

MACHEREY-NAGEL

SIL HD and Nano-SIL HD

Chromatography



For precise colorization in TLC

- High luminosity
- Brilliant staining properties
- Excellent separation efficiency

MACHEREY-NAGEL

www.mn-net.com

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SIL HD and Nano-SIL HD

Improved TLC glass plates from MACHEREY-NAGEL

- Outstanding dyeability and abrasion resistance due to an optimized binder system
- Good wettability for precise colorization results, even with 100 % aqueous detection reagents
- Excellent separation efficiency due to an optimized particle size distribution
- High suitability for trace analyses resulting from a UV indicator with increased brilliance and a low-noise background of the layer
- Available as glass plates with or without fluorescent indicator

Technical data

SIL HD

- Silica 60, specific surface (BET) ~ 500 m²/g
- Mean pore size 60 Å
- Specific pore volume 0.75 mL/g
- Particle size 5–17 µm (TLC)

Nano-SIL HD

- Silica 60, specific surface (BET) ~ 500 m²/g
- Mean pore size 60 Å
- Specific pore volume 0.75 mL/g
- Particle size 2–10 µm (HPTLC)



Separation of steroids

MN Appl. No. 403810

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

Sample: 1 µL of 0.2 % in acetone

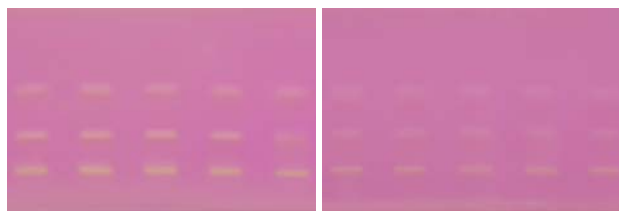
Eluent: Chloroform – methanol (97:3 v/v)

Migration: 6 cm in 15 min

Detection: Treatment with potassium permanganate staining solution and subsequent drying at 120 °C for 10 min

SIL HD UV₂₅₄

Competitor M



Compound	R _f SIL HD UV ₂₅₄	R _f Competitor M
Hydrocortisone	0.07	0.07
Cortisolone	0.21	0.22
Methyltestosterone	0.44	0.41

Improved contrast

The excellent staining property of SIL HD provides a better visibility.



Separation of vitamins

MN Appl. No. 403800

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

Sample: 1 µL of 0.1 % in chloroform – methanol (60:40 v/v)

Eluent: Chloroform – methanol (60:40 v/v)

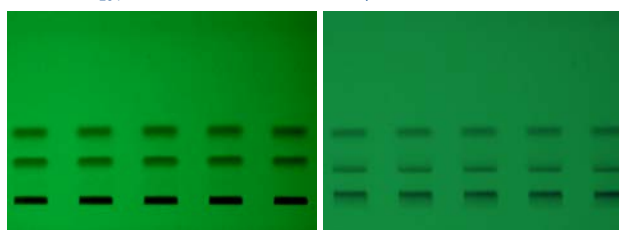
Migration: SIL HD UV₂₅₄: 7 cm in 25 min

Competitor M: 7 cm in 20 min

Detection: TLC/HPTLC scanner UV 254 nm

SIL HD UV₂₅₄

Competitor M



Compound	R _f SIL HD UV ₂₅₄	R _f Competitor M
L-Ascorbic acid	0.02	0.06
Niacin	0.19	0.16
Nicotinamide	0.34	0.32



Separation of aflatoxins

MN Appl. No. 403740

Plates: SIL HD, 20 x 20 cm (REF 809213)
Competitor M silica gel 60, glass backed, 20 x 20 cm

Sample: 1 μ L
AFB₁, AFG₁: 2 μ g/mL in acetonitrile
AFB₂, AFG₂: 0.5 μ g/mL in acetonitrile

Eluent: Chloroform – acetone (90:10 v/v)

Migration: 7 cm in 20 min

Detection: TLC/HPTLC scanner UV 366 nm



Compound	R _f SIL HD	R _f Competitor M
AFG ₂	0.24	0.25
AFG ₁	0.28	0.30
AFB ₂	0.33	0.34
AFB ₁	0.38	0.41

Separation of aflatoxins (HPTLC)

MN Appl. No. 403750

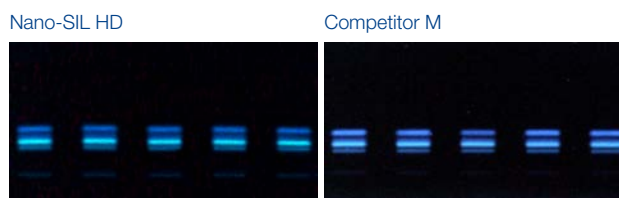
Plates: Nano-SIL HD, 10 x 20 cm (REF 811213)
Competitor M silica gel 60, glass backed, 10 x 20 cm

Sample: 1 μ L
AFB₁, AFG₁: 2 μ g/mL in acetonitrile
AFB₂, AFG₂: 0.5 μ g/mL in acetonitrile

Eluent: Chloroform – acetone (90:10 v/v)

Migration: 5 cm in 15 min

Detection: TLC/HPTLC scanner UV 366 nm



Compound	R _f Nano-SIL HD	R _f Competitor M
AFG ₂	0.22	0.21
AFG ₁	0.25	0.24
AFB ₂	0.30	0.26
AFB ₁	0.34	0.31

Good to know



For a fast and cost efficient separation of aflatoxins we recommend SIL HD. Best results can be achieved with UV light of wavelength 366 nm.

