

Thin Layer Chromatography (TLC)

Product innovations from Whatman have made Thin Layer Chromatography (TLC) a practical laboratory tool for both qualitative and quantitative analysis.

Features and Benefits

- Stringent quality standards assure a consistent level of resolution, accuracy and reproducibility
- Multiple samples and standards can be run simultaneously under identical conditions
- Wide range of chemistries and sizes to suit your application needs
- Sample preparation is simplified because plates are disposable
- Mobile phase need not be compatible with detector
- Available with or without fluorescent indicator

Linear-K:

Fast, Accurate Spotting

Whatman pioneered the linear preadsorbent layer for easy, rapid and accurate sample application. The layer actually acts as a sponge to pre-concentrate the sample before it interacts with the silica layer. In order to facilitate sample application and the

pre-concentrating power of the preadsorbent layer, Whatman made it thicker than the silica layer. This allows the analyst to apply sample in amounts never before attainable with standard TLC plates.

TLC Plates:

Designations/Formats

Whatman has designed nomenclature as a simple and convenient way of distinguishing between the different types of plates.

The symbol for silica gel is K (for Kieselgel), followed by a qualifying number. K5: 10–12 μm silica, of pore size 150Å; K6: 10–12 μm silica, of pore size 60Å.

The high performance silica is prefixed by the letters HP: HP-K 4.5 μm silica, pore size 60Å.

Reversed phase plates, with a bonded alkyl group, are represented by a K followed by the length of the alkyl chain: KC-18 10–12 μm silica, 60Å, octadecyl bonded phase.

Additional format information is provided for each plate through the following letter codes:

L Preadsorbent Layer

This compresses each spot into a narrow horizontal band. Hence, it is known as Linear-K; prefix L.

D Channeled Plates

2 mm channels of clear glass separate each sample lane, preventing crossover. D indicates division.

F Fluorescent Indicator

Fluorescent plates glow bright green under Shortwave UV light. Samples which absorb shortwave UV at 254 nm are detected due to fluorescence quenching.

M Microscope Slide

Plate size 1" x 3".

P Preparative Layer

Has 500 μm or 1000 μm thickness for large sample sizes.

Using these letter codes it is easy to define any TLC plate, for example: PLK6DF = preparative K6 silica 60Å pore diameter featuring a channeled, fluorescent plate and the preadsorbent layer.

Typical Data

| Type | Separation Mode | Application | Layer Thickness (µm) | Plate Size (cm) | Fluorescent Linear-K | Channeled | Indicator |
|-----------------|-----------------------------------|--|----------------------|---|----------------------|-----------|-----------|
| C-18 | Reversed Phase | General | 200 1000 | 1" x 3", 10 x 10, 5 x 20, 20 x 20 | Available | — | Available |
| C-8 | Reversed Phase | General | 200 | 5 x 20, 20 x 20 | — | — | Available |
| C-2 | Reversed Phase | Small polar molecules | 200 | 5 x 20, 20 x 20 | — | — | Available |
| Diphenyl | Reversed Phase | Biological samples and aromatics | 250 | 20 x 20 | — | — | Available |
| Diamond | Adsorption | General | 250 | 2.5" x 7.5", 10 x 10, 5 x 20, 10 x 20 | Available | Available | Available |
| Silica Gel (K6) | Adsorption (60Å pore diameter) | General; untreated samples | 250 500 1000 | 1" x 3", 5 x 10, 5 x 20, 10 x 20, 20 x 20 | Available | Available | Available |
| Silica Gel (K5) | Adsorption (150Å pore diameter) | General; untreated samples | 250 500 1000 | 5 x 10, 5 x 20, 20 x 20 | Available | Available | Available |
| HPTLC (HP-K) | Adsorption (4.5 µm particle size) | Small samples; (nanograms and picograms) | 200 | 5 x 5, 10 x 10, 10 x 20 | Available | Available | Available |
| Flexible | Adsorption Ion exchange | General anionic Anionic biopolymers | 250 100 | 20 x 20 20 x 20 | — | — | Available |

Partisil K6 60Å and K5 150Å Adsorption TLC Plates

K6 60Å and K5 150Å plates provide a choice of high-purity silica gels and polarity for normal phase separations. They give superior performance compared to silica gel "G" through

better resolution, higher sensitivity and more durability. Moderate layer hardness makes possible convenient spot recovery.

