MANUFACTURING INNOVATIVE SOLUTIONS FOR OVER 125 YEARS

the perfect finish
SINCE 1898

METAL-E-COAT®

USER GUIDE

Thurmaston Boulevard • Leicester • LE4 9HS • United Kingdom
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METAL-E-COAT® Introduction

METAL-E-COAT® has been developed by ISF Group Ltd for the metallisation of rigid substrates; MDF, wood, plastics and glass.

It has been formulated for ease of use and so does not require specialist application equipment, It is easy to post process and has a generous pot-life.

METAL-E-COAT® is available in a 10 KG pack. Each pack contains three components: -

- Metal Pigment - Polyester Resin - System Hardener

Product codes for packs:

Silver (MET-5-20624), Bronze (MET-5-20625), Copper (MET-5-20626), Brass (MET-5-20627)

These components are mixed when required prior to application. (See mixing instructions).

After application and cure **METAL-E-COAT®** can be sanded and burnished to a full metallic lustre with virtually all the properties of the metal selected. As with all metals the polished finish will tarnish with oxidation, contact with chemicals and handling. A protective clear coat should be applied after polishing.

It should be noted **METAL-E-COAT®** applications do not exhibit the same electrical conductance or heat transfer as the equivalent metal.
Additional:
The pigments used in **METAL-E-COAT®** are true metal particles and slight changes in processing and impurities from ore reduction can cause slight changes in colour. Where metal colour needs to match exactly on different items we would recommend using the same batch of metal pigment throughout, and process all the items together.

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Minimum Recommended Materials / Equipment.

Safety Equipment:

- Respirator for spray application with suitable fume and vapour filters
- FFP3 Dust Mask for post application processing
- Nitrile Gloves
- Safety Glasses

Application Equipment:

- Digital scales with suitable maximum reading and 0.1 gram resolution.
- Conventional spray, Gravity or Suction feed.1.6 mm or 1.8 mm application tip.
- Solvent for cleaning and thinning; ISF Group LTD No 51 Thinners.
- The drying area should be maintained at 20'c or above.

For Metallic Luster Processing:

- P800 sandpaper disc Autonet.
- P1000 Trizact disc.
- P1500 Trizact disc.
- P3000 Trizact disc.
- P6000 Trizact disc.

- Clean surface with soft cloth & Solvent de- greaser No 40 Thinners.

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METAL-E-COAT® in use

Surface preparation prior to application:

- Porous surfaces should be sealed prior to application of the **METAL-E-COAT®**. For example, MDF edges / exposed core should be sealed with a PU Primer or polyester base coat prior to application.
- Any sharp edges should be rounded to a >=3 mm radius edge to prevent cut-through when polishing.
- Adhesion promoters may be needed on certain substrates such as glass or polypropylene. Please consult your Representative or our Technical department for advice.

Mixing the Material:

It is important to mix the material accurately as changes in ratios will affect colour and processing properties.

There are mixing guides at the back of this guide for the mixing ratios of the different **METAL-E-COAT®** metals.

For a mixing, please refer to the **METAL-E-COAT®** Ready-Reckoner

As a guide you should allow 200 grams of binder to cover 1m^2 of substrate. How many passes are needed depends on the evenness of application and the item to be sprayed (complex or simple / flat). Generally, no more than 2 passes are needed.

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Mixing the Material continued …

What is needed to coat 1m^2 of sealed MDF with one pass of Bronze?

As we said earlier, approximately 200 grams of binder will coat 1m^2 in one pass.
If we look at the Ready Reckoner at 277.5 grams of Polyester, we see we need.

- 277.5 grams of Polyester.
- 750 grams of Metal Pigment.
- 36 grams of Hardener.

Into a suitable container (Mixing cups available via ISF Group LTD) weigh the Polyester resin first 277.5 grams.
Then add the Metal Pigment 750 grams.
Stir this well until it becomes smooth, even consistency.

Just before use add the Hardener and stir well 36 grams

The **METAL-E-COAT®** will be usable for 1 hour after the addition of the hardener at 20'c.