Separation of pesticides

MN Appl. No. 403780

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

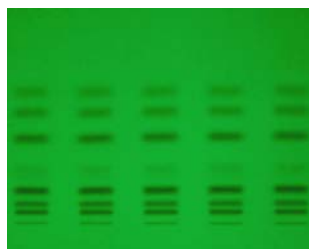
Sample: 1 µL of 0.1 % in acetone

Eluent: *n*-hexane – acetone (80:20 v/v)

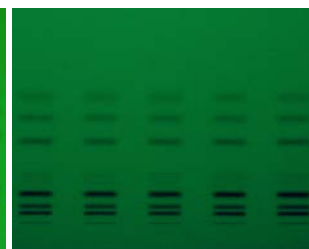
Migration: SIL HD UV₂₅₄: 7 cm in 10 min
Competitor M: 7 cm in 8 min

Detection: TLC/HPTLC scanner UV 254 nm

SIL HD UV₂₅₄



Competitor M



Compound	R _f SIL HD UV ₂₅₄	R _f Competitor M
Hexazinone	0.05	0.04
Metoxuron	0.07	0.07
Monuron	0.15	0.13
Azinphos-methyl	0.24	0.21
Prometryn	0.38	0.37
Pyridate	0.50	0.47
Trifluralin	0.60	0.57

Separation of insecticides

MN Appl. No. 403770

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

Sample: 1 µL of 0.1 % in dichlormethane

Eluent: *n*-heptane

Migration: 7 cm in 10 min

Detection: TLC/HPTLC scanner UV 254 nm

SIL HD UV₂₅₄



Competitor M



Compound	R _f SIL HD UV ₂₅₄	R _f Competitor M
Endrin	0.02	0.02
DDT	0.24	0.23
Aldrin	0.41	0.41



Separation of sulfonamides

MN Appl. No. 403790

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

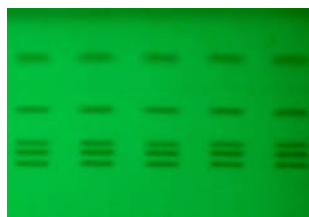
Sample: 1 µL of 0.1 % in methanol

Eluent: Ethyl acetate – methanol – ammonia sol. (25 %)
(70:15:15 v/v/v)

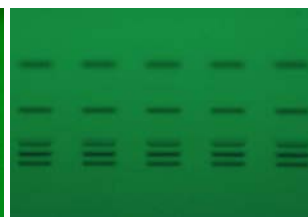
Migration: 7 cm in 20 min

Detection: TLC/HPTLC scanner UV 254 nm

SIL HD UV₂₅₄



Competitor M



Compound	R _f SIL HD ₂₅₄	R _f Competitor M
Sulfadiazine	0.16	0.16
Sulfamerazine	0.21	0.20
Sulfisoxazol	0.25	0.24
Sulfapyridine	0.40	0.39
Sulfanilamide	0.63	0.59

Separation of flavonoids

MN Appl. No. 403760

Plates: SIL HD UV₂₅₄, 20 x 20 cm (REF 809223)
Competitor M silica gel 60 F₂₅₄, glass backed, 20 x 20 cm

Sample: 1 µL of 0.1 % in methanol

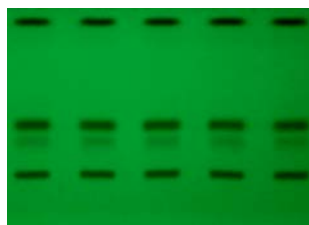
Eluent: Ethyl acetate – butanone – formic acid – water
(50:30:10:10 v/v/v/v)

Migration: SIL HD UV₂₅₄: 7 cm in 25 min

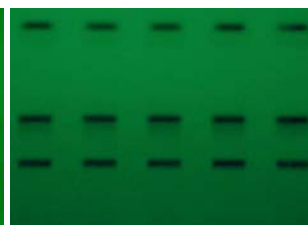
Competitor M: 7 cm in 20 min

Detection: TLC/HPTLC scanner UV 254 nm

SIL HD UV₂₅₄



Competitor M



Compound	R _f SIL HD UV ₂₅₄	R _f Competitor M
Rutin	0.29	0.31
Chlorogenic acid	0.43	0.48
Hyperosid	0.49	0.51
Quercetin	0.93	0.93

SIL HD and Nano-SIL HD

Ordering information

Designation	Thickness of layer	Plate size	Fluorescent indicator	Pack of	REF
SIL HD					
SIL HD	0.25 mm	5 x 10 cm	-	50	809217
SIL HD UV ₂₅₄	0.25 mm	5 x 10 cm	UV 254	50	809227
SIL HD	0.25 mm	10 x 10 cm	-	25	809210
SIL HD UV ₂₅₄	0.25 mm	10 x 10 cm	UV 254	25	809220
SIL HD	0.25 mm	10 x 20 cm	-	50	809212
SIL HD UV ₂₅₄	0.25 mm	10 x 20 cm	UV 254	50	809222
SIL HD	0.25 mm	20 x 20 cm	-	25	809213
SIL HD UV ₂₅₄	0.25 mm	20 x 20 cm	UV 254	25	809223
Nano-SIL HD					
Nano-SIL HD	0.20 mm	5 x 5 cm	-	100	811211
Nano-SIL HD UV 254	0.20 mm	5 x 5 cm	UV 254	100	811221
Nano-SIL HD	0.20 mm	10 x 10 cm	-	25	811212
Nano-SIL HD UV 254	0.20 mm	10 x 10 cm	UV 254	25	811222
Nano-SIL HD	0.20 mm	10 x 20 cm	-	50	811213
Nano-SIL HD UV 254	0.20 mm	10 x 20 cm	UV 254	50	811223
Accessories					
Simultaneous developing chamber for TLC, 20 x 20 cm				1	814019
Simultaneous developing chamber for TLC, 10 x 10 cm				1	814018



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