Ordering Information

| Catalog Number | Product Code | Plate Size (cm) | Linear-K Preadsorbent | Channeled | Fluorescent Indicator | Quantity/Pack |
|---|--------------|-----------------|-----------------------|-------------|-----------------------|---------------|
| Adsorption (Silica Gel) 60Å TLC Plates (250 µm Layer) | | | | | | |
| 4861-110 | MK6F | 1" x 3" | — | — | Yes | 500 |
| 4860-320 | K6 | 5 x 10 | — | — | — | 150 |
| 4861-320 | K6F | 5 x 10 | — | — | Yes | 150 |
| 4860-620 | K6 | 5 x 20 | — | — | — | 75 |
| 4861-620 | K6F | 5 x 20 | — | — | Yes | 75 |
| 4860-720 | K6 | 10 x 20 | — | — | — | 50 |
| 4861-720 | K6F | 10 x 20 | — | — | Yes | 50 |
| 4860-820 | K6 | 20 x 20 | — | — | — | 25 |
| 4861-820 | K6F | 20 x 20 | — | — | Yes | 25 |
| 4861-830 | PK6F* | 20 x 20 | — | — | Yes | 22 |
| 4861-840 | PK6F** | 20 x 20 | — | — | Yes | 20 |
| 4865-620 | LK6 | 5 x 20 | — | — | — | 75 |
| 4866-620 | LK6F | 5 x 20 | Yes | — | Yes | 75 |
| 4865-621 | LK6D | 5 x 20 | Yes | 4 channels | — | 75 |
| 4866-621 | LK6DF | 5 x 20 | Yes | 4 channels | Yes | 75 |
| 4865-820 | LK6 | 20 x 20 | Yes | — | — | 25 |
| 4866-820 | LK6F | 20 x 20 | Yes | — | Yes | 25 |
| 4865-821 | LK6D | 20 x 20 | Yes | 19 channels | — | 25 |
| 4866-821 | LK6DF | 20 x 20 | Yes | 19 channels | Yes | 25 |
| Adsorption (Silica Gel) 150Å TLC Plates (250 µm Layer) | | | | | | |
| 4851-320 | K5F | 5 x 10 | — | — | Yes | 150 |
| 4850-620 | K5 | 5 x 20 | — | — | — | 75 |
| 4851-620 | K5F | 5 x 20 | — | — | Yes | 75 |
| 4850-720 | K5 | 10 x 20 | — | — | — | 50 |
| 4851-720 | K5F | 10 x 20 | — | — | — | 50 |
| 4850-820 | K5 | 20 x 20 | — | — | — | 25 |
| 4851-820 | K5F | 20 x 20 | — | — | Yes | 25 |
| 4850-830 | PK5* | 20 x 20 | — | — | — | 22 |
| 4850-840 | PK5** | 20 x 20 | — | — | — | 22 |
| 4851-830 | PK5F* | 20 x 20 | — | — | Yes | 22 |
| 4851-840 | PK5F** | 20 x 20 | — | — | Yes | 22 |
| 4855-840 | PLK5** | 20 x 20 | Yes | — | — | 20 |
| 4856-840 | PLK5F** | 20 x 20 | Yes | — | Yes | 20 |
| 4855-620 | LK5 | 5 x 20 | Yes | — | — | 75 |
| 4855-621 | LK5D | 5 x 20 | Yes | 4 channels | — | 75 |
| 4856-621 | LK5DF | 5 x 20 | Yes | 4 channels | Yes | 75 |
| 4855-820 | LK5 | 20 x 20 | Yes | — | — | 25 |
| 4856-821 | LK5F | 20 x 20 | Yes | — | Yes | 25 |
| 4855-821 | LK5D | 20 x 20 | Yes | 19 channels | — | 25 |
| 4856-821 | LK5DF | 20 x 20 | Yes | 19 channels | Yes | 25 |
| 4855-840 | PLK5** | 20 x 20 | Yes | — | — | 20 |
| 4856-840 | PLK5F** | 20 x 20 | Yes | — | Yes | 20 |

