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Since 1926 – Manufacturer of Decorative and Protective Paints and Waterproofing Coatings

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# ***HYCOTE™ 461***

## **A NON-TOXIC COATING SYSTEM FOR ABOVE AND BELOW WATER**

**“HYCOTE” 461** is a two-part polyamine cured epoxy resin system that can be successfully applied in both fresh and seawater, as well as in air, above and below water and through the splash zone, at one time, regardless of relative humidity.

**“HYCOTE” 461** can be applied to steel, concrete and wood, above and below water, without the need of a primer.

**“HYCOTE” 461** can be applied at a wide range of ambient temperatures using brush, roller, power brush, power roller or a specially engineered Product Application Machine (PAM).

**“HYCOTE” 461** is a 100% solids coating, and presents no environmental hazard due to the release of volatile solvents during cure.

**“HYCOTE” 461**, once cured, is non-toxic and will not pollute.

**“HYCOTE” 461** cures with an exothermic reaction, expelling water from between the coating and the substrate, thus ensuring excellent adhesion.

**“HYCOTE” 461** is easily cleaned of marine growth with water jetting at approx. 8,000 P.S.I.

**“HYCOTE” 461** is not damaged by pressures up to 13,000 P.S.I.

## **PRINCIPAL USES**

**“HYCOTE” 461** offers superior long-term protection to a wide range of concrete and metal structures, including:

- Ships & other marine vessels (hulls, topside and holding tanks)
- Bridges
- Pilings
- Buoys
- Wharves
- Pulp Mills
- Sugar mills
- Concrete floors
- Pipelines
- Storage tanks
- Oil installations
- Off-shore oil platforms
- Industrial/petrochemical plants

When applied to concrete, **“HYCOTE” 461** prevents ingress of chloride ions, carbon dioxide and other corrosive chemicals, thus inhibiting steel reinforcement corrosion.

**“HYCOTE” 461**, combined with suitable aggregate produces a heavy duty, non-slip floor coating possessing excellent adhesion, abrasion resistance and chemical resistance.

**“HYCOTE” 461** is a recognized coating by Lloyd's Register of Shipping.

## TECHNICAL DATA – *HYCOTE™ 461*

### SURFACE PREPARATION

All surfaces to be coated must be thoroughly cleaned of grease, foreign matter, loose superficial material, and any contamination that would inhibit proper adhesion of the coating to the substrate.

**Steel** substrates should receive the very best preparation possible prior to coating, ideally, SSPC-SP-10 (SA 2.5; NACE 2) standard “Near White Metal Blast Cleaning” using abrasive blasting or hydro-blasting. Where it is not possible to abrasive blast before coating, adequate performance may be obtained by very thorough power cleaning using an abrasive disc, needle scaler or similar device. Wire brushing should be avoided, since that will polish contamination rather than remove it.

Years of application experience has shown that an underwater surface (especially steel in salt water) should be sandblasted within a maximum of 30 minutes, subsequently scrubbed with a liquid detergent (e.g. “Joy”), and then rinsed immediately prior to the application of “*HYCOTE*”.

**Concrete**, cement and masonry substrates should be prepared by removal of laitance, and then etched by chemical (10% acid by volume) or abraded by mechanical means (dry or wet abrasive blast). Great care is required when cleaning and painting old concrete. Anything other than light oil contamination is extremely difficult to remove completely and will seriously affect paint adhesion.

Neither “*HYCOTE*” **461** nor any other protective coating should be applied over an existing unsound paint system.

### PRIMERS

If the steel and concrete surfaces have been prepared to the recommended standard of cleanliness, primers are neither required nor recommended, either above or below water.

### METHODS OF APPLICATION

“*HYCOTE*” **461** may be applied by knife, spatula or gloved hand (use impervious glove next to skin) or similar method.

### MIXING INSTRUCTIONS

The melting point of “*HYCOTE*” **461/151** Part B is approx. 122° F. (50° C.), below which it will be hard in the can. To use Part B, loosen the lid on the can, place the can in a water bath, and heat the water (and thus Part B) above the melting point of 122° F. (50° C.), but do not exceed 160° F. (71° C.). Allow Part B to melt from a solid to a liquid. Stir occasionally while heating, to be sure the entire contents of the can are of uniform consistency. Once Part B becomes a liquid, it can be mixed with Part A.

The mixing of “*HYCOTE*” **461** Part A with Part B produces an exothermic (heat generating) chemical reaction. The smaller the quantity mixed together at one time, the less heat is generated and the longer time you have to use the “*HYCOTE*” **461**; conversely, the larger the quantity mixed together at one time, the more heat is generated, and the less time you have to use the “*HYCOTE*” **461**.

In order to slow the exothermic (heat generating) chemical reaction when mixing Part A and Part B – (A) never mix together more material than you can use in a few (10 to 15) minutes; (B) reduce the mass by spreading out the mixture in a large, shallow tray, rather than mixing it in a taller, narrower, more confined vessel; (C) put the mixing vessel with the mixture in it into an ice bath to lessen the temperature of the mixture, which will slow the reaction time and give you a longer time to use the mixture before it starts to set-up and cure. Likewise, when working in a colder climate, a colder room, in colder water, or on a cold surface, you will have a longer time to use the “*HYCOTE*” **461** mixture.

