

Oos-deviation assignment detecting the presence of diethylene glycol in toothpast...

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Using Thin Layer Chromatography to Detect the Presence of Diethylene Glycol in Toothpaste Thin-layer chromatography is most commendable method when detecting presence of diethylene glycol (DEG) in toothpaste. Consequently, the thin layer chromatography acquires the role of the screening procedure during the process. The target for diethylene glycol is 0.01% as pointed out by Mr. Sparkle Super-Whitening Toothpaste. The SOP, QC 141. 10 vividly describes the procedure associated with this process (Ahuja & Scypinski, 2011).

The SOP states that there are three main solution required during this experiment: A mixture in the ratio of 85: 10: 5 of Toluene, Developing Solvent Acetone and 5M of Ammonium Hydroxide. Additionally, for detection purposes, you will require 6.7 mg/mL of developing the solvent of Potassium Permanganate Staining Solution.

Procedure of detecting DEG in toothpaste

Centrifuge tube of 50mL polypropylene to sample a preparation of toothpaste with a weight of around 1.0g. To disperse the toothpaste, add 5mL of water and vortex for around 1 minute. Next is the addition of 5mL of acetonitrile to the mixture followed by vortex about 1 minute. Prior to collecting around 1mL of the supernatant, centrifuge the mixture until you obtain a crystal-clear solution. Make use of the 1.5mL micro test tubes by transferring 500L of the supernatant to it then add 1.0mL of methanol. Dilute 0.2mL of DEG to 0.5mL using methanol in order to achieve the standard reference preparation (Ahuja & Scypinski, 2011). Spread the 5L diluted test solution and the reference standard solution on a sheet and leave it to dry. To get commendable results, use chromatographic procedure

spot.

The next step is to put the sheet in a developing tank that has been prepared by balancing 100mL of developing a solvent for about 30minutes. Remove the solvent and permit it to dry in the air immediately the developing solution reaches the stopping line. When you submerge the dried sheet in potassium permanganate solution and then remove the sheet after around 5 seconds, yellows spots will start to appear on the background as the sheet begins to dry. The last spot to appear is DEG.

The reading of DEG varies from 0. 40%, 0. 41% and 0. 44% for OOS results and between 0. 005% and 0. 015% for OOS deviation. According Ahuja and Scypinski (2011), after the examination of the OOS results, the procedures on the discovery and occurrences of the OOS are recorded.

Reference

Ahuja, S., & Scypinski, S. (2011). Handbook of modern pharmaceutical analysis. Amsterdam: Academic Press/Elsevier.