* Preparative 500 µm layer.

** Preparative 1000 µm layer.

EH6 Extra Hard TLC Plates

Whatman EH6 series extra hard TLC plates address chromatographers' need for harder, smoother, more abrasion-resistant layers. These technologically advanced plates facilitate dipping and spraying and will not crack or flake. The plates will withstand most solvent systems and any applied visualization reagent without silica falling off the plate or reacting with the reagents. They can be charred to 180°C with cupric acetate/phosphoric acid reagents.

Each lot of EH6 TLC plates undergoes extensive quality control testing including a Pendulum Hardness Test to ensure outstanding lot-to-lot reproducibility. The EH6 series comes in a variety of sizes to conveniently suit most applications.



Features and Benefits

- Extra hard surface makes it easier to write on with a pen or pencil
- Highly reflective surface minimizes background noise while scanning
- Superior organic binder prevents surface deterioration even when using the strongest reagent
- Uniform particle size and distribution adds to efficiency by reducing band spreading
- Available in bulk quantities

Applications

- The 60 Angstrom pore 450 m²/g surface area silica used provides optimum characteristics for most clinical, educational and general analytical applications
- Moderate development times and bands with excellent resolution make the EH6 Series plates very suitable for screening and toxicology work
- The EH6 Series comes in a variety of sizes to suit most applications including the analysis of microsamples
- Ultra low noise backgrounds allow you to perform scanning densitometry with maximum detection range

Ordering Information

| Catalog Number | Description | Size (cm) | Layer Thickness (μm) | Fluorescent Indicator | Quantity/Box |
|----------------|-------------|-----------|----------------------|-----------------------|--------------|
| 4841-820 | EH6F | 20 x 20 | 250 | Yes | 25 |
| 4841-125 | EH6F | 2.5 x 7.5 | 250 | Yes | 500 |
| 4840-725 | EH6 | 10 x 20 | 250 | No | 250 |

Diamond Series TLC Plates

Whatman Diamond Series TLC plates exhibit gem-like qualities for resolution and speed. These technologically advanced plates facilitate dipping and spraying and will not crack or flake. They allow you to perform scanning densitometry with the lowest noise

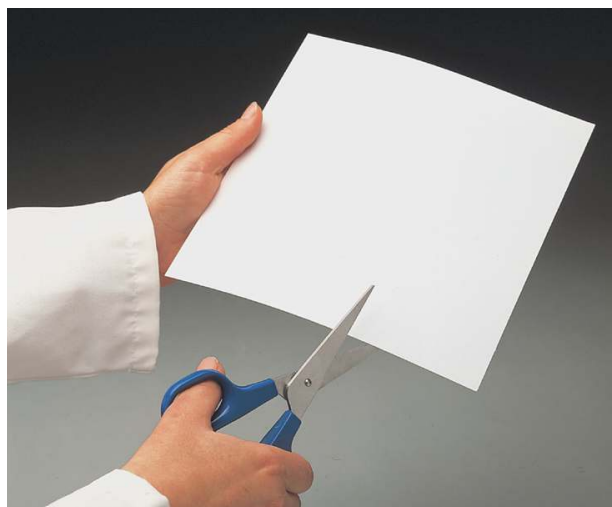
backgrounds for maximum range in detection. The smooth surface of the plates minimizes light scattering which interferes with densitometric scanning.

