



# Dampney Protective Coatings

## Endcor® 4950 Vinyl-Aliphatic Urethane Primer and Finish Coat

### Description

A high-performance, corrosion-, chemical-, and weather resistant protective coating system, including Endcor 4955 Primer and Endcor 4950 series Finish Coat. The coatings utilize an aliphatic polyurethane and a vinyl polymer to create a chemically cross-linked dual-polymer system that provides a combination of outstanding physical properties including flexibility and impact resistance together with hardness, chemical, solvent, moisture and water resistance.

The vinyl modification also provides an excellent surface for maximum adhesion of topcoats and overcomes the relatively poor intercoat adhesion, recoat and reparability properties that are characteristics of tightly cross-linked epoxy and urethane coatings.

Endcor 4955 Primer contains a highly effective and environmentally safe inhibitive pigment and is free of lead, chrome and strontium containing compounds. It forms strong bonds with ferrous metals, is designed to not prolong the service lives of high-performance topcoats, and provides optimum performance in exterior atmospheric exposures and in marine exposures from the tidal zone and up.

Endcor 4950 Finish Coat is available in 10 environmentally compatible architectural colors and when applied over Endcor 4955 Primer, or other suitable primer, provides an attractive semi-gloss appearance together with the excellent performance properties described above, including greatly improved recoatability and reparability.

### Recommended Uses

- Process equipment and piping—chemical, fertilizer, petroleum, primary metal, pulp and paper industries
- Storage tank exteriors—agricultural, chemical, petroleum, water works
- Marine and offshore equipment—tidal zone and up
- Electrical substations and transformers
- Structural Steel
- Galvanized Steel— buildings, platforms, towers
- Metal buildings—siding and roofing
- Heavy Construction—bridges, docks, power plants
- Material handling equipment—ducts, chutes, hoppers

- Transportation equipment
- Gas distribution plants—piping and valves

### Features

- Outstanding adhesion to substrates and topcoats
- Non-yellowing
- Excellent recoatability properties
- Superior corrosion and chemical resistance
- Resistant to underfilm corrosion attack
- Excellent toughness and flexibility
- Excellent wetting and penetration properties
- High impact and abrasion resistance, especially at lower temperatures
- Air dries set-to-touch in 30 minutes
- Resistant to moisture, condensation, and humidity
- Low temperature curing: 20°F (-7°C)

### Chemical Resistance Guide\*

Exposure	Splash and Spillage	Fumes and Weathering
Acids	G	E
Alkalies	E	E
Petroleum Products	E	E
Solvents:		
Aliphatic	E	E
Aromatic	G	G
Oxygenated	NR	G
Salt Solutions	E	E
Water	E	E

F-Fair; G-Good, E-Excellent, NR-Not Recommended.

\*Note: List shows typical resistance of Endcor 4950. Certain colors may be affected by specific environments. Contact your Dampney representative for specific recommendations.

### Surface Preparation

For guidance in methods of surface preparation and for visual standards refer to detailed specifications in [Steel Structures Painting Manual](#), Volume 2, Systems and Specifications, published by Steel Structures Painting Council (SSPC).

To ensure optimum long-term coating system performance, surfaces must be clean, dry, and free from oil, grease, dirt, salts, welding flux, mill scale, rust,

corrosion products, oxides, old paint or other foreign matter.

*Steel:* For non-immersion service—after completion of preliminary surface preparation work, abrasive blast surface per SSPC-SP1, “Solvent Cleaning.” Remove all surface imperfections that will induce premature coating system failure. Chip or scrape off weld spatter. Grind down sharp and rough edges, slivers, gouges, pits and projections. Fill in bad areas with acceptable filler material. Sharp edges and projections are difficult to coat properly and will leave little or no coating to protect underlying steel.

*New Galvanized or Aluminum Surfaces:* After completion of preliminary surface preparation work, apply one coat of Endcor 400 Wash Primer to precondition and etch surface. This step is necessary to ensure optimum adhesion of Endcor 4955 primer or 4950 series topcoats. DO NOT apply coatings directly to untreated surfaces.

