Dampney Protective Coatings

Thurmalox® 837
Inorganic Hybrid Zinc Rich Protective High Temperature Primer 1200°F VOC Compliant 1.94lb/gl (232gm/l)

Description
A inorganic hybrid zinc-rich high temperature primer, formulated to withstand continuous operating temperatures to 1000°F (538°C) with peaks to 1200°F (649°C) when topcoated with Thurmalox 225HD.

Thurmalox 837 Contains 85% zinc in the dry film for long term galvanic corrosion protection when applied to a properly prepared surface. This primer can be used by itself in uninsulated service when temperatures are below 800°F or with a Dampney high temperature finish coat when service conditions exceed 800°F and/or surfaces are insulated.

NOTE: Thurmalox 837 meets the requirements of ASTM D 520 Type II and contains less than 0.0002% lead and can be classed as lead free.

Recommended Uses
Thurmalox 837 is recommended for exposed steel in high temperature exterior service.
- Stacks, Breechings, Boiler Casings.
- Chemical Plant and Refinery Equipment.
- Heaters, Cat-crackers, Reformers.
- Structural steel, Reaction Vessels, Tanks
- Furnaces, Kilns, Ovens.
- Piping, Pumps, Manifolds.
- Process Vessels, Heat exchangers.
- Preconstruction and Fabrication Priming

Features
- Corrosion control mechanism via sacrificial cathode with galvanic protection.
- Abrasion Resistance, the film improves in hardness and adhesion upon aging and weathering exposure
- Rapid Curing - permitting recoating within 12-16 hours except under unusual atmospheric conditions. (See curing section for further details)
- Pot Life - Working time of 6-8 hours (at 70-90°F) can be expected after mixing.
- Resistant to hydrocarbon and many other organic chemicals.
- Heat resistant up to temperatures of 1000°F

Not Recommended for
Thurmalox 837 is not recommended for exposures to:
- Acids, alkalis and salts which have a pH range outside that of 5-10.
- Salts (satisfactory with topcoats)
- Chlorinated solvents which readily hydrolyze to form hydrochloric acid
- Crude oils with acid numbers above 0.4 or hydrogen sulfide content above 300 PPM

Surface Preparation
Remove all grease and oil by solvent cleaning per Steel Structures Painting Council Specification SSPC-SP1, “Solvent Cleaning.” Use Dampney 170 “Cleaning Solvent”.

High Temperature surfaces, for best results all surfaces should be free of all foreign matter. Abrasive blast all surface per Steel Structures Painting Council Specification SSPC-SP10, “Near White Blast,” or per NACE Specification No. 2 with a 1.5 – 2.0 mil profile depth in all blasted surfaces.

In preparing steel surfaces, follow the procedure outlined below.
1. Remove all flux, splatter and slag left from welding.
2. Grind all rough welds until smooth and break sharp edges.
3. Remove any grease, oil or dirt by solvent cleaning per Specification SSPC-SP1, “Solvent Cleaning.”
4. Sandblast per specifications outlined above.
5. Remove all remaining abrasive from surface by brush or air blast.
6. Coat freshly-blasted surfaces as soon as possible. (See Application Guide Lines Section for Instructions). DO NOT allow the Thurmalox 837 to be exposed to rain before curing takes place. DO NOT wash freshly blasted surface with solvents.

Dampney Company, Inc. • 85 Paris Street, Everett, Massachusetts 02149
Tel: (617) 389-2805 • Fax: (617) 389-0484 • Email: sales@dampney.com • Website:www.dampney.com

Mixing

Thurmalox 837 is supplied in 3 parts, consisting of Part A liquid Base, Part B catalyst and Part C Zinc additive that must be mixed prior to application. Mix zinc component (C) slowly into vehicle Base (A) using an explosion-proof Jiffy Mixer. **Add zinc (C) to liquid base (A) only. DO NOT reverse mixing procedure, then add catalyst (B) and mix thoroughly, until free of lumps.** Pour mixture through 30 mesh screen to remove any lumps. When mixed, Thurmalox 837 should be continuously agitated. Do not agitate so vigorously that air becomes trapped in the coating. Use mixed product within the working pot life.

