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## Product Information

### 3-AMINOPROPYLTRIETHOXYSILANE

Product Number **A3648**

Store at Room Temperature

CAS #: 919-30-2

Synonyms: 3-Triethoxysilylpropylamine; APES; TESP

#### Product Description

Appearance: Clear colorless to very faint yellow liquid

Molecular formula:  $C_9H_{23}NO_3Si$

Formula weight: 221.4

Specific gravity: 0.942 (at 20°C relative to water at 4°C)<sup>1</sup>

Boiling point: 217°C at 760 torr (101 kPa)<sup>1,2</sup>

Vapor Pressure: <10 mm at 100°C<sup>1</sup>

Refractive index: 1.4225 at 20°C<sup>2</sup>

Solutions of this product have been used to treat glass. The silane reacts with the -OH group of glass, covalently linking aminoalkyl groups to the glass. The resultant surface acts "sticky", promoting the binding of tissue to the glass.

A number of different products have been used to increase the adherence of tissue sections or cells to glass slides. These include albumin, gelatin, poly-L-lysine, and in recent years, aminoalkylsilanes, reported to be preferable to poly-L-lysine.<sup>3,4</sup> APES has been used in coupling water-insoluble enzymes to porous glass beads<sup>5</sup>, in preparing an affinity medium using porous glass beads<sup>6</sup> and in treating silica gel to produce new column packings for liquid-solid chromatography.<sup>7</sup>

The use of this product to attach materials to glass for in situ hybridization has been reported.<sup>2</sup>

#### Preparation Instructions

3-aminopropyltriethoxysilane (APES) is soluble in toluene<sup>5</sup> and acetone.<sup>3</sup>

APES is soluble in ethanol at 100 mg/mL, soluble in chloroform and soluble in acetone (see below). Stability in solvents with hydroxyl groups (alcohols, water) is very poor, and only limited in acetone.<sup>3</sup>

#### Storage/Stability

If stored as recommended this product will have a shelf life of two years.

#### Procedure<sup>3,8</sup>

Slides should be "soaked" in methanol or acetone for about two minutes, then air-dried. This assures that the slides are free of any trace of oil or water.

1. Mix 10 mL of the silane with 500 mL acetone. (This makes a 2% solution, which is stable for 8 hours, after which the color will change.)
2. Dip clean dry slides in silane solution for 2 minutes.
3. Wash the slides in 2 changes of distilled water.
4. Dry completely in oven and cool. Autoclaving, if desired, will not harm the coating.
5. Store treated slides in boxes at room temperature.

#### Notes:

- A. Do not touch coated surfaces with bare fingers - because fingerprints will remain on the coating.
- B. Separate tissue sections with uncoated slides, since the tissue will adhere permanently to a coated slide at any point it touches.

#### References

1. Sigma Material Safety Data Sheet (or supplier data).
2. *Lange's Handbook of Chemistry*, 13th Ed., ed. J.A. Dean (McGraw-Hill) p. 7-121.
3. Maddox, P.H. and Jenkins, D., *J. Clin. Pathol.*, 40, 1256-1260 (1987).
4. Richardson, L. and Dym, M., *Bio/Techniques*, 17, 847 (1994).
5. Weetal, H.H., *Biochim. Biophys. Acta*, 212, 1-7 (1970).

6. Jervis, J. and Pettit, N.M., *J. Chromatography*, 97, 33 (1974).
7. Vivilecchia, R.V. et al., *J. Chromatography*, 99, 407-424 (1974).
8. Daugharty, H. et al, *J. Clin. Lab. Analysis*, 4, 283-288 (1990).

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