



Nano-SIL C18 ^G octadecyl-modified HPTLC silica layers

Technical characteristics

- Nano silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, pH stability 2–10, particle size 2–10 µm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

Modification

- Partial (50 %) or complete (100 %) octadecyl modification, carbon content 7.5 and 14 %, respectively
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100

Recommended application

- Reversed phase separation mode with eluents from anhydrous solvents to mixtures with high concentrations of water (see table and figure below)
- Alkaloids, amino acids, preservatives, optical brighteners, barbiturates, polycyclic aromatic hydrocarbons (PAH), drugs, peptides, flavonoids, phenols, indole derivatives, steroids

Ordering information

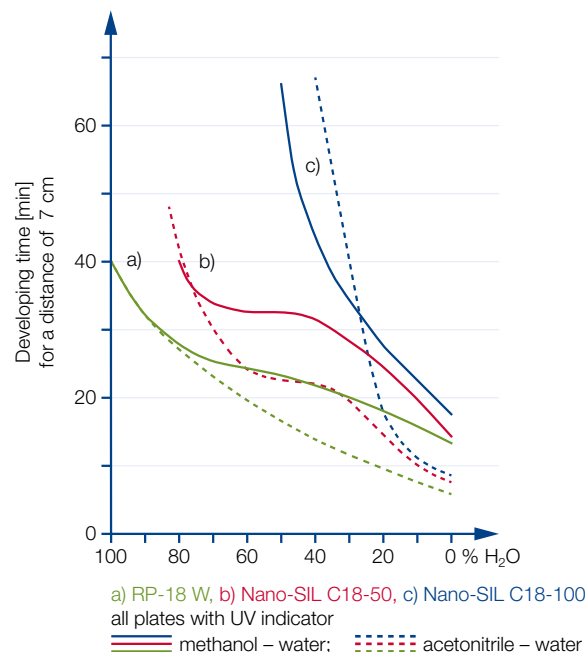
| | | | |
|------------------|---------|--------------------|-----------------------|
| Plate size [cm] | 10 x 10 | Thickness of layer | Fluorescent indicator |
| Pack of [plates] | 25 | | |

Glass plates

| | | | | |
|------------------------------------|-----------------|---------|---------|-------------------|
| Nano-SIL C18-50 | 50 % silanized | 81 1054 | 0.20 mm | – |
| Nano-SIL C18-50 UV ₂₅₄ | 50 % silanized | 81 1064 | 0.20 mm | UV ₂₅₄ |
| Nano-SIL C18-100 | 100 % silanized | 81 1052 | 0.20 mm | – |
| Nano-SIL C18-100 UV ₂₅₄ | 100 % silanized | 81 1062 | 0.20 mm | UV ₂₅₄ |

| Eluent | v/v | Migration distances [mm/15 min] | | |
|---------------------------------|-----|---------------------------------|---------|---------|
| | | C18-50 | C18-100 | RP-18 W |
| Methanol – H ₂ O | 2:1 | 57 | 45 | 44 |
| | 1:1 | 52 | 21 | 40 |
| | 1:2 | 50 | 0 | 43 |
| | 1:3 | 40 | 0 | 45 |
| | 1:4 | 30 | 0 | 46 |
| Acetonitrile – H ₂ O | 0:1 | 0 | 0 | 54 |
| | 2:1 | 62 | 46 | 66 |
| | 1:1 | 52 | 30 | 54 |
| | 1:2 | 51 | 27 | 46 |
| | 1:3 | 48 | 15 | 44 |
| Trichloromethane | 1:9 | 20 | 0 | 42 |
| | | 68 | 64 | 71 |

Migration of C18-50 and C18-100 silica layers as compared to RP-18 W plates

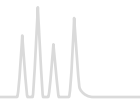


Elution properties of MN RP plates in mixtures of methanol – water and acetonitrile – water

Further application examples can be found online in our application database at www.mn-net.com/apps



Modified silica layers



RP-18 W/UV₂₅₄ G A octadecyl-modified HPTLC silica layers

🔧 Technical characteristics

- Nano silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, particle size 2–10 µm, for preparative plates (1 mm thickness of layer) standard silica 60, pH stability 2–10, particle size 5–17 µm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

🔧 Modification

- Partial octadecyl (C₁₈) modification, wettable with water, carbon content 14 %
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100