*Weathered Galvanized Surfaces:* After completion of preliminary surface preparation work remove rust or foreign deposits by wire brushing per SSPC-SP2, “Hand Tool Cleaning,” or power tool cleaning per SSPC-SP. Apply one coat Endcor 400 Wash Primer as described above.

*Aged-Exposed, Zinc-Rich Primer Surfaces:* After completion of preliminary surface preparation work remove corrosion products, dirt and chemical contaminants by steam cleaning, water blasting, or brush blasting. Repair areas damaged during field welding by brush application of Epodur® 1870 organic zinc-rich primer.

**Mixing**

Before opening containers and mixing components together note pot life limitations listed below. Mixing ratio is 9 parts Part A to 1 part Part B by volume of Endcor 4950 or Endcor 4955. Mix components separately, then combine and mix thoroughly with power agitator before use. IMPORTANT: Part B is extremely moisture sensitive. Only open container just before mixing, with Part A. Keep containers tightly closed during storage.

Cover paint pot after mixing and keep covered during application to prevent overexposure to atmospheric moisture, particularly in conditions of high humidity. Do not mix more paint than can be used during pot life period.

**Pot Life**

Pot life is 8 hours at 70°F (21°C) and 50% relative humidity. Pot life varies with temperature and humidity and decreases as temperature and humidity increase. For limitations see Physical Properties section. Do not apply coatings that have aged beyond recommended time limits.

**Application Guidelines**

Apply by conventional or airless spray. Brush or roller can be used for small or confined areas. The following equipment or equivalent can be used:

*Airless Spray Equipment:*

Pump	Graco Bulldog 30:1
Gun	Graco 205-591, 208-663
Fluid Tips* (fan)	Graco 163-614, 162-616 (12”)
Fluid hose	3/8” ID
Air pressure to pump	80-100 psi
Fluid pressure	2400-3000 psi

\*Use Reverse-A-Clean tips for fast clean out. Do not apply by “warm” or “hot” airless spray because heating shortens the pot life.

*Conventional Spray:*

Spray Gun	DeVilbiss JGA-402 or equal
Air hose*	3/8”(I.D.)
Fluid Tip FX(.0425”)	DeVilbiss AV-115-
Air Cap	DeVilbiss 770 (AV-1239-770)
Atomizing pressure	35-40 psi
Pot pressure	15-25 psi
Needle	DeVilbiss JGA-402-FX (.0425”)

\* Smaller hose diameter or length over 25 ft. may require increases pressure

Provide material pot with agitator, regulators for fluid and air pressure, and oil and moisture trap in air supply line.

*Brush:* Use only pure bristle brushes.

*Roller:* Use only metal backed mohair type roller. Do not use plastic type roller. Keep roller thoroughly saturated to obtain correct film thickness. Do not squeegee coating or apply excessive pressure. Cross roll for uniform coverage.

**Application Temperatures**

Refer to table in PHYSICAL PROPERTIES section for limitations. To prevent moisture condensation do not apply primer or finish coat unless surface temperature is 5°F (3°C) above the dew point. Cure will be retarded below minimum surface temperature.

**Application Procedure**

1. Flush spray equipment with Dampney 124 Thinner before use.
2. Thinning—use thinners cautiously. Thinning of activated coating or of individual components is not normally recommended. Addition of a small amount of thinner will cause a great reduction in coating viscosity. Excessive thinning will cause runs or sags. In cold weather if thinning is required to establish proper spray pattern use up to 1/2 pint Dampney 124 Thinner per gallon of Endcor 4950 Finish Coat or Endcor 4955 Primer.
3. For conventional spray, use adequate air pressure and volume to obtain proper atomization.

4. Apply Endcor 4955 Primer over properly prepared surface to a dry film thickness of 2-3 mils (50-75 microns) using "crosshatch" method with 50% overlap on each pass to avoid pinholes and bare areas. On irregular surfaces coat all edges first.
5. Apply Endcor 4950 Finish Coat over properly cured, clean, dry Endcor 4955 Primer, or other approved primer, to a dry film thickness of 4-6 mils per coat (100-150 microns).
6. For inorganic Zinc-Rich Primer apply a very thin "mist" coat of Endcor 4950 Finish coat to partially seal the porous surface prior to application of a full heavy coat, or apply a tie coat of Endcor 400 Wash Primer to a dry film thickness of .5 to 1 mil. For further information see NACE publication 6H180, "Topcoating of Zinc-Rich Primers for Atmospheric Exposure."

