



Israel Electric Corporation
Generation Division
Chief Chemist Department



TECHNICAL SPECIFICATION

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Specification for coating galvanized Tin or Aluminum Cabinets, galvanized Steel or Aluminium Surfaces by Liquid or Powder coating

General

The specification deals with painting cabinets, steel structure or equipment.

The surfaces for coating can be one of the following: Hot Deep Galvanized, Electrolytic Galvanized surface or Aluminum.

The coating application will be "wet" or powder coating (electrostatic Application).

Painting over galvanized surfaces requires an early experiment to ensure adherence to substrate.

All the coating materials shall be made by a single manufacturer.

Each layer shall be of a different shade.

Manufacturer is required to supply his recommendation for painting procedure of all parts.

The coating application shall be suitable for corrosivity category C4 according to ISO 12944

And of engineering quality as outlined in SSPC standard PA-1, and in accordance with the painting manufacturer's instructions on the product technical information. The finished product shall have a uniform appearance and lack liquids, wrinkles or other defects, have a uniform thickness according to the present specification. The coating layers will firmly adhere to the substrate. The final color shall be as determined by the customer.

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1. Surface preparation for painting on Zinc

1.1 On Hot Deep Galvanized surface

1.1.1 Solvent Cleaning

The surface shall be cleaned till free of any dirt, oil, grease or foreign matter, according to standard "SOLVENT CLEANING SSPC SP-1".

1.1.2 Surface preparation shall be made according to one of the following methods:

- **Brush-Off Blast Cleaning** according to SSPC SP-7

Depreciation of more than 10 microns of thickness of the galvanization is **not allowed**. Light sandblasting is carried out by authorized workers. After the treatment on the surface there will be slightly roughness, no shiny spots will appear.

- **Chemical treatment**

Phosphate washing (BS-3189).

1.2 On Electrolytic Galvanized Surface or Aluminium Surface

1.2.1 Solvent cleaning according to 1.1.1.

1.2.2 Surface treatment by one of the following methods:

- Roughening the surface with mechanical tools according to the requirements in the spec and according to the paint TDS, with minimal damage to the zinc.

The abrasives shall be compatible for each surface.

- **Chemical treatment** – according to 1.1.2

Galvanize Local Damage Repair

Local galvanize damage shall be repaired to 60 micron minimum (possibly with 2 layers) with one of the following approved products (in Israel):

Manufacturer	Supplier (in Israel)	Product
ZRC worldwide	Carmel industrial paint	Z.R.C
Zingametall bvba	M.b.l	ZINGA
Sherwin - williams	Epolac	ZINC-GLAD 5
Nirlat	Nirlat	UNICOAT (ZINC RICH)
Tambour	Tambour	GALVAZINC

or equivalent, as approved by IEC.

2. Coating application

All materials shall be made by the same manufacturer.

Each layer shall be of a different color (shade).

Approved Products for **liquid** coating – see table 3.1

Approved Products for **powder** coating – see table 3.2

Alternative paint system in case of manufacturing outside of Israel – see table 3.3

The thickness of the color layers indicated in the table below are minimal.

2.1 Galvanized or aluminum cabinets coating

#	Hot Deep or Electrolytic	#	Coating System	DFT [μ]	Remarks
2.1.1	Hot Deep 70 μ	2.1.1.1	Liquid coating: Primer: epoxy Top: Polyurethane Total:	100	---
				50	
				150	
		2.1.1.2	Powder coating: Primer: epoxy Top: pure polyester Total:	100 50 150	Preheating is required before applying powder dyeing. According to manufacturer's TDS required!
2.1.2	Electrolytic 20-40 μ	2.1.2.1	Liquid coating: Primer: epoxy Top: Polyurethane Total:	100 60 160	---
				160	
		2.1.2.2	Powder coating: Primer epoxy Top: pure polyester Total:	100 60 160	---
				160	
2.1.3	Aluminum	2.1.3.1	Liquid coating: Primer: epoxy Top: Polyurethane Total:	100 50 150	Surface preparation according to coating manufacturer's TDS. Roughness required!
				150	
		2.1.3.2	Powder coating: Primer epoxy Top: pure polyester Total:	100 50 150	Surface preparation according to coating manufacturer's TDS.
				150	

2.2 Strip Coating

Before or after spraying each coat of a paint system, all areas such as corners, edges, welds, small brackets, bolts, nuts, difficult-to-reach-areas shall be stripe-painted by brush to ensure that these areas have at least the minimum specified film thickness.

3. Approved Coating Products

3.1 Approved Liquid Coating

Supplier (in Israel)	Manufacturer	Primer	Top
Tambour	Tambour	Ecopoxy 80	Tamaglass PE 200
	International	Interguard 269	Interthane 990
Nirlat	Nirlat	Nirocoat HB	Niroglass
	PPG	Sigma prime 200	Sigmadur 520
Epolac	Sherwin williams	Duraplate 235	Acrolon 218
Arad	Hempel	15570/15300	55210/55610

3.2 Approved Powder Coating

Manufacturer (in Israel)	Product	Code
Tambour	Epoxy Powder Pure Polyester powder	182-xxx Or 192-xxx 186-xxx
Nirlat / Univercol	Epoxy Powder Pure Polyester powder	Series 9400 Series 7700

3.3 In case of the production of the cabinets will be outside of israel

The manufacturer must obtain a certificate for the color type he wants to apply before the painting.

For approval of the color type by IEC, the bidder must submit:

- Detailed description of the painting technology and the thickness of the layers.
- Suggested color description, the name of the color provider, the name of the color Manufacturer. the name of the color system by the manufacturer.

Technical data sheet and MSDS of each color.

- The manufacture should provide coupons according to the following:
 - 1 coupon Galvanized only
 - 1 coupon Galvanizing + first paint layer only
 - 1 coupon Galvanizing + second paint layer only
 - 2 coupon Galvanizing + full paint system

After receiving approval of the paint system, it will be possible to paint the cabinets.

4. Quality assurance

The contractor is responsible for implementing a quality control plan, documenting it and reporting the results of the product testing. The tested items will be marked by the manufacturer and will be documented; a copy of the inspection certificates will be sent to the IEC together with the supply.

Inspection Test Plan - Contractor shall submit ITP including hold points and witness points

Minimum Report Content:

- Surface preparation before application (holding point) – roughness and cleanliness.
- DFT – Dry Film Thickness of each layer (ISO 19840).
The thickness test will be done at 3 different points for each painted item and with an electronic device.
- Adhesion test according to ISO 16276 (X-Cut test) . maximum level "1" required.

There must not be a slight peel or slight removal of the coating along the cuts or up to 1 mm of the connection place of the cuts.

The Israel Electric Company may perform the continuity test standard NACE 188 (Wet Sponge) Discontinuities shall be corrected by the contractor and his responsibility.

There may be additional checks according to the supervisor's decision.

The IEC reserves the right to check the quality of the painting.

Failure item that does not meet the requirements of this specification will be disqualified.