



Test no. SN09/6742.2

## REPORT

### 1. TESTING INSTITUTE

Fire test house Hamburg  
Mörkenstraße 36  
22767 Hamburg

### 2. CLIENT

Reincke Naturfarben GmbH  
Rudolf-Diesel-Straße 4  
21614 Buxtehude

### 3. MANUFACTURER

Reincke Naturfarben GmbH  
Rudolf-Diesel-Straße 4  
21614 Buxtehude

### 4. INFORMATION ABOUT THE TEST MATERIAL

#### 4.1 Product name:

The structure consists of: Leinos Hard Oil 240  
and Leinos Hard Oil Special 245

#### 4.2 Composition:

Impregnation: Leinos hard oil 240  
Application quantity: 80ml/  
m<sup>2</sup>; Final coating: Hard oil special 245  
Application quantity: 60  
ml/m<sup>2</sup>; Both consist of vegetable oils, tree resins,  
isoparaffins and lead-free dry substances.

### 5. SPECIMEN

Five test specimens measuring 798 x 153 x 9 mm were delivered  
for the test.

Wet application quantity: 96 g/m<sup>2</sup>  
Color: colorless

Day of delivery: June 20, 2009

## 6. SAMPLING

The product was applied to non-combustible carrier boards by the above-mentioned client and delivered to the fire test house in Hamburg on July 20, 2009.

Hard oil 240 batch number: 9.05.604

Hard oil special 245 batch number: 9.05.546

## 7. TESTING PROCEDURES

The fire behavior test to demonstrate flame retardancy was carried out on August 6, 2009 in accordance with IMO Res. MSC 61 (67) - (FTP Code, Part 5) and IMO MSC / Circ. 916, 1004, 1036, 1120 carried out.

## 8. TEST RESULTS

### 8.1 Observations during the experiment:

Test specimen no.	1	2	3	4	5
Inpinging mode	No	No	Yes	Yes	Yes
Inflammation after	No	No	No	No	No
Flame progression Distance from the hot edge					
50 mm	-	-	-	-	-
100 mm	-	-	-	-	-
150 mm	-	-	-	-	-
200 mm	-	-	-	-	-
250 mm	-	-	-	-	-
300 mm	-	-	-	-	-
350 mm	-	-	-	-	-
400 mm	-	-	-	-	-
Flame went out after Flame expansion	-	-	-	-	-
Duration of the fire test	600 s	600 s	600 s	600 s	600 s

Trial duration	Observations
Test specimen 1 according to: 11	Start of smoke development
Test specimen 2 according to: 10 s	Start of smoke development
Test specimen 3 according to: 7 s	Start of smoke development
Test specimen 4 according to: 7 s	Start of smoke development
Test specimen 5 according to: 6 s	Start of smoke development

### 9. DERIVED FIRE PROPERTIES

Test specimen No.	CFE [kW/m <sup>2</sup> ]	Q <sub>sb</sub> [MJ/m <sup>2</sup> ]	Q <sub>t</sub> [MJ]	Q <sub>p</sub> [kW]
1	> 50,5	> 3,0	< 0,001	< 0,1
2	> 50,5	> 3,0	< 0,001	< 0,1
3	> 50,5	> 3,0	< 0,001	< 0,1
4	> 50,5	> 3,0	< 0,001	< 0,1
5	> 50,5	> 3,0	< 0,001	< 0,1
Average	> 50,5	> 3,0	< 0,001	< 0,1

### 10. CLASSIFICATION CRITERIA

A material is classified as flame-retardant if its average values do not exceed or fall below the limit values (see table):

Limit values for coating materials for bulkheads, walls, cladding and ceilings			
CFE [kW/m <sup>2</sup> ]	Q <sub>sb</sub> [MJ/m <sup>2</sup> ]	Q <sub>t</sub> [MJ]	Q <sub>p</sub> [kW]
≥ 20,0	≥ 1,5	≤ 0,7	≤ 4,0

CFE = Critical heat flow during extinction

Q<sub>sb</sub> = Heat for sustained burning

Q<sub>t</sub> = Total amount of heat released

Q<sub>p</sub> = Maximum heat release rate

11. CLASSIFICATION**The product****Leinos Hard Oil 240 with Hard Oil****Special 245 has met the requirements of IMO FTPC Part 5 for flame retardancy.**

According to IMO FTPC Annex 2 § 2.2 (Q: < 0.2 MJ and Qp > 1.0 kW) an additional test for smoke density and toxicity is not necessary.

12. NOTE


The test results only reflect the behavior of the test specimens under the special test conditions. They do not represent the sole criteria that can cause possible fire hazards.

Hamburg, August 28, 2009

Managing Director

  
Dipl.-Ing. B. Lehniger

Head of the testing center

  
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