UK, BL2 6DP
+44 (0)1204 - 525231
sales@firwood.co.uk

1.4. Emergency telephone number

Emergency telephone +44 (0) 1895 - 251234 Mon - Thurs: 9.00 - 17.30, Friday: 9.00 - 16.00

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification (EC 1272/2008)**

Physical hazards Flam. Liq. 3 - H226

Health hazards Skin Sens. 1 - H317 Carc. 2 - H351 STOT SE 3 - H336 STOT RE 1 - H372

Environmental hazards Aquatic Chronic 3 - H412

2.2. Label elements**Hazard pictograms**

Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

ELECTROMAGNETIC SHIELD COATING

Precautionary statements	P261 Avoid breathing vapour/ spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P314 Get medical advice/ attention if you feel unwell. P403+P235 Store in a well-ventilated place. Keep cool.
Contains	Nickel powder, n-Butyl Acetate, Nickel Flake, 1-Methoxy-2-propanol
Supplementary precautionary statements	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P260 Do not breathe vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P272 Contaminated work clothing should not be allowed out of the workplace. P302+P352 IF ON SKIN: Wash with plenty of water. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P308+P313 IF exposed or concerned: Get medical advice/ attention. P312 Call a POISON CENTRE/doctor if you feel unwell. P321 Specific treatment (see medical advice on this label). P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Nickel powder CAS number: 7440-02-0	EC number: 231-111-4	30-60%
Classification Skin Sens. 1 - H317 Carc. 2 - H351 STOT RE 1 - H372 Aquatic Chronic 3 - H412		

ELECTROMAGNETIC SHIELD COATING

n-Butyl Acetate 10-30%		
CAS number: 123-86-4	EC number: 204-658-1	REACH registration number: 01-2119485493-29-XXXX
Classification Flam. Liq. 3 - H226 STOT SE 3 - H336		
Nickel Flake 5-10%		
CAS number: 7440-02-0	EC number: 231-111-4	
Classification Skin Sens. 1 - H317 Carc. 2 - H351 STOT RE 1 - H372 Aquatic Chronic 3 - H412		
1-Methoxy-2-propanol 1-5%		
CAS number: 107-98-2	EC number: 203-539-1	
Classification Flam. Liq. 3 - H226 STOT SE 3 - H336		

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If in doubt, get medical attention promptly. Never give anything by mouth to an unconscious person.
Inhalation	Remove person to fresh air and keep comfortable for breathing. If breathing stops, provide artificial respiration. Never give anything by mouth to an unconscious person. Get medical attention if symptoms are severe or persist.
Ingestion	Get medical attention immediately. Do not induce vomiting. Keep affected person warm and at rest.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water.
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse with water. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist after washing.

4.2. Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure. Treat symptomatically.
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4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

ELECTROMAGNETIC SHIELD COATING

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Carbon dioxide (CO₂). Carbon monoxide (CO).

5.3. Advice for firefighters

Protective actions during firefighting Control run-off water by containing and keeping it out of sewers and watercourses.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions No smoking, sparks, flames or other sources of ignition near spillage. Keep unnecessary and unprotected personnel away from the spillage. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions The product is immiscible with water and will sediment in water systems. Do not discharge into drains or watercourses or onto the ground. Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with sand or other inert absorbent.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Restricted to professional users. Use only in well-ventilated areas. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store at temperatures between 5°C and 35°C. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Store away from the following materials: Acids. Alkalies. Avoid contact with oxidising agents.

Storage class Flammable liquid storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

ELECTROMAGNETIC SHIELD COATING

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

n-Butyl Acetate

Long-term exposure limit (8-hour TWA): WEL 150 ppm 724 mg/m³

Short-term exposure limit (15-minute): WEL 200 ppm 966 mg/m³

1-Methoxy-2-propanol

Long-term exposure limit (8-hour TWA): WEL 100 ppm 375 mg/m³

Short-term exposure limit (15-minute): WEL 150 ppm 560 mg/m³

Sk

WEL = Workplace Exposure Limit.

Sk = Can be absorbed through the skin.

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

Eye/face protection

Wear eye protection.

Hand protection

Wear protective gloves.

Other skin and body protection

Provide eyewash station and safety shower.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn.

Environmental exposure controls

Keep container tightly sealed when not in use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Coloured liquid.
Colour	Grey.
Odour	Characteristic. Organic solvents.
Initial boiling point and range	118 - 126°C
Flash point	23 - 60°C
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 0.7 %
Relative density	1.86
Solubility(ies)	Immiscible with water.

9.2. Other information

Volatile organic compound This product contains a maximum VOC content of ~314 g/l.

SECTION 10: Stability and reactivity

ELECTROMAGNETIC SHIELD COATING

10.1. Reactivity

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

10.5. Incompatible materials

Materials to avoid Avoid contact with the following materials: Strong acids. Strong alkalis. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion products may include the following substances: Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

SECTION 12: Ecological information

12.1. Toxicity

12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents.

Disposal methods Absorb in vermiculite, dry sand or earth and place into containers. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Waste class Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. Dispose of contents/container in accordance with national regulations. Dispose of contents/container in accordance with local regulations. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. The classification of this product, when disposed of as waste is 08 01 11 'waste paint or varnish containing organic solvents or other dangerous substances'. If this product is mixed with other wastes, this code may longer apply. If mixed with other materials, the appropriate code should be assigned, for further information contact your local waste authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID) 1263

UN No. (IMDG) 1263

UN No. (ICAO) 1263

UN No. (ADN) 1263

ELECTROMAGNETIC SHIELD COATING

14.2. UN proper shipping name

Proper shipping name (ADR/RID) PAINT

Proper shipping name (IMDG) PAINT

Proper shipping name (ICAO) PAINT

Proper shipping name (ADN) PAINT

14.3. Transport hazard class(es)

ADR/RID class 3

ADR/RID classification code F1

ADR/RID label 3

IMDG class 3

ICAO class/division 3

ADN class 3

Transport labels



14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

ADN packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS F-E, S-E

ADR transport category 3

Emergency Action Code •3Y

Hazard Identification Number (ADR/RID) 30

Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

ELECTROMAGNETIC SHIELD COATING

Guidance Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

SECTION 16: Other information

Issued by	HS&E Manager.
Revision date	09/07/2020
Revision	1
Supersedes date	01/06/2015
SDS number	5975
SDS status	Approved.
Hazard statements in full	H226 Flammable liquid and vapour. H317 May cause an allergic skin reaction. H336 May cause drowsiness or dizziness. H351 Suspected of causing cancer. H372 Causes damage to organs through prolonged or repeated exposure. H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.