Ensure all equipment is cleaned out before this time elapses as once set it will be difficult or impossible to remove from spray equipment.

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Application Technique:

No special spray technique is required but it is best to keep to the usual good practices of:

Hold the gun nozzle 20-25cm away from the surface.
Keep the spray gun at a 90o angle to the surface.
Keep an even speed and distance during the application.
Overlap passes by 50%.

It is best to apply a nice even wet film in each pass.

Multiple passes can be applied to obtain the required film thickness, as a rule 2 passes will normally be sufficient for best performance.

On complex items it is best to concentrate on details / edges first prior to coating the entire object. This should help in preventing cut-throughs when polishing.

The items should be placed in an environment of 20'c for curing.

They can be handled after 1 hour but should be left for a minimum of 24 hours before polishing.

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METAL-E-COAT® Polishing

METAL-E-COAT® can be finished in a variety of ways; Polished, sandblasted or brushed for example. You are limited only by your imagination. Consequently, the recommendations made are a guide only so feel free to experiment.

Flat Surface:

Polishing of flat surfaces can be achieved through the traditional method of working up through the abrasive grits until reaching 6000 grit ultra fine “Trizact” Type abrasives. A typical process follows but this can be modified to suit the final appearance required and production speeds needed.

1) Use 800 grit paper to remove spray application features and surface imperfections, be sensitive to edges to prevent cutting through the finish.

2) Use 1000-6000 Trizact pads with water if required 4-5 passes across surface area on each grit to achieve even level of finish required.

Textured Surface:

The technique used on textured surfaces will vary depending on the depth of the texture, its degree of texture and the look required.

Please discuss your requirements with your representative or our technical department. After sanding/ polishing the surface will need to be protected from environmental elements that could cause tarnishing.

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MET-5-20624 SILVER MIX RATIO

METAL	POLYESTER 20216	20373
250	205	39.5
500	410	79
750	615	118.5
1000	820	158
1250	1025	197.5
1500	1230	237
1750	1435	276.5
2000	1640	316
2250	1845	355.5
2500	2050	395

MIX METAL WITH POLYESTER 20216
THEN ADD 20373
STIR TO A PASTE
CROSS COAT

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MET-5-20625 BRONZE MIX RATIO

METAL	POLYESTER 20216	20373
250	92.5	12
500	185	24
750	277.5	36
1000	370	48
1250	462.5	60
1500	555	72
1750	647.5	84
2000	740	96
2250	832.5	108
2500	925	120

MIX METAL WITH POLYESTER 20216
THEN ADD 20373
STIR TO A PASTE
CROSS COAT

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MET-5-20626 COPPER MIX RATIO

METAL	POLYESTER 20216	20373
250	185	19
500	370	38
750	555	57
1000	740	76
1250	925	95
1500	1110	114
1750	1295	133
2000	1480	152
2250	1665	171
2500	1850	190

MIX METAL WITH POLYESTER 20216
THEN ADD 20373
STIR TO A PASTE
CROSS COAT

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METAL-E-COAT® PROTECTIVE COATING PROCESS

STOCK CODE	DESCRIPTION
OPU795G**	SIRCA OPU79G** Acrylic PU 10%-90% Sheen available (5:1 Mix)
CTN52	SIRCA CTN52 Reactor (1L)
20630	Clear Etch Primer

1. **APPLY METAL-E-COAT® TO SUBSTRATE.**
2. **DE-GREASE WITH THINNERS No 40.**
3. **APPLY 1 X COAT OF 20630 CLEAR ETCH.**
4. **LEAVE TO DRY FOR A MINIMUM OF 1 HOUR.**
5. **LIGHTLY DENIB WITH 800g SANDPAPER.**
6. **APPLY 1 X COAT OF OPU79G** ACRYLIC PU AND MIX 5:1 WITH CTN52.**
7. **LEAVE OVERNIGHT.**
8. **IF REQUIRED DENIB AND APPLY 2ND COAT.**

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