



## WORLD-NOVELTY

### PAH-INDICATOR STRIPS

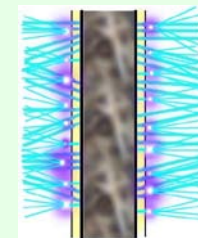
*Highly-sensitive and selective evaluation of Polycyclic Aromatic Hydrocarbons (PAHs)*



INDICATOR STRIPS make it possible, for the first time, to easily, rapidly and reliably detect PAHs in environmental samples in the laboratory or in the field. In the laboratory, they also enable the assessment of optimal concentration levels before doing an exacting, expensive, quantitative PAH determination. This can reduce the need for expensive apparatusive analyses by up to 75% and thus reduce costs.

### DESCRIPTION

PAH indicator strips are composed of three layers on a linear  $\pi$ -conjugated substrate with the PAH-molecules ordered perpendicularly on the surface. This confers a higher fluorescence and at the same time an increased sensitivity. An optical additive improves sensitivity making the strips also suitable for air- and wastewater-samples.



These indicators are offered in three different types:

#### TYPE N1

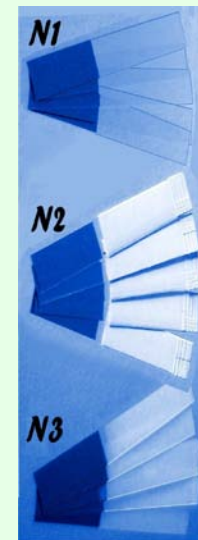
Especially for use for clear or filtered solutions of highly PAH contaminated samples such as coal tar, pitch, reclaimed asphalt, Carbol-, and Antracen-oil. Because of its lower sensitivity, the type N1 is not recommended for general use.

#### TYPE N2

Suitable for screening tests of samples suspected of high concentration of PAHs in the petrochemical industry, e.g., bitumen, samples with abnormally high concentrations of Asphaltene, used motor oil, etc.

#### TYPE N3

The most sensitive and popular type. Recommended for general use, especially for clear or filtered sample solutions of possibly PAH-contaminated samples such as soil, solid waste, bitumen, reclaimed asphalt, pitch, asphalt contaminated samples, go/no-go sorting and semi-quantitative classification of a bulk-material, as for wastewater- and airsamples.



### APPLICATION

PAH-Indicator-Strips provide a very powerful and particularly cost-effective and time-saving technique for the screening of groups of different sample concentrations. The PAH-Indicator strips are generally applicable for all environmental samples using the following testing procedure:



## TESTING PROCEDURE

- Prepare a 10% sample (approximately 1,5 g substance) in n-Hexane.
- For less contaminated samples, such as soil, enlarge the quantities up to 4-5 g (30%).
- Dip approx. 3 cm of the test strip (not the metallized part) for 15 seconds into the vial containing the sample-solution.
- If necessary, quickly rinse the test strip (approximately 5 seconds) in pure n-Hexane to eliminate disturbing matrix-deposits and let it dry for approximately 10 seconds.
- The hexane-extract of dust- and wastewater-samples can be treated correspondingly. Please contact us if necessary.

### 1. Visual interpretation

Interpretation is performed by utilizing the illustrated Viewing Tools (BB=Black Box):

- The small battery operating UV-BB-1 darkroom-UV-lamp is especially suitable for field work. The two included comparison strips (left 0 and right 100 mg/kg PAH) serve to visually assess the concentration.
- The open viewing cabinet UV-BB-2 is intended for lab use, with a 4W-UV-tube and a 220/50Hz AC power source. It can also be used in daylight (shade) with the possibility of simultaneous evaluation of up to 5 strips including 3 comparison strips (supplied).



UV-BB-1



UV-BB-2



### 2. Digital evaluation

Utilize the UV-BB-D darkroom UV-photometer (4W-UV-tube, 220V) equipped with a lux-meter for digital display of the PAH concentration (mg/kg) on the doped indicator strips.



### 3. Spectrometric detection using the UV-BB-S

The UV-spectrometric detection device **UV-BB-S** adds quantitative and qualitative attributes to the PAH-Indicator strips. The program displays total concentration for the sixteen US-EPA PAHs and the names of the most important.

The miniature-sized spectrometer covers the 200-850 nm range of fluorescence spectra of compounds adsorbed on the PAH-Indicator strips.

The **UV-BB-S** miniature-spectrometric tool is connected to a PC notebook or handheld using an USB-cable (illustrated). The system sensitivity permits indication of concentrations below 0.1 mg/kg of EPA-PAH adsorbed on the Indicator strips.



1. UV-illuminating device
2. Fibre-optic
3. Miniature spectrometer
4. PC/Notebook/Palm



### AUXILIARY PRODUCTS

#### Pit/Coal Tar Solution

Available in different dilutions for fluorescence comparison with different given US-EPA PAH-concentrations.



*Notice: Like all the rapid-tests, the achieved results have to be confirmed by a quantitative, exacting, analytical method (GC, GC-MS, HPLC), if the economical importance demands it. The material used for the strips is non-toxic and harmless to the environment.*

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