

Product Information

Anisaldehyde solution

Catalog Number **SRA1**
Store at Room Temperature

Product Description

Anisaldehyde solution is a universal reagent for detecting and identifying a wide range of natural and synthetic products,¹ including:

ribo and deoxyribonucleoside compounds²
essential oil components or terpenes^{2,5,6}
prenols and dolichols²
antioxidants³
carbohydrates^{5,6,8}
glycosides^{5,6,9}
antibodies^{11,12}
steroids^{2,4,5,6}
prostaglandins⁷
phenols^{5,6}
sapogenins¹⁰
mycotoxins¹³

Since the color produced with various compounds varies, "fingerprint" identity is often possible. Color changes observed during the heating of the TLC plate often give additional information about the structure or identity of a compound. Detection limits are usually in the range of 50–100 ng, but limits and colors vary with the type of compound, temperature, and duration of heating. After color development, the colors often fade. Therefore, it is useful to image the plate and indicate the colors of individual spots. In addition, this reagent works well as a spot test in column chromatography to identify fractions containing products of interest.²

Mechanisms of the reactions have not been elucidated. It appears various non-quantitative reactions occur simultaneously followed by condensation with the aldehyde.⁷ Functional groups that form colored products include double bonds and cyclic ethers.² Because some functional groups react more readily than others, often a sequence of colors appears during the heating of the plate. For instance, the initial heating of dimethoxytrityl (DMT) nucleosides first indicates orange from the DMT group, but with stronger heating turns red brown to detect the nucleoside base.²

Components

The kit is sufficient to prepare 100 ml of spray reagent.

- *p*-Anisaldehyde 5 gm
(Catalog Number A88107)
- Acid Alcohol 100 ml
(Catalog Number A3957)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The spray reagent is prepared by adding 0.5 ml of *p*-anisaldehyde to 100 ml of the Acid Alcohol.

Note: Smaller volumes of the spray reagent may be prepared as needed. To prepare 5 ml of the spray reagent, add 25 µl of *p*-anisaldehyde to 5 ml of the Acid Alcohol.

Storage/Stability

The kit components remain active at room temperature for 1–2 years.

The prepared spray reagent remains active for at least several months in the freezer, several weeks in the refrigerator, or 1–2 days at room temperature.

Procedures

TLC Spray

The developed TLC plate is first dried in a stream of warm air and then sprayed evenly with the spray reagent until the silica layer begins to become transparent. Approximately 20 ml is required for a 20 × 20 cm plate. The plate is heated to 90–100 °C for 1–15 minutes. Various colored spots appear on an almost colorless background. The spots are often fluorescent under long wavelength (365 nm) UV light. Fluorescent spots are observed with prostaglandins and salicylsalicin.¹

Note: The reagent works well with silica gel or C18 reversed phased plates on glass or polyester backing. Detection on alumina is usually unsuccessful.²

Spot Test – for Nonpolar Eluents

A sheet of silica gel on polyester is sprayed with the reagent and dried with a stream of warm air. The sheet is carefully cut into 0.5 × 2 inch strips or any convenient size, and stored in an airtight container. These remain active for several weeks at room temperature. Several microliters of sample are applied and heated to ~100 °C on a hot plate or with a heat gun. If the fraction contains detectable compound(s), an appropriately colored spot will be visible on the strip. Fractions may then be assayed by TLC or other analytical methods. A spot with a colored ring and a white center indicates the eluent displaced the reagent and the Spot Test for Polar Eluents method must be used.

Spot Test – for Polar Eluents

A clean sheet of silica gel on polyester is cut into small strips as above. Several microliters of sample are applied to a strip. The strip is then sprayed with the reagent and heated to ~100 °C on a hot plate or with a heat gun. Again, detectable compound(s) will be visible on the test strip.

References

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