

# Hempel's Bravo II 76160

## Product characteristics

### Description

Hempel's Bravo II is a high performance, hard antifouling providing good protection all season.

### Recommended use

For use as an antifouling for boats of glass fibre, wood, plywood and steel. Do not use on aluminium or other light-alloy metals. Risk of corrosion in case of direct contact. For high activity boats.

### Features

- High mechanical strength for excellent crack resistance.
- Good colour retention throughout the season.

## Product safety

**Flash point** 25°C [77°F]

### VOC content

| Legislation | Value                    |
|-------------|--------------------------|
| EU          | 437 g/L [3.65 lb/US gal] |

VOC values may vary with shade, please consult the Safety Data Sheet, section 9.

### Handling

Handle with care. Before and during use, observe safety labels on packaging and paint containers and follow all local and national safety regulations. Always consult Hempel's Safety Data Sheet for this product along with the Product Data Sheet.

## Product data

### Product code

76160

### Standard shade\* / code

Black 19990

### Gloss

Semi-flat

### Volume solids

50 ± 2%

### Specific gravity

1.7 kg/L [14 lb/US gal]

### Reference dry film thickness

40 micron [1.6 mils]

## Surface preparation

### Cleanliness

- Remove salts, detergents, contaminants and marine growth by high pressure fresh water cleaning.

#### New build:

- Uncoated surface: Prime prepared surface with Hempel's Light Primer and apply a tiecoat of Hempel's Underwater Primer whilst the surface is still tacky.
- Uncoated surface: Prime prepared surface with Hempel's Premium Primer. Apply one coat of Hempel's Pro Tiecoat.

#### Maintenance and Repair

- Existing old self-polishing or traditional antifouling: Remove loose matter and contaminants by high pressure fresh water cleaning.
- Existing old hard matrix antifouling or an unknown antifouling: High pressure fresh water clean, wet abrade, remove dust.
- Clean and dry the surface.
- If previous antifouling is in general bad condition, it is recommended to remove previous coats and prime before applying antifouling.
- If the condition of previous antifouling is poor, seal with 1 coat of Hempel's Underwater Primer or Hempel's Pro Tiecoat.

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## Application

### Thinner

Hempel's Thinner 08080

### Cleaner

Hempel's Thinner 08080  
 Hempel's Thinner 808 08081

### Application method

| Tool         | Thinning max vol. |
|--------------|-------------------|
| Brush/Roller | 5%                |
| Paint Pad    | 5%                |

The product can be applied by spray. Contact Hempel for more information. Keep thinning at an absolute minimum.

### Film thickness

|                            | Recommended                             |
|----------------------------|---|
| Dry film thickness         | 40 micron [1.6 mils]                    |
| Wet film thickness         | 80 micron [3 mils]                      |
| Theoretical spreading rate | 13 m <sup>2</sup> /L [530 sq ft/US gal] |

### Application conditions

- To avoid condensation, apply on a clean and dry surface with a temperature that is at least 3°C [5°F] above the dew point.

### Relative Humidity:

- Relative humidity must be below 85% during application.

### Application remarks

- Copper containing antifouling must not have any electrical contact with aluminium hull and other aluminium components.
- Stir well before use.
- Apply 2 coats of the Antifouling paint at 40 µm dry film thickness each. Apply an additional coat around the waterline and high wear areas. Wear protective gloves/clothing and eye/face protection.

## Drying and overcoating

### Product compatibility

- Previous coat: Recommended products are: Hempel's Light Primer; Hempel's Underwater Primer; Hempel's Pro Tiecoat
- Subsequent coat: None.

### Drying time

| Surface temperature |       | 10°C<br>[50°F] | 20°C<br>[68°F] | 30°C<br>[86°F] |
|---------------------|-------|----------------|----------------|----------------|
| Touch dry           | min   | 30             | 15             | 9              |
| Surface dry         | hours | 8              | 4              | 2              |

Determined for dry film thickness 40 micron [1.6 mils] at standard conditions, see Hempel's Explanatory Notes for details. Time to immersion: Minimum: 24 Hours 20°C ; Maximum 6 months

### Overcoating

Hempel's specification supersedes any guidelines indicated in the overcoating table

| Quality name            |            | 10°C<br>[50°F] | 20°C<br>[68°F] | 30°C<br>[86°F] |
|-------------------------|------------|----------------|----------------|----------------|
| Immersion               |            |                |                |                |
| Hempel's Bravo II 76160 | Min<br>Max | 8 h<br>Ext     | 4 h<br>Ext     | 3 h<br>Ext     |

### Drying conditions

- To obtain the drying time stated, it is important to maintain sufficient ventilation during application, drying and curing.
- Condensation on the freshly applied coating should be avoided.