✅ Recommended application

- NP or RP separation with eluents from anhydrous solvents to mixtures with high concentrations of water (see table and figure on previous page), relative polarity of the eluent determines the polarity of the layer
- Aminophenols, barbiturates, preservatives, nucleobases, polycyclic aromatic hydrocarbons, steroids, tetracyclines, plasticizers (phthalates)

Ordering information

| Plate size [cm] | 4 x 8 | 5 x 10 | 5 x 20 | 10 x 10 | 10 x 20 | 20 x 20 | Thickness of layer | Fluorescent indicator |
|-----------------|-------|--------|--------|---------|---------|---------|--------------------|-----------------------|
|-----------------|-------|--------|--------|---------|---------|---------|--------------------|-----------------------|

Glass plates

| Pack of [plates] | | 50 | 25 | 50 | 25 | | |
|------------------------------------|--|--------|--------|--------|--------|---------|-------------------|
| RP-18 W/UV ₂₅₄ | | 811073 | 811075 | 811072 | 811071 | 0.25 mm | UV ₂₅₄ |
| Pack of [plates] (preparative TLC) | | | | | 15 | | |
| RP-18 W/UV ₂₅₄ | | | | | 811074 | 1.00 mm | UV ₂₅₄ |

ALUGRAM® aluminum sheets

| Pack of [plates] | 50 | 50 | 50 | 25 | 25 | | |
|---------------------------|--------|--------|--------|--------|--------|---------|-------------------|
| RP-18 W/UV ₂₅₄ | 818144 | 818152 | 818145 | 818147 | 818146 | 0.15 mm | UV ₂₅₄ |

RP-2/UV₂₅₄ G A "silanized silica" = dimethyl-modified standard silica layers

🔧 Technical characteristics

- Silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, pH stability 2–10, particle size 5–17 µm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

🔧 Modification

- Silanized silica with dimethyl modification, carbon content 4 %
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100

✅ Recommended application

- Normal phase or reversed phase separation modes with purely organic, organic - aqueous or purely aqueous eluents
- Active plant constituents, steroids

Ordering information

| Plate size [cm] | 10 x 20 | 20 x 20 | Thickness of layer | Fluorescent indicator |
|-----------------|---------|---------|--------------------|-----------------------|
|-----------------|---------|---------|--------------------|-----------------------|

Glass plates

| | | | | |
|------------------------|--------|--------|---------|-------------------|
| RP-2/UV ₂₅₄ | 811081 | 811082 | 0.25 mm | UV ₂₅₄ |
|------------------------|--------|--------|---------|-------------------|

ALUGRAM® aluminum sheets

| | | | | |
|------------------------|--|--------|---------|-------------------|
| RP-2/UV ₂₅₄ | | 818171 | 0.15 mm | UV ₂₅₄ |
|------------------------|--|--------|---------|-------------------|



Nano-SIL CN G A cyano-modified HPTLC silica layers

🔧 Technical characteristics

- Nano silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, pH stability 2–8, particle size 2–10 μm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

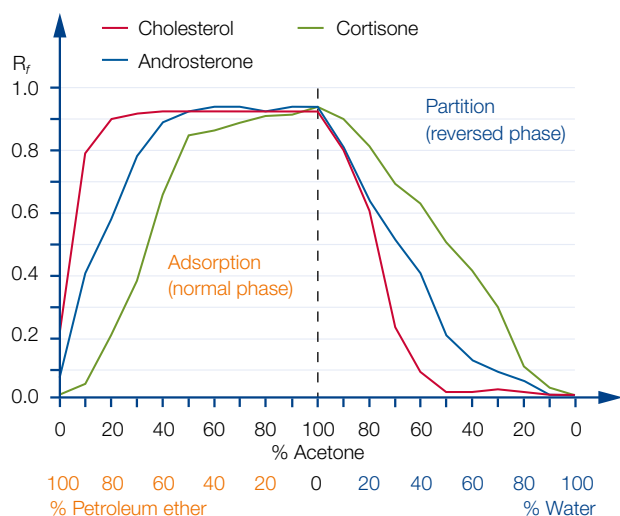
🔧 Modification

- Cyanopropyl modification, carbon content 5.5 %
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100

✅ Recommended application

- NP or RP separation modes depending on the polarity of the developing solvent (see figure below)
- Steroid hormones, phenols, preservatives