### **Recommended Top Coats for Endcor 4955 Primer**

- Endcor 4950 Vinyl-Aliphatic Urethane
- Endcor 4600 Acrylic-Urethane
- Endcor-1200 Modified Acrylic
- Elastoid 1300 Elastomeric Rubber

### **Recommended Primers for Endcor 4950 Finish Coat**

- Endcor 4955 Vinyl-Aliphatic Urethane Primer
- Endcor 4940 Vinyl-Aromatic Urethane Primer
- Endcor 833 Inorganic Zinc-Rich Primer
- Endcor 400 Vinyl-Butyral Wash Primer

### **Curing Time**

Endcor 4955 Primer and Endcor 4950 Finish Coat will dry set-to-touch in 30 minutes at 70°F (21°C). Final curing time will depend upon film thickness, ventilation, temperature, and relative humidity. At low temperatures cure rate can be accelerated by addition of 1-2% of Endcor 4966 Curing Catalyst. For many types of service, coating system can be placed into use before final cure is attained.

### **Recoat Time**

Surface must be clean and dry at time of recoating. Recoat time for 4955 Primer or 4950 Finish Coat is 3-4 hours minimum at 70°F (21°C) and 50% RH. Higher temperatures will accelerate cure and shorten recoat time. Lower temperatures will retard cure and lengthen recoat time. For limitations see Physical Properties section.

### **Storage**

Store in dry place with temperature no lower than 50°F (10°C) or higher than 100°F (38°C). Keep containers closed and upright to prevent leakage.

### **Clean up**

Thoroughly flush spray equipment and hoses immediately after use, or if application is stopped more than 15 minutes, using Dampney 124 Thinner.

Dismantle spray equipment parts, brushes, and rollers with Dampney 124 Thinner.

### **Precautionary Information**

Important—Before mixing components of Endcor 4950 or components of Endcor 4955 Primer carefully read the precautionary statements for each components. Any mixture of components will have hazards of both components.

Endcor 4950 Part A—Warning! Flammable. Contains vinyl resin and xylene, ketone, and ester solvents.

Harmful if inhaled. May affect the brain or nervous system, causing dizziness, headache or nausea. Causes nose and throat irritation. Causes eye irritation. Causes skin irritation.

Endcor 4955 Part A—Warning! Flammable. Contains vinyl resin and xylene, ketone, and ester solvents.

Precautions are the same as for Endcor 4950 Part A

Endcor 4958 Part B (for use with Endcor 4950 part A or Endcor 4955 Part A) —Warning! Flammable. Contains aliphatic polyisocyanate, hexamethylene diisocyanate and xylene.

Harmful if inhaled. May affect brain or nervous system, causing dizziness, headache, or nausea. Causes nose and throat irritation. Causes lung irritation. May cause allergic respiratory reaction. Effects may be permanent. Causes skin and eye irritation. May cause allergic skin reaction. Individuals with lung or breathing problems or prior reaction to isocyanates must not be exposed to vapor or spray mist.

The following safety precautions apply to both Part A and Part B and should be observed during application:

Keep away from heat, sparks, arc and flame. Vapors may cause flash fire. Do not breathe vapor or spray mist. Avoid contact with eyes, skin and clothing. On contact with skin, uncured coating can be removed by immediately washing with soap and water. Coating which has cured on skin is very difficult to remove. Wash thoroughly after handling. Use only with adequate ventilation during mixing, application and drying. Use an appropriate, properly fitted constant-flow airline, hood-type respirator, such as NIOSH/MSHA approval No. TC-19C, during and after application, and until work areas are exhausted of all vapors and mists. A vapor/particulate respirator such as NIOSH/MSHA approval No. TC-23C, may be appropriate where airborne monitoring demonstrates vapor levels below ten times the applicable exposure limits. Follow manufacturer's directions for respirator use. Wear neoprene gloves, chemical safety goggles, and protective clothing. In confined areas, require a hood-type, airline, hood-type respirator. Use only non-sparking tools and footwear. Use explosion proof lights and electrical equipment. DO NOT arc weld in an area where solvent vapors may be present as hazardous

**Bulletin 4950**

fumes and gases may be produced. Make certain all electrical equipment is grounded. Observe safety precautions and follow procedures described in OSHA standards and regulations.