### Overcoating details

- No maximum overcoat interval, but after prolonged exposure to polluted atmosphere, remove accumulated contamination by high pressure fresh water cleaning and allow to dry before applying next coat.

### Other remarks

- The surface must be clean before overcoating.

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## Storage

### Shelf life

|                            |                       |
|----------------------------|-----------------------|
| <b>Ambient temperature</b> | <b>25°C</b><br>[77°F] |
| <b>Product</b>             | <b>60 months</b>      |

Shelf life from date of production, when stored in original, unopened containers. Thereafter, the product quality must be re-inspected. Storage at elevated temperatures may reduce shelf life. For advice, please consult Hempel.

### Storage conditions

- Product must be stored according to local legislation, at 5°C [41°F] without direct sunlight and protected from rain and snow.

## Carbon Footprint

| <b>Dry film thickness</b>             | <b>1 µm</b>                                 | <b>1 mil</b>                                   |
|---------------------------------------|---|--|
| <b>GWP (Global Warming Potential)</b> | <b>12.2 g CO<sub>2</sub>e/m<sup>2</sup></b> | <b>0.063 lb CO<sub>2</sub>e/ft<sup>2</sup></b> |

The carbon footprint is for 1 square meter / square foot of surface area with a dry film thickness of 1 micron / mil.

The scope includes raw materials, in-bound transport to the Hempel factory, Hempel manufacturing processes, and any Volatile Organic Compounds emitted during and after the application of the product.

It is calculated based on the standard shade defined in this PDS. Values may vary with shade.

## Additional documents

Additional information is available at the Hempel website <https://www.hempel.com/service-and-support/technical-guidelines> or at your local Hempel website:

- Explanatory Notes for Product Data Sheet.
- Application methods.
- Further information: Hempel Yacht Paint Manual and [hempeilyacht.com](http://hempeilyacht.com)

This Product Data Sheet ("PDS") relates to the supplied product ("Product") and is subject to updating from time-to-time. Accordingly, the buyer/applicator should have regard to the PDS supplied together with the relevant batch of the Product (and not an earlier version). In addition to the PDS, the buyer/applicator may receive some or all of the following specifications, statements and/or guidelines as listed below or as are available from the Hempel website under 'Products' at [www.hempel.com](http://www.hempel.com) (the "Additional documents"):

| No. | Document description   | Location/comments   |
|-----|--|---|
| 1.  | Technical Statement  | One-off specific advice provided on request for specific projects   |
| 2.  | Specification  | Only issued for specific projects   |
| 3.  | PDS  | This document   |
| 4.  | Explanatory Notes to the PDS   | Available at <a href="http://www.hempel.com">www.hempel.com</a> and contain relevant information about the Product testing parameters |
| 5.  | Application Instruction  | Where available, at <a href="http://www.hempel.com">www.hempel.com</a>  |
| 6.  | Generic technical guidelines (e.g. on application and surface preparation) | Where available, at <a href="http://www.hempel.com">www.hempel.com</a>  |

In the event of a conflict of information between the PDS and the Additional documents, the order of priority of information shall be in the order as set out above. In such event you should also contact your representative at Hempel for clarification. Furthermore, the buyer/applicator must have full regard to the relevant Safety Data Sheet provided with each Product and which can also be downloaded from [www.hempel.com](http://www.hempel.com).

Hempel shall not be liable for defects where the application of the Product has not been made fully in accordance with the recommendations and requirements set out in the relevant PDS and the Additional Documents. The information and terms of this disclaimer apply to this PDS, the Additional documents and any other documents supplied by Hempel in respect of the Product. In addition, the Product is supplied and all technical assistance is given subject to Hempel's General Conditions of Sale, Delivery and Service, unless otherwise expressly agreed in writing.