## POT LIFE

The Maximum Pot Life (i.e. the time to use the mixture of Part A and Part B) of “**HYCOTE**” **461**, based on an ambient temperature of 77° F. (25° C.) and only 16.9 fluid ounces = 500 milliliters (approx. 1 pint) is:

<b>Mix Temperature</b>	<b>Approx. Pot Life</b>
@ 59° F. (15° C.)	90 - 100 minutes
@ 68° F. (20° C.)	50 - 60 minutes
@ 77° F. (25° C.)	30 - 35 minutes
@ 86° F. (30° C.)	15 - 20 minutes
@ 95° F. (35° C.)	12 - 15 minutes
@ 104° F. (40° C.)	10 - 12 minutes

## CURING TIME @ 77° F. (25° C.)

Touch Dry	4 Hours
95% Cure	36 Hours

## ATMOSPHERIC PARAMETERS

Ambient and surface temperature range for application: 40° - 160° F. (4° - 71° C.). Unaffected by relative humidity or moisture on the surface.

## FILM THICKNESS PER COAT

Recommended as specified by job requirements

Maximum as specified by job requirements

## RECOMMENDED NUMBER OF COATS

One coat is recommended, except where exceptionally corrosive environments will be experienced, e.g. chemical plants. In such cases consult SOMAY’s Technical Director.

## RECOATING/OVERCOATING INTERVAL

The recoating/overcoating interval varies according to temperature and environment, although overcoating is possible within 36 hours of first coat application. The surface of the first coat

must also be free of dirt, oils and algae growth (underwater use).

All other recoating/overcoating to be preceded by whip-blast and cleaning of original coat in order to obtain a good profile.

Consult SOMAY’s Technical Director prior to recoating for longer interval durations and/or overcoating with any other material.

## THEORETICAL COVERAGE

160 sq.ft./gal. (3.93 sq.m./l.) @ 10 mils (254 Microns) dry film thickness (DFT).

## PRACTICAL COVERAGE

128 sq.ft./gal. (3.14 sq.m./l) @ 10 mils dry film thickness (DFT) based on an approximate 20% loss due to wastage. Note: Wet film thickness equals dry film thickness (DFT).

## CLEANING SOLVENT

Organic Solvent (e.g. methyl ethyl ketone, acetone, etc.)

## Thinners

Not recommended.

## SPECIFICATION DATA

<b>Volume Solids</b>	100%
<b>Mixing Ratio</b>	(by Volume)
<b>Resin : Curing Agent</b>	3.6:1
<b>Standard Color:</b>	Black

**PHYSICAL PROPERTIES OF THE CURED FILM**

<u>Property</u>	<u>Result</u>
<b>Abrasion Resistance</b>	50 mg loss (ASTM D 1044)
<b>Adhesion - Steel</b>	2,700 lbs./in. <sup>2</sup>
<b>- Concrete</b> in air & underwater	Greater than the cohesive strength of the concrete
<b>Flexibility</b>	A 10 mil film will bend around a .88 in. diameter mandrel without cracking
<b>Hardness - Barcol</b>	
cured in air	85
cured underwater	80
<b>- Pencil</b>	
cured in air	3H
cured underwater	H
<b>Impact Resistance</b>	20.0 kg/cm
<b>Scratch Resistance</b>	Greater than 2,000 g

**HEALTH & SAFETY DATA**

**Handling Precautions**

This, like any 2-component epoxy, can be a hazardous material if misused. Read and understand the Material Safety Data Sheets for both components before use. **Apply in adequate ventilation.**

<u>Flash Point</u>	<u>Hazard Classification</u>	
Non flammable	Resin	Irritant: contains epoxy resin
Flash point above 212° F. (100° C.)	Curing Agent	Poison: contains polyamine

**The cured film of "HYCOTE 461" is completely non-toxic.**

**LIMITED WARRANTY / LIMITED LIABILITY:**

SOMAY warrants that, at the time of purchase from SOMAY, its products meet the specifications which SOMAY establishes for them. Since results from the use of its products depend on factors beyond SOMAY's control, SOMAY DISCLAIMS ALL OTHER WARRANTIES, either expressed or implied, INCLUDING, but NOT limited to, WARRANTIES OF MERCHANTABILITY AND FITNESS for particular purposes. User must assume full responsibility for: (a) determining the suitability of the product for his intended use, (b) understanding and following instructions, (c) preparing the surface properly, (d) applying the product correctly, and (e) obtaining the results desired from the use of the product. SOMAY shall not be liable for any incidental or consequential damages arising from the use or misuse of its products. SOMAY's liability is always limited to the original purchase price paid to SOMAY. Purchase and/or use of the product constitutes complete acceptance of all the terms of this Warranty.