Ordering Information

| Catalog Number | Product Code | Plate Size (cm) | Linear-K | Channeled | Fluorescent Indicator | Quantity/Pack |
|--|--------------|-----------------|----------|-------------|-----------------------|---------------|
| Diamond Series TLC Plates (250 μm Layer) | | | | | | |
| 4500-101 | MK6F | 1" x 3" | — | — | Yes | 500 |
| 4500-105 | K6F | 20 x 10 | — | — | Yes | 25 |
| 4500-303 | LK6DF | 5 x 20 | Yes | 4 channels | Yes | 75 |
| 4500-305 | LK6DF | 20 x 20 | Yes | 19 channels | Yes | 25 |

Flexible TLC Plates

Flexible backed TLC plates (supplied in a single 20 cm x 20 cm size) offer you economy and convenience. They can be cut with scissors to match individual separation requirements, making them ideal for applications that require rapid sample isolation or elution prior to other analytical techniques (e.g., scintillation counting).



Ordering Information

| Catalog Number | Type | Product Code | Flexible Backing | Layer Thickness (μ m) | Plate Size (cm) | Fluorescent Indicator | Quantity/Pack |
|----------------|------------------------------------|----------------|------------------|----------------------------|-----------------|-----------------------|---------------|
| 4410-221 | Silica Gel 60Å | PE SIL G | Polyester | 250 | 20 x 20 | — | 25 |
| 4410-222 | Silica Gel 60Å | PE SIL G/UV254 | Polyester | 250 | 20 x 20 | Yes | 25 |
| 4420-221 | Silica Gel 60Å | PE SIL G | Aluminum | 250 | 20 x 20 | — | 25 |
| 4420-222 | Silica Gel 60Å | PE SIL G/UV254 | Aluminum | 250 | 20 x 20 | Yes | 25 |
| 4410-224 | DEAE cellulose (Diethylaminoethyl) | PE CEL300 DEAE | Polyester | 100 | 20 x 20 | — | 25 |

Partisil Reversed Phase TLC Plates

With reversed phase plates, Whatman provides a choice of two carbon chain lengths—C-18 and C-2—and Multi-K dual phase layers. The chain length of the hydrocarbon functional groups primarily affects retention and the ability to accommodate the water content of solvent systems. The shorter carbon chain is used for increased polarity and affinity for aqueous solutions while the longer chains give greater retention and hydrophobicity. KC-18 plates are also available with a preadsorbent zone which facilitates sample application.

Features and Benefits

- Proven performance, quality and reliability for reproducible results
- Compatible with highly aqueous solvent systems, for greater flexibility
- Ready correlation with HPLC columns provides convenient starting point for methods development

Multi-K Dual Phase for Demanding Samples

Multi-K combines silica gel and reversed phase C-18 layers side by side on the same plate. They can be successfully used for the separation of mixed polarity samples by two-dimensional chromatography utilizing two different separation mechanisms. Additionally they offer single step sample clean-up.