**FIRST AID:** Eye contact-flush immediately with clean, lukewarm water for at least 15 minutes, occasionally lifting eyelids. Obtain medical attention. Skin contact-wash affected areas with soap and water. Wash contaminated clothing before reuse. Inhalation- If affected by vapor or spray mist remove person to fresh air. Administer oxygen or artificial respiration as needed. Call a physician. Ingestion- Consult a physician.

**Spillage and Disposal**

Keep containers closed when not in use. In case of spillage absorb with inert cleanup material and dispose of in accordance with applicable federal, state and local regulations.

**Notice:** Reports have been associated repeated or prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

See MSDS for additional safety information

If you cannot strictly comply with these warnings and instructions do not sue these products.

**FOR INDUSTRIAL USE ONLY**

**Not Recommended for**

- Immersion Service
- Aromatic or Oxygenated solvents
- Concentrated Acids
- Bleaches or Oxidizing Agents

**Technical Data**

Characteristics	Endcor 4955 Primer	Endcor 4950 Finish		
Generic Type	Vinyl-aliphatic urethane	Vinyl-aliphatic urethane		
Color	Light Gray	See Master Color Card		
Finish	Flat	Semi-Gloss		
Weight per gallon (mixed)	11.7 lbs.	10 lbs.		
Number of components	2	2		
Mixing ratio by volume	9 parts Part A: 1 part Part B	9 parts Part A: 1 part Part B		
% Solids by volume	35	30		
Theoretical coverage per gallon*	560 mil sq. ft.	480 mil sq. ft.		
Temperature resistance (dry)				
Continuous	-70°F to 150°F	-70°F to 150°F		
Intermittent	180°F	180°F		
Application temperatures	<b>Normal</b>	<b>Minimum</b>	<b>Maximum</b>	
Ambient Air	60°-90°F	20°F	120°F	
Substrate	65°-90°F	20°F	120°F	
Coating Material	65°-85°F	40°F	90°F	
Humidity	35-80%	0	90%	
Dry film thickness per coat	2-3 mils (50-75 microns)	4-6 mils (100-105 microns)		
Wet film thickness per coat	6-9 mils (150-225 microns)	13-20 mils (325-500 microns)		
Shelf Life(@ 40-90°F)	Part A - 1 year; Part B - 6 mos.	Part A - 1 year; Part B - 6 mos.		
Drying time	<b>at 30°F(-1°C)</b>	<b>at 50°F(10°C)</b>	<b>at 70°F(21°C)</b>	<b>at 90°F(32°C)</b>
Set to touch	2 hours	1 hour	30 min	15 min
To recoat	16 hours	8 hours	3-4 hours	2 hours
Final Cure			7 days	3-4 days
Nonimmersion Service	**	14 days		
Flash Point (Pensky-Martens)				
Part A		60°F(16°C)		45°F(7°C)
Part B		81°F(27°C)		81°F(27°C)
Pot Life	16 hours	16 hours	8 hours	3 hours

\*Note: actual coverage rate will vary depending upon material losses during mixing and application, and upon type and condition of surface to be coated. Allowance must be made for losses when estimating material requirements

\*\*At low temperatures final cure of 4955 Primer and 4950 Finish can be accelerated by use of catalyst.

**Warranty** Dampney protective coating products are expressly warranted to meet applicable technical and quality specifications. The Technical data contained herein are accurate at the date of issuance but are subjected to change without prior notification. No warranty of current accuracy is hereby given or implied. User must contact Dampney to verify correctness before ordering. Dampney assumes no responsibility for coverage, performance or injuries resulting

**Bulletin 4950**

from handling or use and LIABILITY, IF ANY, SHALL BE LIMITED TO PRODUCT REPLACEMENT. In no event will Dampney be responsible for consequential damages, except insofar as mandated by law. Dampney DISCLAIMS ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.