Pot Life

The pot life of Thurmalox 837 is 6-8 hours after mixing. Always maintain continuous agitation of the mixed components until coating is completely used up. DO NOT mix more material than can be applied within 30 to 40 minutes of pot life or before gassing or separation of liquid and solids occurs.

Application Guidelines

Note: Apply Thurmalox 837 Inorganic Zinc High Temperature Primer via spray application only. Apply Thurmalox 837 at 4.0 - 5.0 mils of dry film thickness allowing to cure completely. Note curing time will vary with film thickness and when air movement and ventilation are restricted or low temperatures or humidity's are encountered. After curing is complete (refer to "curing time"), pressure wash with clean fresh water at 3,500 psi using a rotating nozzle to remove any and all zinc salts before application of the Thurmalox high temperature coating. Allow the Thurmalox 837 to dry completely, followed by a spray application of a mist coat of Thurmalox high temperature coating, followed by a full coat of Thurmalox high temperature coating at 2.5 to 3.0** mils of dry film thickness. Do not allow freshly applied Thurmalox 837 to be exposed to rain or water until coating has cured completely.
** SEE FINISH COAT PRODUCT BULLETIN FOR THE CORRECT APPLIED DRY FILM THICKNESS.

Apply Thurmalox 837 only by spray. Brush only when coating is difficult-to-spray such as small areas or small parts. Coating dry film thickness should be 3.0-5.0 mils maximum (5-7 wet mils).

SPRAY APPLICATION: Apply in even coating with parallel passes, overlap each pass 50 percent. Pay special attention to welds, sharp edges, rivets, bolts, etc., to insure proper film thickness.

Flush all spray equipment with Dampney 155 Thinner to remove any moisture that may be in the line or spray equipment prior to use. Continuously mix liquid with an explosion-proof power mixer.

Application Equipment

Conventional Spray Equipment: Use material as supplied.
As a guide only...

Spray Gun	Binks 62
Air hose	5/16"(I.D.)
*Fluid hose	3/8" (I.D.)
Air cap	63PB
Tip	66SS
Pot pressure	10-20 lbs.
Atomizing pressure	30-40 lbs.
Needle adjustment	Full open
Distance from work	8-10"

Airless Spray Equipment: Use material as supplied.
As a guide only...

Spray Gun	Graco 205-591 Gun
Tip Size	.011 to .021 (0.38-053mm)
Pump	Graco 28:1 or larger ratio pump
Fluid Pressure	1,600psi (112kg/cm2) minimum
Fluid Hose*	3/8" (9mm) maximum length of 50ft.
Air Press. To Pump	40-50 lbs

*Smaller hose diameters, or hose lengths greater than 25 feet may make it necessary to increase pressure.

Work Stoppage: Do not allow Thurmalox 837 to remain in hoses, gun or spray equipment; thoroughly flush all equipment with DAMPNEY 155 THINNER. If prolonged work stoppages occur a fresh batch of Endcor 837 should be used. NOTE: Once Thurmalox 837 is mixed it should not be resealed.

Recommended Topcoats

Thurmalox 837 Inorganic Zinc Rich High Temperature Primer can be top coated with select Thurmalox High Temperature Coatings. Allow coating to dry completely before application of any of these recommended topcoats.

Used by itself….	
Thurmalox 837 Primer	5.0-6.0 mils (125-150 microns)
Or in a System	
Primer Coat	
Thurmalox 837 Primer Coat	2.5-3.0 mils (67- 75 microns)
Finish Coat	
Thurmalox 225HD (Under Insulation)	4.0 – 6.0 mils (100 -150 microns)
(Or Uninsulated) Thurmalox 230/230C (color stability to 1000° F)	2.0-2.5 mils (37-50 microns)

Thinning

Thurmalox 837 is supplied at spray viscosity and normally needs no thinning. NEVER use more than 1

pint of Dampney 155 Thinner per gallon. When rough film or dry spray occurs due to fast evaporation during hot weather or high winds adjust spray equipment to apply an even wet coat with minimum overspray. Note: Use of other thinners not approved by Dampney may hinder product performance and void product warranty.

Curing Time

Thurmalox 837 is self-curing and requires moisture to complete the curing reaction. The drying time to film insolubility is dependent on film thickness, temperature, relative humidity, and air circulation. Flow of air over the surface has a pronounced effect in reducing drying time. See Technical Data section for curing data. Water misting is beneficial when humidity drops below 30% to accelerate the curing mechanism.