R_f values of different steroids as a function of eluent composition



Layer: Nano-SIL CN/UV

Polarity of the eluent governs the type of separation mechanism:

Eluent system petroleum ether (PE) – acetone (NP mode)

the higher the concentration of PE, the stronger are the adsorptive interactions of the steroids with the stationary phase

Eluent system acetone – water (RP mode)

the sequence of elution of the steroids is reversed, the most nonpolar compounds are most strongly retained

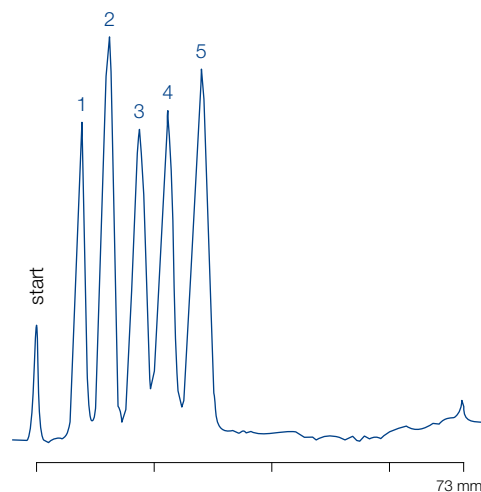
Separation of preservatives

MN Appl. No. 401440

Layer: Nano-SIL CN/UV
 Sample volume: 400 nL
 Eluent: ethanol – water – glacial acetic acid (20:80:0.2) with 0.1 mol/L tetraethylammonium chloride
 Migration distance: 73 mm in 30 min
 Detection: TLC scanner, UV 254 nm

Peaks:

1. Propyl p-hydroxybenzoate
2. Ethyl p-hydroxybenzoate
3. Methyl p-hydroxybenzoate
4. Benzoic acid
5. Sorbic acid



Ordering information

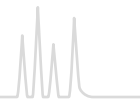
| Plate size [cm] | 4 x 8 | 10 x 10 | 10 x 20 | Thickness of layer | Fluorescent indicator |
|------------------|-------|---------|---------|--------------------|-----------------------|
| Pack of [plates] | 50 | 25 | 25 | | |

Glass plates

| | | | | |
|----------------|--------|--------|---------|-------------------|
| Nano-SIL CN/UV | 811115 | 811116 | 0.20 mm | UV ₂₅₄ |
|----------------|--------|--------|---------|-------------------|

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|----------------|--------|--|---------|-------------------|
| Nano-SIL CN/UV | 818184 | | 0.15 mm | UV ₂₅₄ |
|----------------|--------|--|---------|-------------------|



Nano-SIL NH₂ G A amino-modified HPTLC silica layers

✔ Technical characteristics

- Nano silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, pH stability 2–8, particle size 2–10 µm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

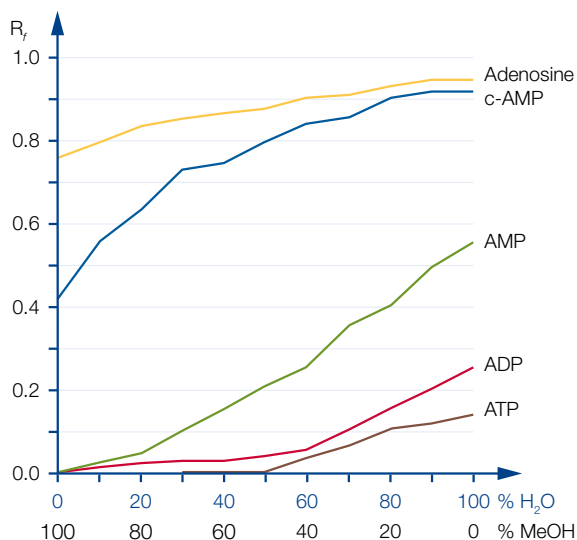
✔ Modification

- Aminopropyl modification, carbon content 3.5 %
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100
- Layer can be wetted equally well with pure water as with organic solvents

✔ Recommended application

- Vitamins, sugars, steroids, purine derivatives, xanthenes, phenols, nucleotides and pesticides

Influence of eluent composition on the separation of nucleotides



Layer: Nano-SIL NH₂/UV
 Eluent: MeOH – H₂O according to fig. + 0.18 mol/L NaCl
 Migration distance: 7 cm

c-AMP, AMP: adenosine monophosphate
 ADP: adenosine diphosphate
 ATP: adenosine triphosphate

