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Risk Assessment of E-Liquid Components and Their Reactions to Heating

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Abstract: Electronic cigarette (e-cig) is a new phenomenon in the world, which is considered as an alternative for overcoming dependency on cigarette but is also criticized for its safety.The link between the triggering factor and e-cig safety mechanism and risk is not yet clear and so far there has been no theoretical basis that verifies e-cig as a less-harmful substitute to cigarette. A fundamental study needs to be conducted, covering a toxicological analysis of e-liquid components and assessment of their degradation potential due to heating.
A study on 9samples of e-liquid available in Bandung shows that nearly all e-liquid manufacturers list substances categorized as food grade as the ingredients (USP propylene glycol, USP glycerin, artificial/natural flavoring/sweeteners, distilled water).However, the result of HPLC reversed-phase chromatography shows that the substance profiles of 7out of 9e-liquid samples underwent product degradation due to e-cig device heating,in term of increase and decrease in substance concentration.
Keywords : Risk Assessment, E-Liquid, Heating.

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