Storage

Store in a cool, dry place, preferably between 40°F - 80°F (4°C - 38°C). Do not store above 100°F or in a relative humidity greater than 50 %.

Clean up

Clean spray equipment, brushes, spillage, etc. with Dampney 155 Thinner as soon after use as practical to prevent hardening of Thurmalox 837. Hardened material can be removed from equipment with a 10% solution of caustic soda. *Note:* Caustic solutions will attack aluminum.

Recoating

The coating, usually 30 minutes after application, is resistant to water, rain, or condensation.

The film is not subject to ultraviolet degradation and is extremely serviceable in normal atmospheric weathering exposures.

The cured vehicle is insoluble in a large variety of organic solvents and is serviceable in exposures of fumes, splash, and spills of oils and solvents.

In marine coastal exposures the presence of salt and industrial contaminants tends to accelerate the sacrificial reaction of the zinc metal in the film. The use of appropriate topcoats reduces the rate of zinc sacrifice thus increasing the protective life of the coating system.

Acid and alkali exposures are aggressive to Thurmalox 837 films and in such exposures, the use of Thurmalox topcoats, are recommended. The topcoats prevent chemical attack of the zinc and the zinc in turn prevents under-film corrosion.

Where scheduling is critical, film hardening can be accelerated by an application of water spray or low pressure steam. At very low humidifies more than one water application with drying periods in between may be necessary. After such water applications top coating may proceed as soon as the surface is dry.

Precautionary Information

WARNING: FLAMMABLE LIQUID AND VAPOR. VAPOR HARMFUL. CAUSES EYE IRRITATION. VAPOR HARMFUL. Keep away from heat, sparks and flame. VAPORS MAY CAUSE FLASH FIRE. Use only with adequate ventilation. Do not breathe vapors or spray mist. Ensure fresh air entry during application and drying. If you experience eye watering, headache or dizziness or if air monitoring demonstrates vapor/mist levels are above applicable limits, wear an appropriate, properly fitted respirator (NIOSH approved) during and after application. Follow respirator manufacturer's directions for respirator use. Close container after each use. Avoid contact with eyes. Wash thoroughly after handling. Observe all safety precautions and follow procedures described in OSHA regulations. See Material Safety Data Sheet (MSDS) for complete precautionary and disposal information.

If instructions and warning cannot be strictly followed, do not use this product.

FOR INDUSTRIAL USE ONLY

Technical Data

Characteristics	Thurmalox 837
Generic Type	Inorganic Hybrid High Temperature Coating
Color	Gray
Finish	Flat
Number of components	3
Operating temperature range**	Ambient to 1000°F (538°C)
Maximum temperature resistance intermittent*	1200°F (649°C)
Surface temperature at time of application	32-150°F (0-66°C)
Zinc content in dry film	85% ± 2
Percent (%) Solids by volume	65% ± 2
Dry film thickness per coat	4.0-5.0 mils (100.0 – 125.0 microns)
Wet film thickness per coat	5.0-7.0 mils (125-179 microns)
Theoretical coverage per gallon**	1040 mil. Sq. ft. per gallon 25.5 sq. m. per liter
Curing Schedule	Temperature / Dry to handle RH above 50% / Dry to topcoat RH 30-50% 85-100°F(29-38°C) / 4-6 hours / 8-12 hours 60-85°F(16-29°C) / 6-8 hours / 12-24 hours 40-60°F(4-16°C) / 12-16 hours / Up to 48 hours 0-40°F(-18-4°C) / 16-24 hours / 48 hours
Weight per gallon	22.6 lbs.
Flashpoint (Seta Flash)	57°F (14°C)
Zinc Dust	N/A
Pot Life	6-8 hours
Shelf Life – Part A (base)	6 months at 70°F
Part B (catalyst)	6 months at 70°F
Part C (zinc)	6 months at 70°F
VOC (Volatile Organic Compounds)	1.94 lbs/gal. (232 g/l)

**Thurmalox 837 must be topcoated with a Dampney high temperature resistant coating when service temperature is above 800°F. Use Thurmalox 225HD topcoat under Insulation in all temperature ranges.*

***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*

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