Resistance Test Results NORIPHAN® HTR

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

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

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.

Pröll KG
P.O. Box 4 29
D-91773 Weissenburg i. Bay.
Phone: +49 9141 906-0
Fax: +49 9141 906-49