Ordering Information

| Catalog Number | Type | Product Code | Plate Size (cm) | Linear-K Preadsorbent | Fluorescent Indicator | Quantity/Pack |
|---|---|--------------|-----------------|-----------------------|-----------------------|---------------|
| Reversed Phase TLC Plates (200 µm Layer) | | | | | | |
| 4803-110 | C-18 microslide | MKC-18F | 1" x 3" | — | Yes | 100 |
| 4801-600 | C-18 | KC-18 | 5 x 20 | — | — | 75 |
| 4803-600 | C-18 | KC-18F | 5 x 20 | — | Yes | 75 |
| 4801-425 | C-18 | KC-18 | 10 x 10 | — | — | 25 |
| 4803-425 | C-18 | KC-18F | 10 x 10 | — | Yes | 25 |
| 4801-800 | C-18 | KC-18 | 20 x 20 | — | — | 25 |
| 4803-800 | C-18 | KC-18F | 20 x 20 | — | Yes | 25 |
| 4800-600 | C-18 with Linear-K | LKC-18 | 5 x 20 | Yes | — | 75 |
| 4800-620 | C-18 with Linear-K | LKC-18F | 5 x 20 | Yes | Yes | 75 |
| 4800-800 | C-18 with Linear-K | LKC-18 | 20 x 20 | Yes | — | 25 |
| 4800-820 | C-18 with Linear-K | LKC-18F | 20 x 20 | Yes | Yes | 25 |
| 4800-840 | C-18 with Linear-K* (preparative) | PLKC-18F | 20 x 20 | Yes | Yes | 20 |
| 4809-800 | C-2 | KC-2 | 20 x 20 | — | — | 25 |
| 4809-820 | C-2 | KC-2F | 20 x 20 | — | Yes | 25 |
| Reversed Phase TLC Plates (250 µm Layer) | | | | | | |
| 4804-820 | Multi-K C-S5 dual phase (3 cm C-18 strip on silica gel layer) | — | 20 x 20 | — | Yes | 25 |

* 1000 µm

Partisil High Performance TLC Plates

Whatman HPTLC plates can be used for your most sensitive separations. These plates consist of a 4.5 µm particle size silica gel plus an inert binder in a uniform 200 µm layer on glass. They exhibit product characteristics typical of Whatman silica gel media: narrow particle size distribution, homogeneity and overall uniformity. The results are performance and reproducibility, giving you the ultimate in TLC resolution and sensitivity.

Features and Benefits

- Dense, uniform layer provides stable baseline in densitometry
- Short development distance and times
- Low band diffusion provides very compact sample bands and increased detection sensitivity
- Microsamples (nano and picograms) can be analyzed
- Reproducibility inherent in Whatman chromatography products

Whatman HPTLC plates are referenced in a patented procedure for fetal lung maturity testing. Patent holders: Juan G. Alvarez and Jack Ludmir.

Ordering Information

| Catalog Number | Product Code | Plate Size (cm) | Linear-K | Channeled Indicator | Fluorescent | Quantity/Pack |
|---------------------|--------------|-----------------|----------|---------------------|-------------|---------------|
| 200 µm Layer | | | | | | |
| 4807-050 | HP-K | 5 x 5 | — | — | — | 100 |
| 4802-050 | HP-KF | 5 x 5 | — | — | Yes | 100 |
| 4807-400 | HP-K | 10 x 10 | — | — | — | 100 |
| 4802-400 | HP-KF | 10 x 10 | — | — | Yes | 100 |
| 4807-425 | HP-K | 10 x 10 | — | — | — | 25 |
| 4802-425 | HP-KF | 10 x 10 | — | — | Yes | 25 |
| 4807-700 | HP-K | 10 x 20 | — | — | — | 50 |
| 4802-700 | HP-KF | 10 x 20 | — | — | Yes | 50 |
| 4805-410 | LHP-K | 10 x 10 | Yes | — | Yes | 100 |
| 4806-410 | LHP-KF | 10 x 10 | Yes | — | Yes | 100 |
| 4805-420 | LHP-K | 10 x 10 | Yes | — | — | 25 |
| 4806-420 | LHP-KF | 10 x 10 | Yes | — | Yes | 25 |
| 4805-421 | LHP-KD | 10 x 10 | Yes | 9 channels | — | 25 |
| 4806-421 | LHP-KDF | 10 x 10 | Yes | 9 channels | Yes | 25 |
| 4805-710 | LHP-K | 20 x 10 | Yes | — | — | 50 |
| 4806-710 | LHP-KF | 20 x 10 | Yes | — | Yes | 50 |
| 4805-711 | LHP-KD | 20 x 10 | Yes | 19 channels | — | 50 |
| 4806-711 | LHP-KDF | 20 x 10 | Yes | 19 channels | Yes | 50 |