

# Resistance Test Results NORIPHAN® HTR

Test, Testing Medium	Evaluation:	NORIPHAN® HTR 308 Red (a)	NORIPHAN® HTR 952 Black (a)	according to DIN	Time	Temp.
<b>Fastness to salivation</b>		+	+	53160-1	2 h	37 °C / 99 °F
<b>Fastness to perspiration</b>		+	+	53160-2	2 h	37 °C / 99 °F
<b>Water resistance:</b>				16524, page 1	24 h	20 °C / 68 °F
	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Solvent resistance:</b>				16524, page 1	5 min	20 °C / 68 °F
- Ethanol	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
- Test mixture (b)	Color behavior of the ink film	-- (c,e)	-- (d,e)			
	Coloring of the testing medium	+	--			
<b>Fuel resistance:</b>				16524, page 1	5 min	20 °C / 68 °F
- Premium	Color behavior of the ink film	≈ (f)	≈ (f)			
	Coloring of the testing medium	+	+			
- Regular gas	Color behavior of the ink film	+	≈ (f)			
	Coloring of the testing medium	+	+			
- Diesel	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Alkali resistance:</b> - 2.5 % NaOH-solution				16524, page 2	10 min	20 °C / 68 °F
	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Detergent resistance:</b> - 1 % Persil®-solution				16524, page 2	3 h	20 °C / 68 °F
	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Resistance to vegetable fat:</b> - Sunflower oil				16524, page 3	24 h	20 °C / 68 °F
	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Resistance to skin cream:</b> - Nivea®					24 h	20 °C / 68 °F
	Color behavior of the ink film	+	+			
	Coloring of the testing medium	+	+			
<b>Conditioning cabinet</b> (95 % humidity)		+	+		5 h	80 °C / 176 °F
<b>Heat resistance</b>		+	+		30 min	120 °C / 248 °F
<b>Scrub resistance (g)</b>		≈ S / P	≈ S / P		200 shears	
<b>Level of gloss (h)</b>		97	84			
<b>Acid resistance:</b> - sulphuric acid, δ = 1.24 g/ml					5 min	20 °C / 68 °F
	Color behavior of the ink film	+	+			
<b>Cross-cut (i) and tape test</b>		Gt 0	Gt 0	ISO 2409		

**When processing NORIPHAN® HTR according to the IMD method as described in the corresponding Technical Information, the quoted test results are irrelevant, as the ink layer is encapsulated between film and backmolded resin.**

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## Thinning:

NORIPHAN® HTR 308: 20 % NORIPHAN® HTR 097

NORIPHAN® HTR 952: 15 % NORIPHAN® HTR 097

## Printing conditions:

2x printed

Mesh 90-48 T GLE

Squeegee 70 Shore A

## Drying:

Jet-Drying 70 °C / 158 °F, 5 m/min

## Post curing conditions:

3 h 80 °C / 176 °F

## Remarks:

- + good, no color-change
- ≈ acceptable
- poor
- not recommended, resp. coloration
- S scratches
- P polishing

## Printing substrates:

- (a) PC film Makrofol® DE 1-1 250 µm
- (b) Test mixture according to DIN 16524, page 1  
30 % by volume ethyl acetate  
10 % by volume 2-ethoxyethanol  
30 % by volume ethanol  
10 % by volume acetone  
20 % by volume toluene
- (c) Loss of gloss and scratch resistant
- (d) Ink film becomes detached immediately
- (e) Ink and substrate material not resistant against test mixture
- (f) Slight gloss reduction
- (g) Quartant Scheuerprüfer, Manufacturer: Prüfbau Company
- (h) micro-gloss, geometrie 60°, Manufacturer: Byk Gardner average value of 5 measurements
- (i) Cross-cut test value 6/2007