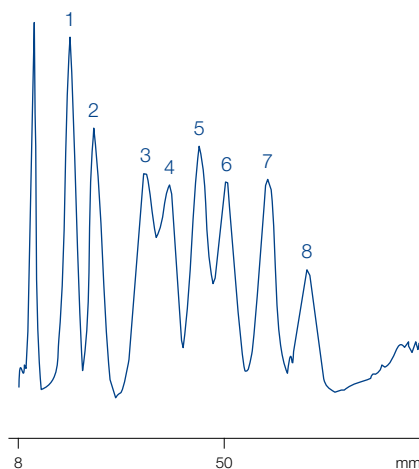
Separation of sugars

MN Appl. No. 401590

Layer: Nano-SIL NH₂/UV
 Sample volume: 0.5 µL
 Eluent: ethyl acetate – pyridine – water – glacial acetic acid (60:30:10:5, v/v/v/v)
 Migration distance: 80 mm in 45 min, double development
 Detection: dry layer at 160 °C for 5 min, TLC scanner, UV 254 nm

Peaks (0.1 % each):

1. Lactose
2. Saccharose
3. Galactose
4. Glucose
5. Fructose
6. Arabinose
7. Xylose
8. Ribose



Ordering information

| Plate size [cm] | 4 x 8 | 10 x 10 | 10 x 20 | Thickness of layer | Fluorescent indicator |
|------------------|-------|---------|---------|--------------------|-----------------------|
| Pack of [plates] | 50 | 25 | 25 | | |

Glass plates

| | | | | |
|------------------------------|--------|--------|---------|-------------------|
| Nano-SIL NH ₂ /UV | 811111 | 811112 | 0.20 mm | UV ₂₅₄ |
|------------------------------|--------|--------|---------|-------------------|

ALUGRAM® aluminum sheets

| | | | | |
|------------------------------|--------|--|---------|-------------------|
| Nano-SIL NH ₂ /UV | 818182 | | 0.15 mm | UV ₂₅₄ |
|------------------------------|--------|--|---------|-------------------|

Further application examples can be found online in our application database at www.mn-net.com/apps



Nano-SIL DIOL G diol-modified HPTLC silica layers

🔧 Technical characteristics

- Nano silica 60, mean pore size 60 Å, specific surface (BET) ~ 500 m²/g, specific pore volume 0.75 mL/g, pH stability 2–8, particle size 2–10 μm
- Indicator: acid-resistant product with a pale blue fluorescence for short-wave UV (254 nm), UV-absorbing substances appear as dark-blue to black spots on a light-blue background

🔧 Modification

- Diol modification, carbon content 5.5 %
- Order of polarity: silica > DIOL > NH₂ > CN > RP-2 > C18-50 > RP-18 W > C18-100
- Layer can be wetted equally well with pure water as with organic solvents

✅ Recommended application

- Steroids, pesticides and plant constituents
- For critical separations an alternative to silica
- Since it is less sensitive to the water content of the environment, leads to more reproducible results compared to silica

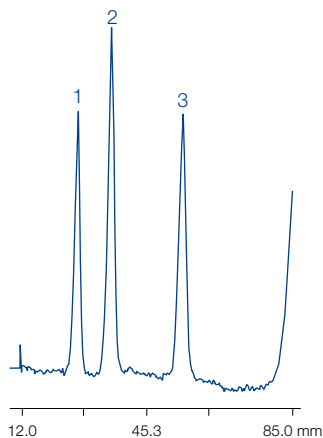
Separation of herbicides

MN Appl. No. 401950

Layer: Nano-SIL DIOL/UV
 Sample volume: 2 μL
 Eluent: petroleum ether (40–60 °C) – acetone (80:20, v/v)
 Migration distance: 70 mm
 Detection: TLC scanner, 230 nm

Peaks:
 (0.07 % each in methanol)

1. Metoxuron
2. Monuron
3. Metobromuron



Ordering information

| | | | |
|------------------|---------|--------------------|-----------------------|
| Plate size [cm] | 10 x 10 | Thickness of layer | Fluorescent indicator |
| Pack of [plates] | 25 | | |

Glass plates

| | | | |
|------------------|--------|---------|-------------------|
| Nano-SIL DIOL/UV | 811120 | 0.20 mm | UV ₂₅₄ |
|------------------|--------|---------|-------------------|